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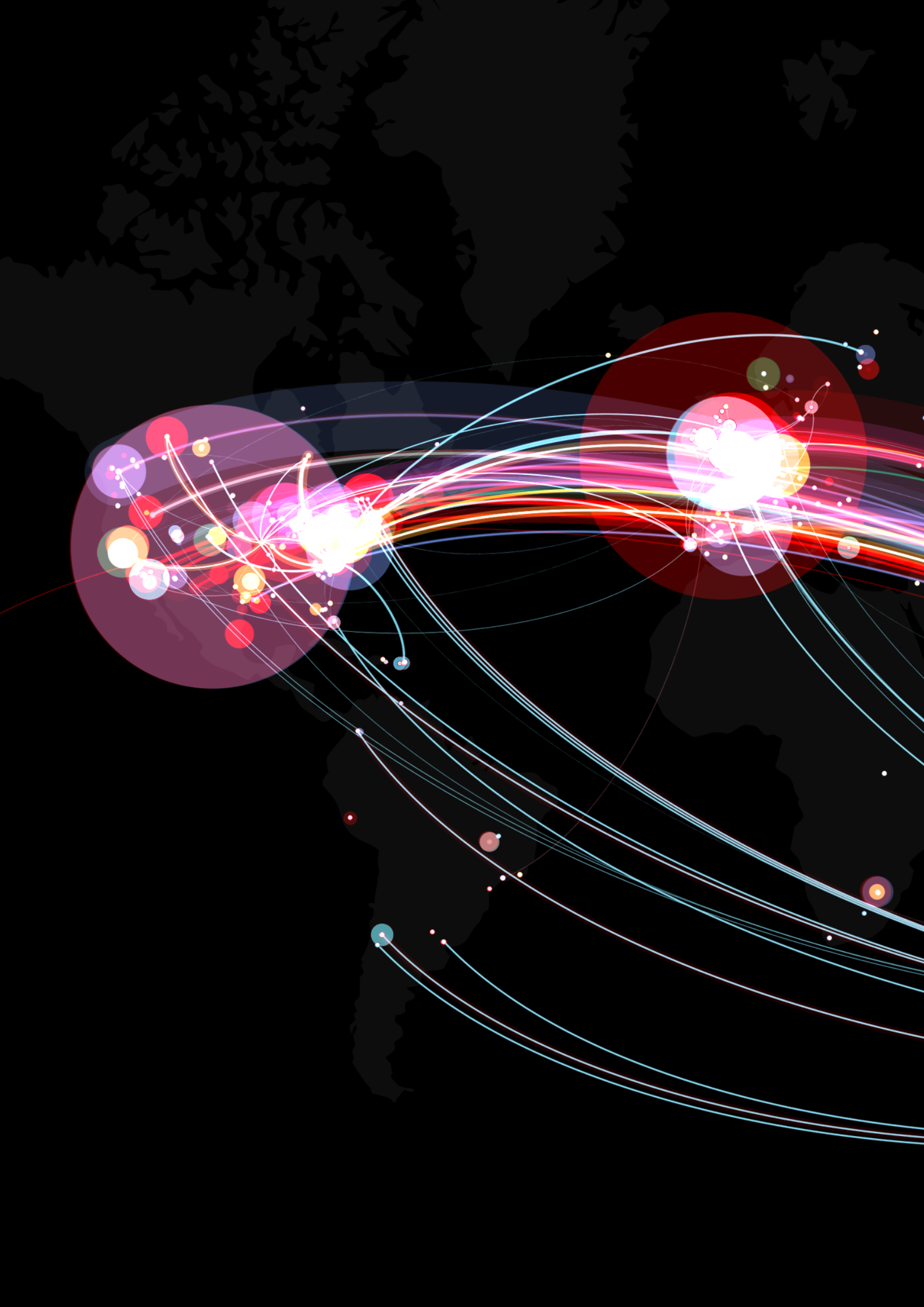
The University of Sydney
Faculty of Education and Social Work

THE RHIZOME UNDERNEATH

Promoting the disruption of established practice and the innovation of online teaching, by improving the design of globally disseminated online professional development artefacts

Simon McIntyre
July 2015

A thesis submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy in Education (XB000)



Faculty of Education and Social Work

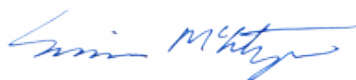
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- i. this thesis comprises only my original work towards the Doctor of Philosophy in Education degree (XB000)
- ii. due acknowledgement has been made in the text to all other material used
- iii. the thesis does not exceed the word length for this degree
- iv. no part of this work has been used for the award of another degree
- v. this thesis meets the University of Sydney's *Human Research Ethics Committee (HREC) requirements for the conduct of research.*

Signature:



Name: Simon McIntyre

Date: 27.07.2015

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Finally, I would like to note that some sections of this thesis have been published as conference papers, journal articles or reports as the research progressed. Chapter 2 is an updated and extended version of McIntyre (2014). Earlier versions of some of the passages in Chapters 1 and 3 were used in McIntyre (2012), and some elements of McIntyre (2011) contributed to the description of the case study in Chapter 3.

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Abstract

This thesis exemplifies, through the exploration of a specific case study, how the design of an online professional development resource is capable of penetrating, disrupting, and fostering innovation in online teaching practices within a wide range of existing professional education networks.

Following its release in 2009, the 'Learning to Teach Online' (LTTO) project [bit.ly/d18ac5] spread rapidly around the world via conduits such as Twitter, Facebook, blogs, institutional links and word of mouth – far exceeding initial expectations of its use. The resource was designed for the higher education context in Australia, yet data collected about its movement throughout digital networks revealed that LTTO had spread extensively throughout K-12, vocational, higher education and private consultancies across 146 countries and territories in a relatively short time.

This thesis investigates how the design of LTTO facilitated its discovery, dissemination and integration in a range of educational contexts. The aims of this research are to determine how this one resource increased the potential of effectively sharing ideas, advancing scholarship, and positively affecting practice across a broad range of contexts and disciplines around the world. It also aims to demonstrate how an understanding of the above can improve the design of future online professional development resources.

The unexpected spread of LTTO around the world prompted an examination of a large volume of data collected from Web 2.0 activity surrounding the project. Using data visualisation techniques, patterns and hidden relationships between individuals sharing and using the resources were revealed, that provided insight into previously invisible relationships between individuals within vastly different established professional networks all over the world. The concept of the rhizome is at the core of this thesis, inspired by the observation of the growing patterns of connection between seemingly disparate educational communities globally, in a manner that was neither precisely controlled nor predictable. The philosophical work '*A Thousand Plateaus*' (Deleuze & Guattari, 1987), particularly with its idea of the rhizome, provides a framework with which to unify and contextualise the complexities of these observations throughout the research.

The key outcomes for the study include a detailed analysis of the design of an online professional development resource that was effective across a range of disciplines and education sectors; the determination of an effective method of researching the spread and use of similar initiatives; and observations and strategies that can help others to improve the design process for future online professional development resources. For any who may undertake further research on my findings, it is hoped that the observations from my work will provide an insight into how to improve the effectiveness of research methods investigating the propagation of knowledge via online networks. For those designing similar online resources as LTTO, this research will provide insight into how to apply specific design strategies to improve wider dissemination of digital resources, so that they can effectively use rhizomic

networks to achieve global dissemination; help individual users in a range of teaching situations, and penetrate existing networks to increase the potential for innovation in the area of online learning and teaching to improve practice.

CHAPTER 1.

INTRODUCTION: FRAMING THE THESIS AS THE STORY OF ‘LEARNING TO TEACH ONLINE’

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Synopsis

This thesis examines one example of how the considered design of digital artefacts can facilitate increased sharing of knowledge within and between different professional cultures, resulting in the potential of disruption and evolution of established ways of thinking. More specifically, it explores the patterns of sharing and use of an open, online professional development resource for teachers named Learning to Teach Online (LTTO). Using the method of narrative inquiry to trace the unexpected events that unfolded during the research, this thesis is constructed from interweaving and analysing a series of different narratives to reveal a larger central story. Within this chapter I will contextualise the overarching narrative and central components of the thesis. I will explain how my own story is also entangled within this research, and how my background in design greatly influenced the range of methodological approaches I adopted – including the use of visualisation techniques – to reveal previously hidden patterns and relationships in the data. This chapter will however, primarily contextualise the approach taken in this thesis by briefly introducing the concept of the rhizome. This was to emerge as the central theoretical idea that connected all aspects of the research and analysis – enabling a series of seemingly diffracted complex ideas and narratives to converge, iteratively revealing new insights into the study as it progressed.

1.1 Overview of the central case study – the Learning to Teach Online project

I am an academic involved in online education, working in UNSW Australia | Art & Design, in Sydney Australia. Prior to 2014, the faculty was named the College of Fine Arts (COFA), and I managed an academic unit called COFA Online, headed by Dr Rick Bennett. The unit focused upon the development of practical online pedagogies relevant to creative practices, researching effective online teaching methods, and applying this research in its own initiatives and those of other academic staff. A balanced relationship between pedagogy and technology emerged as being central to the unit's core philosophy, which was always a primary consideration of any online learning initiatives undertaken.

Within this role, I led other academics in the development of online courses, and was Program Director for a fully online postgraduate degree. This position enabled me to experience first hand the types of problems and anxieties academics can suffer when faced with the prospect of moving into unfamiliar online teaching practices, and the challenges institutions face when trying to facilitate this change. To support such initiatives undertaken in the faculty, I led the design and implementation of a series of pedagogically focused, training programs called 'COFA Online Fellowships', to assist lecturers in developing and teaching fully online and blended courses (face-to-face, supported by online components).

In late 2008, I led COFA Online's winning application for a national Australian Learning and Teaching Council (ALTC) grant (now known as the Office of Learning and Teaching, or OLT [olt.gov.au]). The project ran between 2009 and 2011. It aimed to extend the pedagogic support developed at COFA Online beyond the confines of the faculty, by developing a suite of online professional development resources. The result was the Learning to Teach Online (LTTO) project [bit.ly/d18ac5]. LTTO is a free, Creative Commons licenced, Open Educational Resource (OER) comprising a number of videos and supporting PDF documents. It initially also comprised an online forum intended to foster a supportive community of peers. LTTO was designed as a modular, fully online, flexible professional development resource for lecturers within the Australian higher education system, who needed support in establishing or further developing their online teaching skills. The intent was to improve perception and adoption of effective online teaching practices within Australian higher education, by offering academics with little or no experience or confidence with online teaching, experiential advice about effective pedagogies, challenges and rewards from a wide range of colleagues in different disciplines.

The release of LTTO on the open web resulted in unexpectedly high, and sustained levels of international use and peer dissemination. The spread of the resource around the world via Twitter, Facebook, blogs, institutional links and word of mouth far exceeded initial expectations of a relatively moderate take up within Australia. While the use of social media to promote the project was always considered from the outset, the extent of the spread, and the subsequent penetration of the resources into existing educational and professional development programs around the world was not expected or, at the time, fully understood. It was the fact that a seemingly similar, positive, perception of the project was emerging

from a range of different stories around the world, that was the deciding factor for LTTO becoming the subject of this thesis.

The role of collaborators in the development of LTTO

I was the project leader for LTTO, responsible for initiating the project, and its subsequent conceptual development. I led the design and development of its structure, content, dissemination strategy, and graphic identity. I supervised a programmer to help me implement the technical aspects of the design. UNSW Australia's media production unit UNSW TV was hired to film the video footage used in the project, and undertook a share of the editing work. Myself and Co-Project Leader Karin Watson, collaboratively managed the project, made editorial decisions about the content, undertook post-production work on the content and authored the written components. Other team members and their contributions are listed on the 'About the Project' page on the LTTO website [bit.ly/ZbQfmK].

It is important to state at the outset that I designed the research instruments that were used to collect the data reported in this thesis. I also was the only person to collate, visualise and analyse these data for any purpose related to the LTTO project, reporting to the funding body, or this thesis. It was decided from the outset that I would have sole responsibility for these processes, in order to avoid confusion over intellectual ownership of any analyses, theories or findings that emerged. As explained in more detail in Chapter 3, a large volume of data about the use and spread of LTTO was collected before the commencement of this thesis as part of the formative evaluation of the project's impact. These data were used as part of the final project report for the funding body (McIntyre, 2011), which also informed some of Chapter 3. However, the analysis of these data was undertaken specifically for this thesis. All other research discussed in these pages was also undertaken by me specifically for this thesis.

As the leader of LTTO, there was of course a risk of being biased in any research I undertook on the project. However, my perception of the project, based upon my insight into all aspects of its conception, design and implementation, was only one narrative in the larger story. Throughout this thesis, I have attempted to balance my own perspective against several sets of quantitative and qualitative data that define other interrelated stories within the account of this research.

1.2 Unexpected global engagement

LTTO was designed for an Australian higher education audience, yet it emerged that it was also widely used in a range of sectors around the world including K-12, higher, secondary and private education, and vocational training. In Chapter 4, I describe the range of quantitative and qualitative data about the use of the resource, gathered from a variety of sources between October 29, 2009 (the first public announcement about the project, post funding) and October 23, 2012 (approximately 12 months after the submission of the final project report to the funding body). The list below summarises the

unexpected global recognition and use of LTTO during this three-year period:

- **172,433 unique resource views from 146 countries and territories** from the Learning to Teach Online website, YouTube and iTunes U channels.
- **82 unsolicited blog posts and reviews** of the project by educators from **23 different countries**.
- **153 links to the project** on institutional websites from **19 different countries** as part of their learning and teaching support for staff.
- **133 instances of resources used in education or professional development programs** in higher education, K-12, vocational and private education sectors from **23 different countries**.
- **581 people tweeted** about the project from **34 different countries**, some multiple times.
- Two major **national and international awards** for innovation and excellence (in 2015, after the data collection period, the project team also received four more awards for their work on LTTO from the Office of Learning and Teaching (OLT) and Wharton QS Stars Reimagine Education Awards):
 - **2011 Ascilite Innovation and Excellence Award** [bit.ly/14ANLiu]. Exemplary and research informed use of technologies for teaching and learning in tertiary education - Learning to Teach Online (McIntyre & Watson).
 - **2012 MERLOT Award for Exemplary Online Learning Resources – MERLOT Classics (USA)** [bit.ly/QwH8EO]. Faculty Development Editorial Board award - Learning to Teach Online (McIntyre & Watson).
- **Ranked world number one educational iTunes U collection** between 29 May and 5 June 2011, and was in the iTunes U Top 10 'What's Hot' Collection for several months during this time.
- **Six media articles** written about the project.
- **Extremely positive feedback** via the open online questionnaire, emails, online and personal communications (unsolicited and solicited).

Along with the positive outcomes evidenced by the data, there was one aspect of the project that was not successful:

- **Failure of the LTTO online community.** A very low number of educators engaged in the online forum environment established to try to foster a digitally facilitated community of practice surrounding the project. As a result the community failed to gain any momentum. The insights gained from this failure proved to be of particular significance in shaping my subsequent research, as discussed in Chapter 4.

The list above (the failure of the online community notwithstanding) is indicative of the acceptance and perceived value of LTTO from fellow educators, the spread of the project around the world via digital and non-digital networks, and reappropriation or reuse of the artefacts in different professional development

and educational contexts. At this juncture, I should note that the design of the LTTO artefacts, and the dissemination strategy employed, did perform as was intended overall. However, their performance was such that the scale, duration and diversity of the engagement from educators with the resource was more significant than I or the project team had anticipated. This, juxtaposed with the complete failure of the online community aspect of the project, raised significant questions about why the LTTO artefacts were being used to this very gratifying extent, and how they were being used.

In fact, the use of LTTO is continuing to grow. At the time of publication (August 2015)¹, the unique views for the artefacts surpassed 365,000 (compared to 172,433 during the time frame of this study). This indicates the use of LTTO in the global educational community has actually increased since I concluded my initial data collection, with over 192,000 unique views within the 29 months since the cessation of data collection (an average of approximately 6,620 unique views per month), compared with around 172,000 views over the first 36 months of the project (an average of approximately 4,777 unique views per month). It is worthy of note, that neither UNSW Australia nor the project team has undertaken any promotion of the original LTTO project since its official completion in 2011 when the final project report was submitted.

1.3 Aims of the research

As with many exploratory studies, the aims of the research gained sharper definition as the work unfolded. They can be stated here in the following terms – to investigate:

- how the design of LTTO facilitated its discovery, dissemination and integration in a range of educational contexts;
- the potential of this one resource to effectively share ideas, advance scholarship, and positively affect practice across a broad range of contexts and disciplines; and
- how what was learned from the above can inform the design of online professional development resources so that they can effectively use rhizomic networks to:
 - achieve global dissemination;
 - help individual users in a range of teaching situations; and
 - penetrate existing networks to increase the potential for innovation in established online learning and teaching practices.

¹ This figure does not include additional iTunes U or YouTube views post October 2012, as data aggregation between these sources ceased at this time.

1.4 An emergent narrative

A note about the structure of this thesis

One of the problems that I encountered with choosing how to present this thesis was that I tracked the development of LTTO for an extended period of time, and reflected upon its design and outcomes for several years as the research progressed. This research has not followed a linear path. Rather, as discoveries unfolded organically, new and unexpected questions arose. These new questions seemed at first to be pulling the study in many different directions. It was only when the entirety of the quantitative data were explored and visualised holistically, that emergent connections could be clearly seen, and their significance and relevance revealed. This is also the way my research has evolved; gradually revisited and revised to better understand the LTTO phenomenon, as progressive discoveries from my work revealed new insights and unexpected connections. There is an inherent difficulty in presenting the design and research processes, and the results of disparate analyses of outcomes cohesively, as they are all in some way inter-related, and also dependent upon a certain chronology of events, "... a fundamental challenge in presenting design narratives lies in uncovering these events so that the reader understands their complexity but doing so in a way that lends itself global relevance while at the same time meaningfully capturing the dynamic unfolding of the phenomena" (Barab & Squire, 2004, p. 9). It was important to put forward a simple path through this process for readers of this research. I therefore decided to present the thesis as an exploratory narrative, telling my own story of LTTO, supplemented with the stories of others involved. To make sense of the activity surrounding LTTO, I follow some obvious exploratory pathways, and at times determine my own methods to uncover less apparent relationships within the data I examine.

The nature of the LTTO project (and the resultant exploratory research), does not lend itself to proving or disproving one specific hypothesis — although different aspects of the LTTO project offered several possibilities for constructing one. The story that was gradually being revealed through examination of the data needed freer exploration — following emerging patterns of information — than could be afforded by research approaches designed to test just one theory or proposition. When attempting to seek cohesive meaning and untangle the many narratives that I was discovering within the larger LTTO story, I was guided by Punch's viewpoint on the use of hypotheses, "The hypothesis has a central role in the testing of theories, and it should not be divorced from that role. This means that there is no point in putting forward hypotheses for testing unless we can also put forward the theory behind them... There is no point in simply having hypotheses, for their own sake" (Punch, 2005, p. 39). Since this thesis is in essence a narrative of discovery, I did not have an existing singular theory before I began, that I could test against the occurrences surrounding LTTO. Rather, this research is an evolving examination of the interconnection between several different occurrences and related theories, at different times throughout the narrative. It is very much an iterative process, much like that adopted in design practice.

Therefore, I believed an approach based upon that of narrative inquiry (Carter, 1993; Chase, 2007; Connelly & Clandinin, 1990; Savin-Baden & Niekirk, 2007; Webster & Mertova, 2007) was more appropriate given the nature of this study. Theory surrounding this practice acknowledges and values the social and experiential aspects of the humanities and social sciences. Narrative inquiry is a process widely used in human-centred educational research, in which, "...stories are collected as a means of understanding experience as lived and told, through both research and literature" (Savin-Baden & Niekirk, 2007, p. 459). Connelly and Clandinin describe narrative inquiry in broad terms as a qualitative, empirically based, "...study of the ways humans experience the world" (Connelly & Clandinin, 1990, p. 2). This approach relies upon the premise that human society, and our understanding of the world, is built upon a complex series of individual and communal stories. Everything we experience is in the form of a narrative, including the way we learn and construct new knowledge. Therefore examining stories of human experience can provide valuable insights that can benefit the research agenda.

The belief that the researcher should remain distant and uninvolved – as held in many positivist or objectivist methodologies – is not applicable in narrative inquiry; as the researcher's own experiences and connections to what is being studied are seen as being an essential component in the analysis and construction of a shared narrative², "... it is difficult to tell if a particular story is a reflection of the facts in the case or whether it has been shaped by the storyteller. In my opinion, the dilemma outlined here could and should be solved by including both the researcher's and the research subject's points of view in the research report. Perhaps in this way, the multivoicedness of the narrative would appear more clearly than it would if the researcher and the research subject have a joint understanding of the narratives that occur during the inquiry process" (Moen, 2008, p. 62). In other words, narrative inquiry enables a closer relationship between research and practice (and researcher and practitioner). It does not require the researcher to stay distant and uninvolved in the stories that are being investigated, and acknowledges that construction of knowledge within individual circumstances is also influenced by the larger social, professional and cultural contexts within which the stories take part. This is an aspect of narrative inquiry that I feel is very relevant to my own situation as both the principal designer of LTTO and the researcher in this thesis. My own story, as someone interested in evaluating LTTO to determine what about it increased its wide dissemination, is intertwined with this research, and with the stories of others who have used LTTO in their own contexts.

The more data that I analysed in the initial stages of this investigation (as discussed in Chapter 4), the more questions needed to be asked. It seemed as if there were many disparate aspects to the use and spread of LTTO by a large number of seemingly unrelated educators, in what appeared to be random disciplines and locations. As it turned out, the only way I could make sense of these data was to begin to

² I also believe that the reader's experience and knowledge is a valuable component of the narrative inquiry approach adopted within this thesis. At different points, I refer the reader to supplementary materials such as the LTTO website, the final project report for the funding body, or datasets that I used to visualise emergent relationships in the larger LTTO network that the reader may explore for themselves using the same data visualisation software that I used. It should be noted that these materials should not be considered as part of this thesis – but are provided to the interested reader so that they may also engage themselves in the narrative inquiry into LTTO if so desired.

analyse the events as smaller self contained stories within a larger narrative, "Thinking about an inquiry in narrative terms allows us to conceptualize the inquiry experience as a storied one on several levels." (Clandinin & Connelly, 2000, p. 66). As Clandinin and Connelly imply, I found that it was my role as the researcher, to be able to derive meaning and commonality from different stories and data, and thread these together to form a shared narrative.

Therefore, this thesis is shaped by following several narratives in order to build a more complete picture of a larger underlying story. I recognise that this can present the impression of complexity for the reader from time to time, as there are many separate but interwoven stories explored that are at times tightly bound together:

- The design, production and dissemination of LTTO and the gap it attempts to address.
- My role as a principal member of the LTTO team.
- My role as a researcher.
- The stories about those educators using LTTO, as told through a range of distinct explorations of quantitative and qualitative data including:
 - the number of views of the LTTO artifacts on the project website, YouTube and iTunes U, and the location of people who viewed them;
 - instances where LTTO was linked to, or embedded in, Twitter posts, blogs, institutional websites, or professional development and educational programs;
 - solicited and unsolicited feedback from individual users of LTTO from an online questionnaire, personal correspondence, and online review and debate; and
 - data visualisations that helped reveal relationships between different disciplines, educational sectors, and contexts where LTTO was used and shared.
- Interviews with a number of rhizomic agents, who were the bridge for LTTO between digital and physical networks.

It is important at this point to clarify the difference between analysis of narratives and narrative analysis. Analysis of narratives could be defined as taking a story as told by someone else from a singular perspective, and deconstructing it looking for meaning. Narrative analysis is usually referred to as a research method pertaining to analysis of multiple texts (Riessman, 1993). However, in the context of this thesis, it pertains to the process of identifying common connections between disparate data sets, providing foundations for further investigation, and a framework from which to begin to construct a larger underlying story by relating and comparing similarities between stories.

An important aspect in the application of the narrative inquiry research methodology is the critical event approach (Webster & Mertova, 2007). Critical events are those that appear throughout all the different

stories examined within the scope of the research — common investigative connection points that tie different narratives together, enabling comparative examination. Webster and Mertova provide a framework to facilitate such inquiry (Figure 1.), broadly categorised into three main elements of process — namely tools; criteria; and structure (Webster & Mertova, 2007, p. 106).

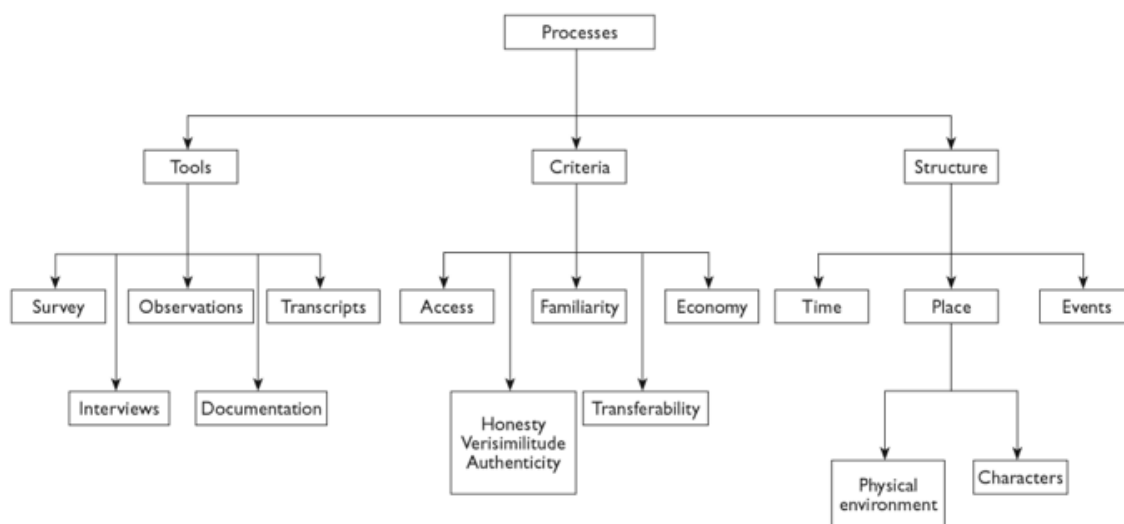


Figure 1. Webster, L., & Mertova, P. (2007). Webster and Mertova's framework for narrative inquiry. [figure]. From *Using narrative inquiry as a research method: An introduction to using critical event narrative analysis in research on learning and teaching*. Psychology Press. 'Tools' provide data for analysis, 'criteria' define measures for data reliability and validity of the analysis, and 'structure' identifies elements within the individual stories that enable a sense of connection between them, so as to enable the researcher to construct a shared narrative.

This framework provides a way to compare and contrast various strands of individual stories from different sources, so as to gradually build a larger cohesive narrative that can provide insight into the reasons for LTTO's extensive spread and adoption. This framework helped me identify the common elements — the critical events — that enabled me to synthesise the different stories that I examined.

I have given a summary of the investigative tools, or data instruments, used in the narrative inquiry process in my research, and I have also explained these in more depth in the chapters where they are relevant. These different tools provided me a wide range of data from different sources to analyse as part of the construction of the larger LTTO story.

Webster and Mertova explain that in terms of narrative inquiry, reliability refers to the dependability of the data, while validity refers to the strength of data analysis, trustworthiness and access to the raw data themselves. Huberman (1995) describes more appropriate measures with which to judge reliability and validity including access, honesty, authenticity, familiarity, economy and transferability. The issue of access is an important one according to Webster and Mertova, and refers to providing original data along with the presentation of the unfolding story, so that those reading the research may authenticate the narrative of inquiry against the experience and knowledge within their own story. To accompany

this thesis, I provide various appendices of datasets so that the reader may explore beyond my own interpretation if desired. Webster and Mertova's framework provides a mechanism for cross-referencing different data to find the connection points from which to reveal the larger narrative during the research process. 'Access' in the case of LTTO refers to the different dissemination mechanisms through which LTTO was discovered (explored in Chapters 3 and 4); 'familiarity' is associated with the users' level of existing knowledge or expertise in online teaching practices (explored in Chapters 5 and 7); 'transferability' relates to how the knowledge presented within LTTO was able to be related to or synthesised into existing practices (explored in Chapter 7); and 'economy' refers to how effective the design of LTTO was in facilitating all of the above (explored in Chapter 8). 'Structure' in this instance refers to how the data were captured, enabling me to compare where, when and how artefacts were used across datasets. These data are explored in depth in the chapters that follow.

Despite being comprised of a number of multi-threaded individual stories, the larger narrative explored in this thesis is relatively straightforward. The use of a narrative inquiry approach is appropriate to the underlying method of this research, because it enables me – from my point of view as both a researcher and someone involved in the initial design process of the resource – to offer unique perspectives to clarify and connect key concepts emerging from each separate story into a more cohesive larger narrative that will be helpful for the reader.

An examination of the emergent narrative was important in relation to understanding the different circumstances in which LTTO was used, but also in forming the basis of my approach to writing this thesis. Clandinin and Connelly explain that in this type of qualitative study, the story of the researcher also becomes closely inter-related to the stories of those he or she is researching, "As we worked within the three-dimensional narrative inquiry space, we learned to see ourselves as always in the midst-located somewhere along the dimensions of time, place, the personal, and the social. But we see ourselves in the midst in another sense as well; that is, we see ourselves as in the middle of a nested set of stories-ours and theirs" (Clandinin & Connelly, 2000, p. 63). They see the closeness of the researcher and participant relationship as being of prime importance to the process of a shared narrative construction – where the researcher builds understanding through personal empathetic engagement, by being allowed to tell and reflect upon their own story in the context of the participant stories they elicit.

One particular aspect of this approach that I find particularly intriguing and relevant to this study is that it allows for the introduction of the unexpected. Other forms of qualitative and quantitative data analysis seem to focus tightly upon understanding phenomena immediately related to or surrounding the area of interest – whereas narrative inquiry enables the comparison of stories from a multitude of perspectives. This may reveal new concepts or ideas related to the area of study that the researcher might not have even considered on their own – very similar, in principle, to the notion of what can occur within a community of practice or online network.

Narrative inquiry has been recommended as an effective research framework for flexible, online learning and workplace training (Webster & Mertova, 2007), and seems to be a methodological model well suited to my research. However, it is important to acknowledge that this approach has drawn criticism as lacking the rigour and validity of more conventionally scientific quantitative approaches (Carter, 1993), with narratives being at risk of solipsistic interpretation (Connelly & Clandinin, 1990). However, Barone (2007) notes that narrative inquiry can uncover varied or even conflicting accounts of practice in education that can raise valuable questions for further discussion. Additionally, Webster and Mertova point out that the same measures used to determine the reliability and validity of more conventionally scientific research methods are not equally applicable to a process that, "...seeks to elaborate and investigate individual interpretations and worldviews of complex human-centered events" (Webster & Mertova, 2007, p. 89).

The importance of quantitative data in the story

LTTO was designed to use digital dissemination technologies to improve the understanding and application of online teaching practices, amongst individual educators in a swath of different contexts. While narrative inquiry is a perfect framework to facilitate the synthesis and analysis of the human experience surrounding LTTO, as it is currently defined, it does not provide enough scope to conduct an effective analysis of the digital aspects of the project. Data used in narrative inquiry are typically wide and varied (Connelly & Clandinin, 1990), and can comprise sources such as shared experience, interviews, journals, personal communications, observations, and even personal philosophies.

However, relying on human perception alone does have its drawbacks. One criticism of narrative inquiry is that individual stories are only ever part of the whole truth (Carter, 1993). Someone can only tell a story from his or her own personal viewpoint, and they may have a perspective that is limited or skewed based upon their individual circumstance. In the case of LTTO, the very nature of the modular design of the resource meant that individuals could engage with the artefacts in a multitude of different ways, often not even knowing about the full scope of the project. This meant that their stories would only ever be fragments of the larger picture – individual, inward looking snapshots. The basis of narrative inquiry is the creation of a shared narrative from separate individual stories, and the comparison between many stories can go some way to overcoming this issue. However in the case of this research, I felt it was necessary to have more information that could help tell the story of what was going on outside of these individual narratives – something that connected them together.

Carter (1993) also notes that another critical danger when dealing with narrative inquiry is jumping from individual cases to generalisations. It is an important aim of my research that I provide useful observations that can be applied to improve the design and effectiveness of other professional development initiatives. Therefore being able to draw more generally applicable lessons from the specifics of LTTO is critical. As discussed above, stories are told from unique viewpoints. They are also open to interpretation. Given my personal involvement in the design and production of the LTTO project, by relying upon analysis of stories from individual educators alone, there is a danger I may inadvertently

interpret these narratives with a certain bias. Carter notes that while these examples of drawing generalisations from narrative make the prospect a hazardous one, "They do not, however, preclude the careful framing of patterns with respect to certain themes. Generalizations of this latter form are not laws to which we must somehow conform to be effective but explanatory propositions with which we can make sense of the dilemmas and problematics of teaching" (Carter, 1993, p. 10). The chances of seeing genuine patterns in information increase with the amount of reliable data at hand. In the case of LTTO, in order to discern the patterns that would enable me to form such generalisations, I needed deeper and broader information than examination of personal experience alone could provide, enabling me to see how events unfolded outside of the individual stories.

An apparent limitation of narrative inquiry is that a large proportion of literature seems to consider that stories of human experience can only be told from a qualitative perspective. I intend to take a more inclusive view of narrative inquiry, and believe, like some others (Dzurec & Abraham, 1993; Elliott, 2005; Greene, Kreider, & Mayer, 2005; Sandelowski, 2000), that large sets of quantitative data dealing with trends and patterns can also reveal stories about people and situations, and that these can be analysed in conjunction with qualitative data from individual stories. Quantitative data and visualisations are part of the lived experience of many people. There is no intrinsic reason to exclude them from narrative inquiry.

The various quantitative data collected in this study are a vital story telling tool, essential to the narrative inquiry process for this research. The quantitative data also provide the overarching structure for the narrative, providing important information about the key elements of time, place and events through which the more individual stories connect. This was particularly evident when I visualised these quantitative data in Chapter 5. This graphic macro view of this information enabled the recognition of previously undiscovered patterns surrounding community engagement and sharing of LTTO since its release. These new narratives within the larger LTTO story, stimulated further investigation, and guided the subsequent direction of my inquiry. Such perspectives would be difficult to gain through analysis of qualitative data alone. This overarching macro view of digital activity, combined with the micro view afforded by specific exploration of qualitative stories, can, I believe, provide a richer and more thorough understanding of the phenomena surrounding LTTO through the synthesis of both quantitative and qualitative narratives. Therefore I expand the concept of narrative inquiry in this study to use both qualitative and quantitative data, which are in my opinion, both vital to the construction of a shared narrative surrounding LTTO.

1.5 The entanglement of my own story – a design perspective

My undergraduate study was in the discipline of design. I spent many years practicing as a graphic and interaction designer, developing visual identities, navigation systems and interfaces for interactive content. A large part of this process was being able to design and reconcile different aspects of an

identity or process that could be encountered separately, as belonging to a larger cohesive whole. In essence, I worked with the principle of being able to progressively connect different elements of a central idea together, testing them and refining them, in order to construct a larger, cohesive concept.

As well as being a practicing designer, I have also been lecturing in design education in the university sector since 1997. Design studio teaching is often constructed around the notion that the lecturer shares their practical experience with the students as a mentor. They are often a facilitator of the students' creative process, helping them understand how to explore and develop their own ideas — rather than playing the role of a traditional lecturer who might be seen as a single source of definitive knowledge. A designer is trained to develop solutions through an iterative process, and design education similarly uses iteration as the foundation of its learning and teaching approach. Students, as with professional designers, rarely work in isolation, and during the development of an artefact or idea, they regularly test, discuss, refine and experiment — revisiting the idea several times at key points with input from different stakeholders and colleagues. Coyne discusses how the process of design is an interpretive practice, based upon iteration and constant revision of ideas developed initially from a partial understanding of the nature of the design problem, “The process involves a backwards and forward movement, a constant process of revision, a cycle of understanding, that converges on a practical understanding for the moment, but which is still subject to revision...” (Coyne, 2008, p. 560). As this is a collaborative process, designers are ingrained with the notion that new knowledge and ideas are constructed from an amalgam of many different elements; that inspiration can be found, and effective new methodologies synthesised, from different and unexpected connections between disparate ideas.

My background in design means that I approach most problems from this disciplinary perspective. In the case of the research discussed within this thesis, one of the aims is not just to examine the effectiveness of LTTO as an artefact, but to use the information gathered from this investigation to help improve the educational design and dissemination processes involved with creating similar professional development resources in the future. In fact, this research has, as part of a design research strategy, helped inform the development of the next stage of the LTTO initiative that I am leading, the Learning to Teach Online Massive Open Online Course (MOOC) [coursera.org/course/litto], which I will discuss in more detail in the final chapter.

Design research

Design theory is usually discussed and tested around a practical component or design output, where an artefact or process is developed and evaluated in situ. Design research in higher education follows a similar paradigm, with a PhD in the design field often comprising a written theoretical exposition, complemented with a practical exploration and application of a design process. Design research methodology is often centered around the analysis and iterative development of an artefact, drawing upon existing theoretical frameworks as additional lenses to assist in the evaluation of the effectiveness of an innovative product, process or idea. It is a process that, “...eliminates the boundary between design and research” (Edelson,

2002, p. 107). As design is an undertaking that can often draw on inspiration and processes from many seemingly disparate sources, often there are many different parameters and stakeholders that the design needs to satisfy in order to be successful. As such, designs are usually iteratively tested from several different practical and theoretical perspectives. An important point to note is that this testing is not only undertaken as a summative activity following the implementation of a final design — it is also deeply rooted in the formative development of the design process itself. I have exemplified this in relation to LTTO when I discussed the iterative development of the resource in Chapter 3.

Design research is not an isolated, summative process to determine if an outcome has succeeded or failed within the specific parameters of its intended purpose. Rather, it is an activity undertaken with the intention of contributing to disciplinary knowledge to improve all stages of the process and practice of design; as well, of course, to improve the final outcomes of the process. Additionally, one of the primary objectives of design research has been defined as the development and validation of a larger intrinsic support system within the discipline founded upon models and theories of design in order to, "...improve design practice, including education and its outcomes" (Blessing & Chakrabarti, 2009, p. 12). Therefore, design research is about the process of design, and not just the artefact at the center of the investigation that is being used to explore this process. Manzini expresses this effectively, "One purpose of Design research is to produce knowledge useful to those who design; design knowledge that designer and non-designer (individuals, communities, institutions, companies) can use in their processes of designing and co-designing" (Manzini, 2010, p. 83). A primary purpose of research from the design perspective is to help future designers improve the artefacts they develop, by improving their understanding of the processes that they employ in creating them, and by contributing to the advancement of the approaches they use to evaluate them. This holistic and cyclic approach to the synthesis of research and practice, driven perhaps by the pragmatic and practical mindset of designers, means that new ideas and knowledge are more likely to be quickly absorbed into the larger disciplinary collective, and socially reproduced during the education of successive generations of designers. This supports the phenomenon discussed in Chapter 6 where knowledge within LTTO artefacts was tested and authenticated by individuals before being introduced into existing educational institutions and programs. This idea also explains my motivations for undertaking this research — to understand why LTTO was successful beyond expectation; and to communicate this to other designers of professional development in online teaching; with the ultimate goal of improving educational practice across the discipline.

Design Based Research (DBR)

DBR is a research methodology developed and implemented within the fields of education and sometimes professional development (Schifter, 1996). It attempts to draw upon the iterative and reflective principles of design to improve the relationship between research and practice in the field. As Anderson and Shattuck (2012) state, DBR is a, "...practical research methodology that could effectively

bridge the chasm between research and practice in formal education” (Anderson & Shattuck, 2012, p. 16). This guiding principle is similar to that of design research, in that it seeks to make explicit the importance of a causal relationship between educational theory and practice – an important goal considering that it has been noted that many educators fail to relate educational research to their own practice (Anderson & Shattuck, 2012; Broekkamp & van Hout-Wolters, 2007; Hammersley, 2002; Levin, 2004). That DBR has been discussed as a bridge between educational practice and research, is a recognition within the educational research community of the iterative design process’ ability to facilitate adaptive, connective, reflective and reactive thinking in response to a the reality of a particular situation. In their 2012 literature review of the last decade of such research practice, Anderson and Shattuck list the following as defining a DBR project:

- Situated in a real educational context.
- Focuses on the design and testing of a significant intervention.
- Uses mixed methods.
- Involves multiple iterations.
- Involves a collaborative partnership between researchers and practitioners.
- Results in the evolution of design principles.
- Is comparable to action research.
- Has a practical impact on practice.

Research that has been discussed as utilising a DBR approach usually involves the development of an educational resource or artefact, followed by implementation, testing and observation of the impact of the artefact upon a group of students in a real educational context, “...design-based research focuses on understanding the messiness of real-world practice, with context being a core part of the story and not an extraneous variable to be trivialized” (Barab & Squire, 2004, p. 3). As such, DBR shares several key characteristics with design research, in particular, being pragmatic in approach and situated within real world contexts (Shattuck & Anderson, 2013); adopting an iterative approach that leads to revision of artefact design, and being focused upon changing practice. In many ways then, DBR seems to be a perfectly appropriate methodological model for this study. However, there are also several important differences between design research and practice and DBR that highlight its limitations, particularly in the context of this research.

Artefact focused

DBR concentrates on the preparation and application of an educational artefact in a real learning environment, followed by observations of its impact. These observations are then used as the basis for the development of improvements to the artefact for subsequent reapplication, as a means of improving the chances that an educational innovation will be sustainable. It has been argued that DBR should

ideally involve and contribute to a larger, collective theoretical framework about its use in educational innovation (Barab & Squire, 2004; Cobb, Confrey, diSessa, Lehrer, & Schauble, 2003), and that the iterative process within DBR should include contribution to this ongoing frame of reference for other educational researchers. DBR does not typically recognise the importance of all elements of the design process, including iterative reflection and improvement of the design process itself along with the resultant artefact. The application of design principles or process within DBR seems in many cases to be limited to the context of improving a specific artefact in a singular context, rather than drawing upon principles of design, or design research to improve the DBR process itself, that could in turn improve practice on a much broader scale, and also improve the theory underpinning the methodological approach.

Small-scale applications

DBR seems to have a history related to more small-scale, specific implementations, and can often remain isolated within the context in which it was developed and tested, without clear evidence of widespread adoption of these initiatives (Anderson & Shattuck, 2012). This has led to concerns over its ability to sustain several developmental iterations of research (Anderson & Shattuck, 2012), and also emphasises DBR's heavy reliance upon the specific context of individual applications of the methodology to give the resultant data meaning. This presents difficulties in generalising or drawing broadly applicable principles from any one study (Barab & Squire, 2004), meaning that the potential for larger scale, less specific applications of the methodology is seen as uncertain, "Finally, are the types of innovation that researchers have studied using DBR small scale, incremental, and sustaining, or is DBR also useful for creating and measuring disruptive changes" (Anderson & Shattuck, 2012, p. 18). In this respect, the methodological framework of DBR does not seem flexible or inclusive enough to deal with larger scale, more fragmented studies. Nor does it usually facilitate research on how innovations flow out to many new, unplanned contexts that aren't managed by the design or research team — as is the case with LTTO.

Despite these limitations however, certain aspects of DBR are relevant for my own research:

- It has its basis in pragmatism much like the practice of design and design research. In this way DBR mirrors the central design principle behind LTTO.
- It examines the practical application of theories in a real world context, in a way that recognises the problems and challenges educational practitioners face in their everyday work (Cobb et al., 2003).
- It encourages and recognises the validity of using different research approaches within one study if appropriate.
- It recognises the importance of context and how this can change the outcome and impact of a design.

One particularly relevant aspect of DBR is the accepted use of multiple methodologies within a single study (Reimann, 2011). Therefore elements within different theoretical frameworks used for this purpose may be linked by common principles, processes or knowledge, rather than being singular in focus or origin, "It is perfectly logical for researchers to select and use differing methods, selecting them as they see the need, applying their findings to a reality that is both plural and unknown" (Maxcy, 2003, p. 59). One single methodological approach may not be complex or adaptable enough to successfully analyse varying complex outcomes emerging from practical application of a theory or artefact within an authentic educational context – as was the case with LTTO. Hence a DBR methodology alone is not entirely appropriate for this study.

It is important to note therefore that the investigative method within this thesis has not been organised along the lines of DBR as practiced in education – LTTO did not go through repeated design-evaluate-redesign loops. It is very much informed by ideas about undertaking design research in the design disciplines.

Multiple, interconnected methodologies

The anatomy of, and approaches within, this research are a synthesis of my design thinking, educational experience and a range of interconnected social science research methodologies. I refer to design research, and DBR specifically, at this point in time because both approaches have resonance with my own experience as a designer, and both contain methodological approaches relevant to this research. Part of the design process is about finding the right solution for any particular problem; being willing to change and adapt method along the way. Therefore, as the thesis progresses, I explore different methods appropriate for the investigative stages in my research, but I am not solely guided by one method over another. As discussed in section 1.3 of this chapter, my use of the narrative inquiry method enables me to intertwine the different methods I have used in a meaningful, cohesive way, that is similar to an iterative design process – contributing to revealing and clarifying elements of the larger story. As discussed above, this research was driven by a curiosity to uncover the reasons behind an unexplained phenomenon. As an integral part of this process, using narrative inquiry as a guiding framework, research was undertaken in stages using appropriate methodologies. As new information was uncovered, the direction of the research changed, necessitating a change in approach.

Similarly, the different methodologies I used to investigate elements of the LTTO project as they became apparent can never, by themselves, constitute the entirety of the research processes required. Yet they each played a vital role in helping me see the problems from different angles, triangulating issues and theories. Each constituted a simplified aspect of my research process – a distinct stage or step. However, as the research progressed, previously invisible connections between these methodologies became apparent, revealing a complex interconnectivity between the approaches that enabled me to undertake a more comprehensive investigation. It is this inherent design thinking - this simultaneous examination of many perspectives - that enables theories to be derived that might otherwise not be formed.

Eisenhardt (1989) captures this idea concisely in her discussion of building theories from examination of a plethora of different case studies, "...to reconcile evidence across cases, types of data, and different investigators, and between cases and literature increase the likelihood of creative reframing into a new theoretical vision. Although a myth surrounding theory building from case studies is that the process is limited by investigators' preconceptions, in fact, just the opposite is true. This constant juxtaposition of conflicting realities tends to 'unfreeze' thinking, and so the process has the potential to generate theory with less researcher bias than theory built from incremental studies or arm-chair, axiomatic deduction" (Eisenhardt, 1989, p. 546).

In summary, I have drawn upon the following research methods within this thesis:

- Narrative inquiry.
- Design research.
- Design based research (DBR).
- Data visualisation – discussed in detail in Chapter 5.
- Rhizomic Network Analysis (RNA) – discussed in detail in Chapter 6.
- Semi-structured interviews and cross-sectional case analysis – discussed in detail in Chapter 7.

Rather than overwhelm the reader at the beginning of the thesis with a detailed description of each method, it is my preference that the reader encounter a contextualised introduction to the appropriate method at the right time in the narrative. Within each chapter, I describe the set of methods that were adopted for that stage of the research. While this may initially seem fragmented, each new discovery, and each methodology I adopted, gradually added clarity to the investigation in a way that revealed them to be deeply interconnected in manner of a rhizome.

Summary of data collection

As detailed in the appropriate chapters, I have used several sources of qualitative and quantitative data in this research. However, to give an overview, I have compiled a time line that summarises the type of data used, and when they were collected in relation to the development and dissemination of LTTO artefacts (Figure 2.). These data will also be explored through the thesis in depth at times that are appropriate and relevant to the unfolding narrative.

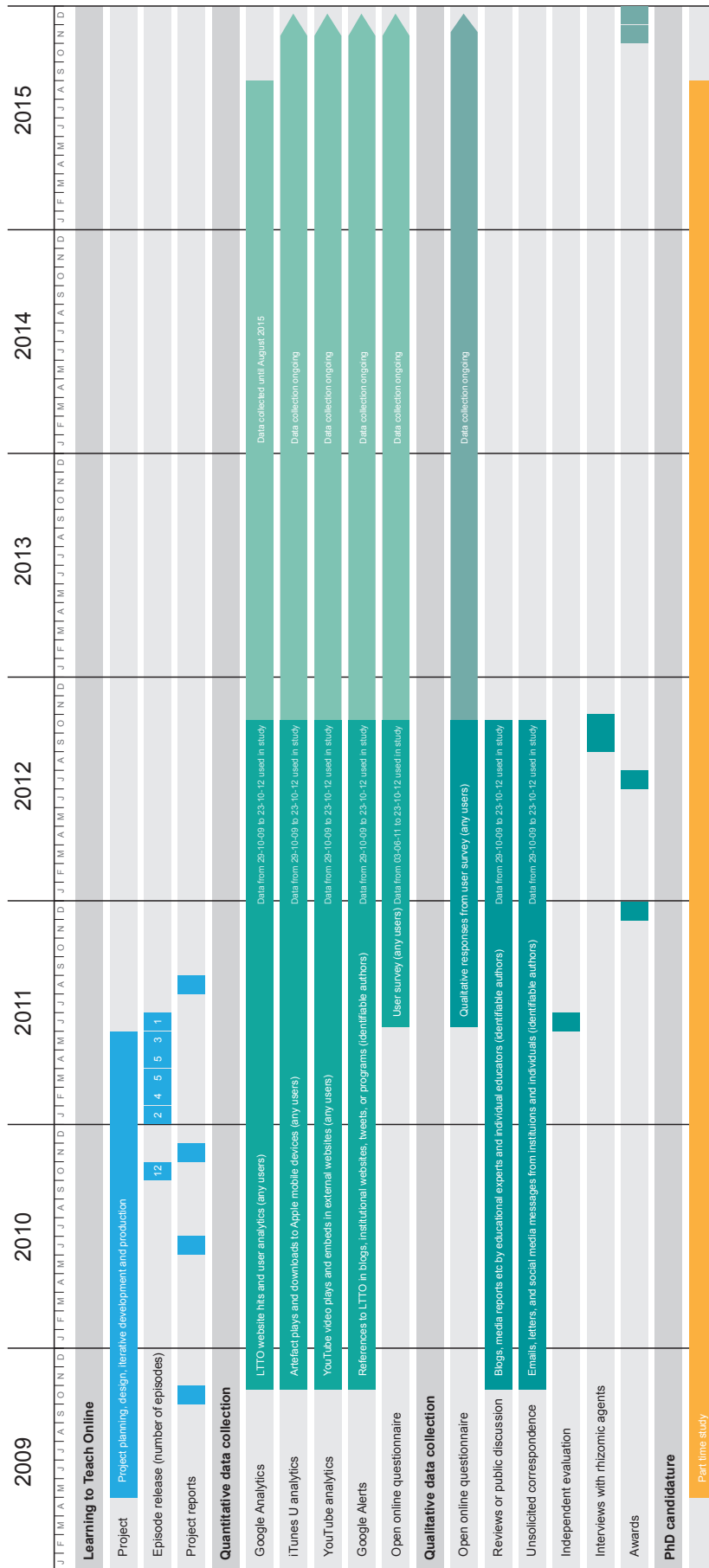


Figure 2. Summary of the types of data collected over the duration of this study, in relation to the production and dissemination of the LTTO project and this PhD candidature.

1.6 Introducing the rhizome

The main story of this thesis is presented in a roughly chronological sequence — following the narrative of discovery that unfolded. However, in order to provide the reader with an overarching sense of context to the structure of the thesis, and how the seemingly different narratives within are explored and woven together, I will introduce the key theoretical concept of the rhizome that was to ultimately connect the research methodologies I adopted, and the presentation of ideas in this thesis. This is important in order to help the reader understand that there is indeed a theoretical framework gradually drawing the different concepts and ideas together throughout — despite the fact that in actuality this 'connective tissue', which always existed within the data, revealed itself much later during a process of iterative investigation.

The fact that LTTO was used in so many different educational contexts around the world suggested some type of connectivity between these instances. How they were connected was not initially obvious. How could professional development artefacts specifically intended for higher education in one country, suddenly appear in such a wide range of instances, being used in different ways, in many countries around the world? At first glance it was as if the project artefacts were simply appearing in random places, in the same manner that a lawn left untended breaks its bounds and sends shoots into previously un-grassed areas. This phenomenon of 'unseen' connectivity is intrinsic to the concept of a rhizome.

The rhizome in nature

The term 'rhizome' has its origins in the field of botany as a classification for a type of plant; "an elongated, usually horizontal, subterranean stem which sends out roots and leafy shoots at intervals along its length" ("Rhizome", 2011). One rhizome can propagate to cover vast areas of land in one seemingly unending network that continues to expand aggressively by generating stems in every direction, which in turn create roots at intervals throughout the network, called nodes. From these nodes further stems are generated in new directions, and the plant continues to spread (Figure 3). From each underground stem, the plant will send a new leafy shoot above the surface of the earth, which for those unfamiliar with the rhizome's composition, can appear to be a separate plant. However, while it may not always be apparent to the casual observer, the subterranean rhizome connects the shoots, nodes and stems as one cohesive and unified network. The shoots and nodes live under or just above the ground, and while the stems and leaves above ground may be destroyed or die as part of the seasonal cycle, the rhizome remains and continues to spread. A section of the rhizome can usually be removed with no detriment to the larger network, and if replanted elsewhere, can propagate an entirely new system. Common examples of rhizomic plants include grasses and bamboo, ferns such as bracken, flowers such as iris, and vegetables like ginger.

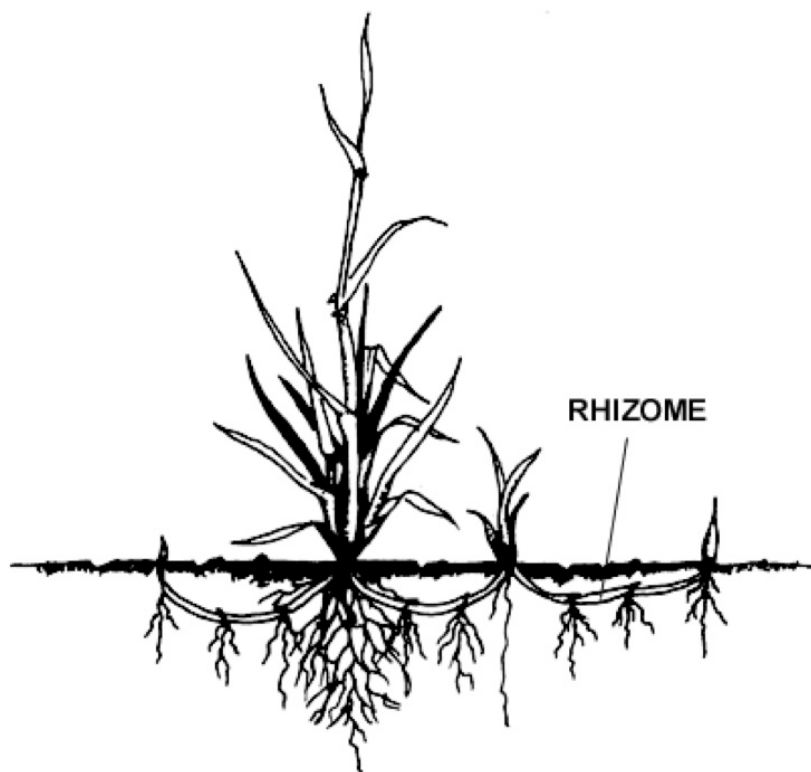


Figure 3. Shores, C. (2009). *Diagram depicting the rhizomic root system common to many grasses* [figure]. From Deleuze's & Guattari's *Neurophysiology and Neurocomputation*. Retrieved from <http://piratesandrevolutionaries.blogspot.com/2009/04/deleuzes-guattaris-neurophysiology-and.html>.

The rhizome as a metaphor for the behaviour of LTTO

When examined in some detail, the concepts of discovery, sharing and networking existent within the behaviour of those using the LTTO artefacts, are similar to the concepts of connectivity within a rhizome. Educators and even students shared content from and reviews of LTTO through digital networks in a variety of different ways to seemingly disparate educational communities globally – in a manner that was neither precisely controlled nor predictable. However, as the study progressed and more data were gathered about the reach and use of this resource, an increasing number of interesting questions were arising about not only how LTTO was seemingly able to ‘jump’ between so many different educational contexts, sectors, and countries – but also why it was shared to the degree it was. It became apparent that the design and content within the resource itself played a vital role in its sustained use and application by educators, and that social media and the notion of ‘going viral’, while essential in helping the initial global spread of the resource, was not the driving force behind the success of this aspect of the project.

The rhizome as a framework for theoretical unification

During the exploration of the different narratives within LTTO that comprise the larger story, the idea of the rhizome became more than a metaphor that encapsulated the spread and diversity of use of

the resource. As previously discussed, as the study evolved, in order to make sense of the distinct activities that were involved with the sharing and use of LTTO (discovery, review, trust, recommendation, application) it became necessary to examine them in the light of different theoretical concepts – each relevant to the narrative being explored at the time. The philosophical work '*A Thousand Plateaus*' (Deleuze & Guattari, 1987) provided a strong base from which to unify and contextualise the complexities of these observations. In this text Deleuze and Guattari explore the concept of how human thought, and the reproduction of knowledge and language, can be limited by rigid and linear methods of recording and sharing information. They explore the concept of the rhizome as a means of breaking from this linearity, opening possibilities of multiple connections between different ideas or ways of thinking. The rhizome therefore became an integral framework within this study that enabled the drawing together and conceptual connection between elements of complementary educational theories. This provided a means of revealing interesting new insights into the ways that those using LTTO discovered it, evaluated and accepted it, moderated it, used it and shared it; and how they helped it leap between seemingly unrelated networks. In other words, the story of LTTO's journey around the world became integral to the study of the design of the resource itself. The journey also became an important component of forming an understanding of why those who used it within the wide range of circumstances and contexts in which it found itself, saw it as valuable for professional development.

While there is a great deal more to discuss about this concept and its relation to this research, this is best done in context, as the larger narrative is revealed.

1.7 Chapter 1 summary

Throughout this research, the structure of LTTO is explored and deconstructed so as to understand which elements enabled educators to relate, and adapt, the ideas presented within the artefacts to their own contexts. I will discuss how new or unfamiliar information introduced into existing face-to-face professional networks via rhizomic connections between disparate networks, enabled some members of these academic communities not familiar with online teaching or technologies to benefit from the process. Several different educational institutions, where LTTO has been adopted into existing face-to-face and distance professional development programs, are also examined to determine how the design of the resource may have helped advance local knowledge construction and application of new ideas.

It is important to note that the focus of this thesis is not to demonstrate that the concept of the rhizome is the most appropriate theoretical framework with which to examine the data presented. As discussed earlier in this chapter, this work does not seek to prove or disprove a single hypothesis. Rather, an exploratory research approach has been taken by examining several different emergent narratives presented by the data. The rhizome is used as a conceptual means of clarifying the theoretical and practical connections between stories throughout the process.

Overview of the thesis

Following is a brief summary of each of the remaining chapters in this thesis:

Chapter 2 – Context: entanglement of technology in educational practice

This chapter describes the context and motivation for the inception of LTTO, and identifies the gap it was designed to address. It outlines the rapid changes in technology-inclusive social practice in recent years; the motivations of educational institutions to integrate digital technologies into established teaching practices; and the challenges faced by educators who are attempting to do so.

Chapter 3 – Learning to Teach Online

This chapter outlines the beginnings of my own story and stake in LTTO, and describes the origins, design and structure of the resource. It describes the iterative creative process in more detail, defines the key design and dissemination decisions that were made within the project, and outlines how it was anticipated that these would address some of the previously described challenges faced by educators in developing an effective online teaching practice. These key design parameters of LTTO form a frame of reference to which different stories are attached throughout the thesis.

Chapter 4 – Unexpected outcomes

The stories told by the quantitative and qualitative data from the initial evaluation of the project (which first revealed the surprising extent to which LTTO was used around the world) are explored in this chapter. In addition, the data begin to tell a story about the collective perceptions of educators of the design and editorial aspects of the LTTO artefacts (project practicalities), the perception of usefulness of the information presented and its impact (pedagogical merit), and how educators saw LTTO as having the potential to help them (perceived relevance and value). The unexpectedly high level of global involvement and support from educational sectors beyond that for which the resource was designed, raised questions about its design, dissemination, uptake and effectiveness.

Chapter 5 – Quantitative Data Visualisation

This chapter provides an overarching macro framework for continuing the process of narrative inquiry about the global sharing and use of the LTTO artefacts. Drawing upon my design background, I turned to the method of data visualisation in order to attempt to find hidden relationships that might explain the surprising results observed in Chapter 4. The patterns of connectivity and sharing revealed through this process, and the visualisation of the network relationships of those using the artefacts, lead to the discovery of the rhizomic theory underpinning the phenomenon.

Chapter 6 – The rhizome underneath

The story of the rhizome emerged as the unifying philosophical and theoretical structure of

the entire thesis. The concept of a rhizome mirrors what happened with the spread and use of the artefacts, but is also reflective of LTTO's design, and the way in which this research is structured. Examination of theories surrounding the rhizome and knowledge construction led to the important discovery of the *rhizomic* agent, and the critical role they play in bringing new knowledge from the digital realm into existing educational programs within physical and other digital networks, to potentially disrupt and evolve established teaching practices.

Chapter 7 – Stories from the rhizome

In this chapter, several influential educational and professional development programs using LTTO artefacts are identified from emergent patterns within the data visualisation process. The individual stories of the leaders of these programs – the rhizomic agents – are examined via interviews and cross-case analysis, to compare their impressions of the project practicalities, pedagogical merit, and perceived relevance and value, with the larger dataset from Chapter 4. This chapter exemplifies knowledge moving from the digital space to the physical space. It examines how the LTTO rhizome can penetrate disparate existing networks in different educational contexts, and the knowledge it brings can be integrated with, and influence, existing professional development or teaching practices.

Chapter 8 – Conclusion

Within the conclusion I tie together the different strands of the LTTO narrative, discuss the key findings of the research, outline the limitations and future research possibilities, reflect upon my own entanglement within the story, and summarise my original contributions to knowledge.

To begin however, some background context to the larger LTTO story is required...

CHAPTER 2.

CONTEXT: ENTANGLEMENT OF TECHNOLOGY IN EDUCATIONAL PRACTICE

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Synopsis

Before the design and outputs of the LTTO project are described in more depth, it is necessary to begin the narrative of this thesis by explaining the context into which the resource was introduced, and the motivations underlying its creation. This chapter outlines some of the challenges faced by higher education associated with the ongoing evolution and penetration of digital technologies throughout many aspects of society. It examines how complex organisational structures can inhibit development of effective means of support for innovation; academics from developing necessary digital literacies and online teaching practices; and students from developing proficiency in contemporary technologically inclusive professional practices. It also contextualises shortfalls in relevant research methods and design principles centered around online professional development for education. Such issues gave impetus to the development of LTTO.

2.1 The rapid emergence of the information age

Contextual overview

Within this chapter I examine the relationship between technology and societal practice in relatively broad terms. Discussing the evolution of the interrelationship between technology and society outside of education may seem marginal to establishing the context of the LTTO project. However, in order to understand how and why so many different educators around the world used the professional development resource so extensively, it is also important to understand more about the culture in which they work. Our education system is an integral component of the society that surrounds it, playing a critical role in its ongoing development. However, rapid technological and social change in recent years has placed demands upon established institutional operational models to similarly adopt and adapt contemporary technologies into current knowledge-work practices. When this does not happen at a rate that matches the rate of change in other aspects of society, institutions may not be able to offer academics the support they need to develop an understanding of how technology is used in current work practices, and how they need to adapt their teaching to reflect this – thus creating a gap between educational and other societal practices.

This chapter explores the relationship between rapidly evolving technology and social, professional and educational practice, and explains the intended role of the LTTO project within this context by:

- outlining the rapid penetration of Internet technologies into society, to illustrate the extent of adoption in a relatively short amount of time;
- examining the overarching mutually influential relationships between technology, society and educational practice; and
- exploring some of the reasons why education seems to be experiencing greater difficulty than other aspects of society in adapting to technological change, and outlining the detrimental consequences of this (from the point of view of those immersed within it).

The rapid development and social penetration of digital communication technologies

The advent of the Internet and associated communication technologies is overcoming many of the traditional limitations on discourse within and between geographically dispersed societies. It is also disrupting and challenging many established practices within business, social interaction and education. Socialising, communicating and conducting business online are now accepted as normal practice in many societies and they are rapidly on the increase in others (ABS, 2011b; Castells, 2011; Fuchs, 2013; Jeffrey & Doron, 2013; OECD, 2013; Rainie & Wellman, 2014; Warschauer, 2003). The Internet is now an integral part of our global economy, enabling rapid sharing and synthesis of disparate ideas and knowledge. As a result, a world wide, digital workplace has emerged in recent years in many areas of industry (McArthur, McIntyre, & Watson, 2007). This is a trend of such significance to the way modern

economies and societies operate that it has been characterised as the third industrial revolution (Greenwood, 1997), and those slow to adapt established business models to these new disruptive technologies risk losing relevance and value within the changing social context (Christensen, 1997; S. Kaplan, 2012; Naughton, 2010). Kodak's failure to properly adopt the digital photography technology it pioneered, resulting in the loss of 80% of its workforce and a significant decline in the value of the company, is a prominent recent example (Lucas Jr & Goh, 2009). Similarly, print newspapers have been challenged by free news websites, and the music industry has had to drastically reimagine its business model because of challenges to traditional sales brought by digital dissemination of music via services such as iTunes [itunes.com] and free streaming from services like Spotify [spotify.com].

Expanding access to digital communication technologies

The rate at which Internet technologies are being adopted around the world is continuing to increase rapidly every year. Throughout my discussion in this chapter, I have attempted to obtain figures about the penetration of Internet technologies into society closely related to the time period when data collection about the use of LTTO was concluded in late 2012. However, while by the time of publication some of these figures may be out of date, they are sufficient to illustrate the trajectory of technology adoption within society, and are relevant to the time period in which data about the use of LTTO was gathered for this study.

In Australia, where LTTO was conceived, general household access to the Internet has dramatically increased from 21% in 2000 to 79% in 2011 (2011b, p. 8). In 2011, an average of 32.8% of employees in Australian businesses (79.8% in companies with over 200 employees) were using Internet technologies to work from home or other locations on occasion (2011a, p. 14). Australia ranked the thirteenth most connected in terms of household access to broadband and mobile wireless broadband out of thirty-four OECD countries in 2011 (Figure 4). This was at 72% penetration, compared with the leading country, Korea, at 97.2% (OECD, 2013).

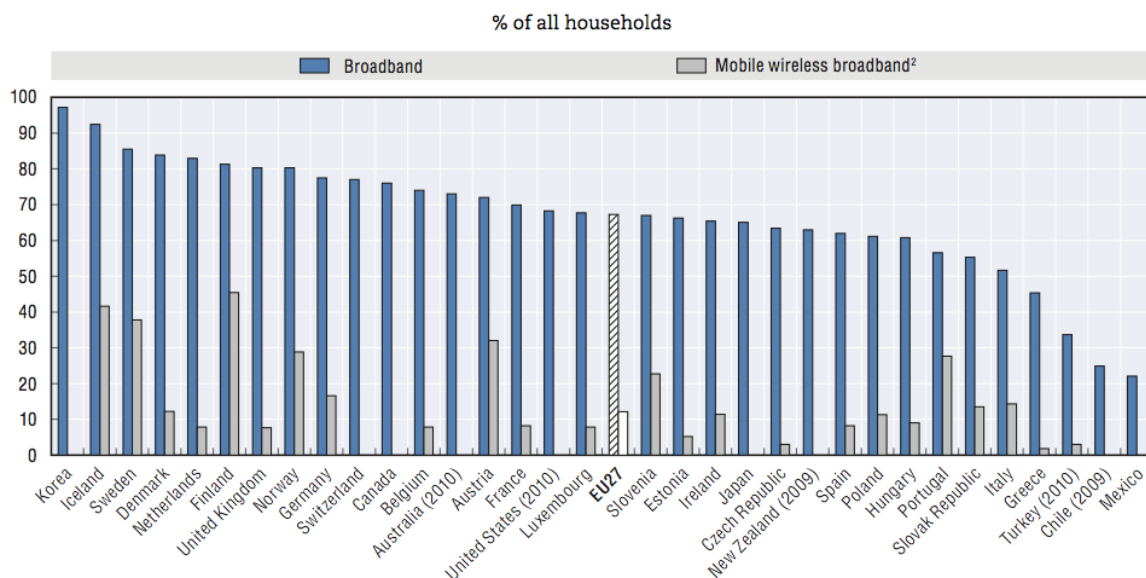


Figure 4. Households with broadband access, 2011 or latest available year. Adapted from *Recent developments in household and individual communication expenditures and use* (p. 290), by OECD, 2013. Copyright 2013 by OECD Publishing, Paris. <http://www.oecd.org/internet/broadband/oecdbroadbandportal.htm>. Adapted with permission.

This rapid penetration of digital communication technologies around the world is further exemplified by the expansion of communication using online social networks such as Twitter [twitter.com], YouTube [youtube.com] and Facebook [facebook.com], which in 2015 surpassed an estimated 1.44 billion active accounts (Facebook, 2015). The Chinese equivalent to Facebook, Renren [renren.com], has an estimated 225 million active users as of March 2015 (Newswire, 2015). Similar growth is also now being seen in global online professional networks, such as LinkedIn [linkedin.com]. As of 2015, LinkedIn had grown to over 364 million members worldwide in 13 years of operation (LinkedIn, 2015). Within such professional networking communities, individuals represent themselves in a professional capacity by posting profiles and resumé, connecting with other practitioners, looking for work and joining work related interest groups.

These technologies have become increasingly accepted as a normal part of social interaction in many countries. There is, of course, still a notable inequity in the penetration rates of household Internet technologies in many nations (Chen & Wellman, 2004; Mulligan, 2013). Rates are as low as 1% in countries such as the Democratic Republic of Congo, Liberia, Niger, and Ethiopia (Pejovic et al., 2012). However, as technology becomes cheaper, access to available digital networks, telecommunication technologies and handheld devices rapidly increases (Jeffrey & Doron, 2012; Johnson, Pejovic, Belding, & Stam, 2011; Norris, 2001; Warschauer, 2003). In many cases this has contributed to the improvement of social conditions in developing nations (Jeffrey & Doron, 2013; W. A. Kaplan, 2006; Oyedemi, 2012; West, 2012).

Technology and education

Such rapid adoption and expansion indicates that online networking technologies are an integral part of the social and working lives of many people around the world. The examples discussed within the literature clearly exemplify the increasing trend of a rapid reduction of global technological disparity in a very short amount of time. Technology and society are always evolving, but the rate of change in each is not always comparable, and is always in a state of flux. The speed at which digital technologies have infiltrated our society is extremely rapid when compared to other major technological developments in recent history (Castells, 2011; Warschauer, 2003). This unprecedented rate of technological change has often outpaced society's ability to update its practices to cope with, and adapt to, the changes at the same pace; causing disruption and tension during the period of adaptation (Christensen, 1997; S. Kaplan, 2012; Lucas Jr & Goh, 2009; Naughton, 2010).

Cultural practices within educational institutions (such as management and procedural policy, curricula, teaching methods, etc.) continually influence society through academic contributions to research, and as new graduates take their new knowledge and skills into the workforce. Simultaneously, societal practices also shape and inform these different aspects of educational practice — one is inseparable from the other (Dron & Anderson, 2014). Education is therefore also deeply entangled within the relationship between society and technology.

Throughout history, artefacts relating to teaching practice such as slates, chalk, blackboards, books, pens, and calculators have each played a part in the evolution of educational practice. Their use has been ingrained into the act of teaching over many generations, and they have become well-established conventions. There is often general consensus about the function and purpose of such technologies, and they are easy to comprehend and adapt into teaching practice (Koehler & Mishra, 2009). Rapidly evolving digital devices and networks on the other hand, can be used for a myriad of different purposes. This makes their relationship to trusted and established cultural processes within education less clear-cut. As Koehler & Mishra argue, "By their very nature, newer digital technologies, which are protean, unstable, and opaque, present new challenges to teachers who are struggling to use more technology in their teaching" (Koehler & Mishra, 2009, p. 61). For many educators, the rapid expansion of digital technologies has created a gap between perceptions of their use in society, and how they can be adapted for use within their own established teaching practice. Goldin & Katz observed that in the race between technological change and education, "...education ran faster during the first half of the century and technology sprinted ahead of limping education in the last 30 years" (Goldin & Katz, 2009, p. 292). This has resulted in a growing misalignment over recent years, between education and the rest of society. Institutional mindsets and pedagogies need to continue to adapt to the evolutions in contemporary social and work practices, to ensure the continued legitimacy and relevance of academic practice (DiPaola, Dorosh, & Brandt, 2004; D. M. Watson, 2001).

2.2 A relational ontology of society, technology and education

Unquestionably the increasing use of digital communications technologies is disrupting, informing and shaping many established personal and professional socialisation and knowledge sharing practices in contemporary society. However, it is important to clarify that these changes in social practice are not simply the result of the development of new technologies – contrary to the theory of technological determinism that, “... seeks to explain social and historical phenomena in terms of one principle or determining factor. It is a doctrine of historical or causal primacy” (Chandler, 1995, p. 2). Rather than taking a determinist viewpoint in which technology is the sole cause of social evolution, the change in social behavior surrounding the opportunities offered by digital connectivity can be considered to in turn, greatly influence the continued development of these technologies to better facilitate, perpetuate and improve social exchange.

Technology and society are intertwined within what can be described as a *relational ontology* (Orlikowski, 2010). This refers to a lack of defined boundaries between technology and human endeavour in which each element is an integral part of the other. Technology has always informed the development of societal practice, and societal practice has always informed the development of technology. The two are hard to separate, and indeed it may make more sense to see the technical and the social as mutually constitutive.

Trying to evolve established institutional mindsets and pedagogies in keeping with contemporary social and work practices is a complex and troubled process. Yet it is essential to ensure the continued legitimacy and relevance of academic practice. As Beetham and Sharpe explain, “...learning is a set of personal and interpersonal activities, deeply rooted in specific social and cultural contexts. When those contexts change, how people learn changes also” (Beetham & Sharpe, 2013, p. 6). Orlikowski describes a possible theoretical standpoint for such situations called *entanglement in practice*. This entails, “...a commitment to a relational ontology that undercuts the dualism that has characterised but also limited much of the prior technology research...” (Orlikowski, 2010, p. 128).

In other words, to overcome the perceived dichotomy between technology and organisational culture, those within an organisation must first accept that they are not oppositional elements. From this perspective technological artefacts are not separate entities distinct from epistemological practices. As Orlikowski conceives it, “...technologies have no inherent properties, boundaries or meanings, but are bound up with the specific material-discursive practices that constitute certain phenomena” (Orlikowski, 2010, p. 135).

While originally contextualised within the framework of organisational and management research, the concept of entanglement in practice is equally applicable in many strata of educational practice, whether institutional management, policy and implementation, curriculum development or individual teaching practices. Educational institutions are large and complex. Any change, especially radical

change to teaching methodologies at an institutional level, takes time — even if the need for change is clear. However, attempting to reconcile the need for re-examination of the technology and practice ontology within a well-established culture, such as that found within education, has presented significant challenges. This is especially true in cases where external technologies and related social practice is evolving rapidly, demanding equally rapid change from within.

Therefore, the entanglement of technology in education, and education's entanglement within the rest of society, means many institutions are to some degree hampered by the uncertainty of the short and long-term implications of the rapid development of different technologies and progressive shifts in related social and workplace conventions. As Naughton explains, "...one thing we've learned from the history of communications technology is that people tend to overestimate the short-term impact of new technologies — and to underestimate their long-term implications" (Naughton, 2010, p. 2).

Technological entanglement in practice

The Vygotskyian concept of cultural mediation describes the way in which an individual acts upon and is acted upon by social, historical and cultural factors (Daniels, 2001). As individuals live within a society generation after generation, certain knowledge and processes become ingrained, giving us a sense of culture; that is, a sense of how we should interact and a frame of reference from which we can give meaning to the construction of new knowledge. In essence, the history and collective experience of our ancestors is passed on as social artefacts. We use them to advance our own knowledge, subconsciously and consciously building on the experiences of those who have gone before us. They enable us to define who we are as a society, and provide guidance to allow us to function effectively within it. Therefore, we each continue to contribute to these artefacts, leaving our own imprints — our new experiences — upon them. This gradually and successively changes the artefacts to a degree before they are passed to the next generation. This practice enables successive generations to contribute to and adapt to changes in their social environment over time, to normalise the new or unfamiliar in a way that makes sense in the context of existing social artefacts and conventions. This mutually dependent evolutionary cycle of technological and societal symbiosis, continually redefines how many aspects of professional and social activity are enacted, constantly changing the fundamental skills required to successfully participate in such contexts. These changes usually occur over successive generations, when artefacts can be adapted incrementally (Sterelny, 2003, 2012). But what happens when one element of a society changes more quickly than traditional methods of cultural mediation can cope with?

Higher education is susceptible to losing relevance and value in contemporary society if it does not adapt to rapidly changing technological, economic and social practices (Davies, 2012; *The Economist*, 2012; Thoma, 2012). Adopting a sustainable technologically inclusive business model requires an investment not only in technology, but also in evolving the practices of many aspects within an entire well-established culture (Stiles & Yorke, 2004). This is a significant undertaking, and many are unable or unwilling to invest so heavily up front in a holistic approach to technological inclusivity that involves

restructuring the operational infrastructure of an institution. It is often assumed instead, that maintaining traditional operational models will continue to provide stable and sustainable revenue (Christensen, n.d.). Therefore new initiatives involving technology are often built upon the back of existing administrative and operational structures.

While posing less risk and being easier to implement, using existing administrative and bureaucratic infrastructure in this way can limit the effective application of technology in core working practices (Bass, 2012; L Johnson, S Adams, & M Cummins, 2012). The rate of change in many institutions can often be far too slow to facilitate any lasting systemic change in practice (DiPaola et al., 2004; Kearns, 2008). There is, as a result, a well-documented history of institutions developing online learning initiatives and training programs that are either short lived or fail to meet expectations from leadership, educator and student perspectives (Bacsich, 2005; Garrett, 2004; Gunn, 2010a; Klopfer, Haas, & Jenkins, 2012; Lentell, 2012). In order to avoid this, from a relational ontology perspective, institutions must acknowledge that building a progressive, technologically-inclusive management strategy relates directly to the core business of research and teaching, "...technological artefacts should be treated symmetrically to the humans, and as equivalent participants in a network of humans and non-humans that (temporarily) align to achieve particular effects" (Orlikowski, 2010, p. 135). However, in recent years such acknowledgements have been rare. Rather, many institutions have produced a variety of responses ranging from unfortunate instances of either holding back from engaging with newer technologies, or conversely, engaging in large-scale technology-driven initiatives without first understanding the implications for institutional culture.

2.3 The isolated development of online teaching – a misalignment between technology and educational practice

Technology, and the way we use it is changing rapidly, making future trends difficult to forecast. In addition, the full implications of technology use and evolving social practice upon established organisational cultures often cannot be accurately predicted. Because of this, successful synthesis of newer digital technologies into practice has been challenging for many educational organisations. Some of the problems include: institutional management not willing to commit to what they perceive as an uncertain venture; resistance from some members of staff to unfamiliar teaching and developmental approaches (Bozarth, 2006, 2009; Rabak & Cleveland-Innes, 2006); and educators' fears of criticism by peers of current personal teaching practices, of technology, and of being replaced by computers (Ertmer, Addison, Lane, Ross, & Woods, 1999; K. Watson, McIntyre, & McArthur, 2009). In existing literature, these individual issues are not often discussed as inter-related elements of the same problem, rather being dealt with as more individual phenomena. Several key issues that have been documented as slowing the uptake of digital technology in educational practice are exemplified below.

Technology before pedagogy

In the early years of online learning, many institutions rushed to address the fact they had fallen behind contemporary societal practice by investing quickly and heavily in digital technology (DiPaola et al., 2004; D. M. Watson, 2001). Believing technology was a non-disruptive addendum to existing cultural processes, many institutions neglected to consider its entanglement within organisational culture and pedagogy. Orlikowski describes another drawback of this perspective; "...in being primarily concerned with the specifics of situated micro-interactions, it is unable to offer widely-applicable insights into the ways in which technologies broadly shape organisations and societies" (Orlikowski, 2010, p. 134). An institution having the resources or infrastructure to officially support any customised use of technology, or a large selection of alternate technological platforms, is often an unrealistic prospect. This can result in tightly controlled centralised information technology strategies and infrastructure out of managerial necessity. Such circumstances can severely restrict the availability of the resources, flexibility and support that can afford academics the opportunity for experimentation or innovation. This can result in a technology-driven 'one size fits all' approach that may not be appropriate for different disciplinary contexts or teaching scenarios (Uys & Gunn, 2012). Despite being manageable from an institutional or administrative perspective, this has the unfortunate consequence of over-systemising teaching, subjugating tailored pedagogical approaches because they don't always align with the functionality of the software being used (R. Bennett & McIntyre, 2004). The unsuitability of this approach has resulted in tension, resistance and fear within academics, and the dissatisfaction of students.

Technological change cannot be seen as a simple, autonomous driver of social or organisational change. Equally, changes rooted in management or educator beliefs cannot independently shift educational practices in sustainable ways, especially if the necessary tools are not available or usable. Technology and the social are entangled — a truth for organisational leaders as much as for organisational researchers like Orlikowski.

A recent and very prominent example that illustrates misalignment between the evolution of technology and cultural practice, on the one hand, and leadership views, on the other, is the surge in interest in MOOCs in higher education. Often, early institutional adopters of MOOCs have done so without having a comprehensive understanding of their value to the institution and the larger educational landscape, the value of the educational experience for students, or the value of such qualifications to employers (Cooper & Sahami, 2013; Dellarocas & Van Alstyne, 2013). However, other educators see MOOCs as being worthy of serious consideration, and having the potential (if done well), to help test new pedagogies and evolve higher education practice (Anderson, 2013). An increasing amount of research is also being undertaken to investigate effective curriculum design pedagogy and patterns of learning that occur in the MOOC space (Hew & Cheung, 2014; Hill, 2013; Kizilcec, Piech, & Schneider, 2013; Margaryan, Bianco, & Littlejohn, 2015; Miyazoe & Anderson, 2013; Sandeen, 2013; Zutshi, O'Hare, & Rodafinos, 2013). Looked at on a short-term horizon, the rates of technology adoption, evolution of teaching practices and generation of useful pedagogical insights can seem very out of sync.

Support and encouragement for academics to explore or engage in online teaching

The differences between face-to-face and online learning spaces are significant enough that while many face-to-face teaching practices are translatable, there are some unique pedagogical approaches required for effective online teaching (Baran, Correia, & Thompson, 2011; Casanova, Moreira, & Costa, 2011; Goodyear, Salmon, Spector, Steeples, & Tickner, 2001; Koehler & Mishra, 2009; McFarlane, 2011; Salmon, 2004). Developing effective online teaching practices can initially take significant time and effort (Keengwe & Kidd, 2010), particularly for those academics unfamiliar with the practice. Those who do wish to try to develop their capabilities often spend extra time doing so on top of existing workloads (Herrington, 2009; Lakkala, Lallimo, & Hakkarainen, 2005; Mills, Yanes, & Casebeer, 2009). This is a burden that many educators regard as outside of what is, or should be, expected of them (Huber & An, 2012; K. Watson & McIntyre, 2012). This is despite many institutions considering online teaching to be a part of an academic's normal duties (Kim & Bonk, 2006). In fact, a recent Australian study of higher education institutions found that, "...most Australian universities do not have centralised procedures or guidelines for allocating academic workload which take into account the specific activities associated with online or blended learning" (Tynan, Ryan, Hinton, & Lamont Mills, 2012, p. 5). This means that even academics who may be interested in developing new online pedagogic skills are often deterred, because proper investment of time and training to develop the capability in staff isn't acknowledged or compensated (Bolliger & Wasilik, 2009; Mills et al., 2009), nor seen by many institutions as necessary for their core business.

Academics working in isolation and non-sustainable innovation

Online learning and teaching innovations in universities often occur through the devotion of a small number of academics working in isolation (Ellis & Goodyear, 2010). Without institutional support, once the development phase has been completed, such innovations can fail to be sustained without the continuing effort of the academics involved (Gunn, 2010b), resulting in failures to share good practice in online teaching with other staff (S. Bennett, Priest, & Macpherson, 1999; Dimitriadis & Goodyear, 2013). This "isolated development trap" (Stiles & Yorke, 2004, p. 2) can be exacerbated when those who do innovate effective online learning projects, do so with the support of external or competitive funding. Often, those involved do not present effective business cases that demonstrate the benefits of an institution continuing to support an online learning initiative; and once funding ceases, institutions cannot effectively support their continuation within their existing operational model (Gunn, 2010b; Stepanyan, Littlejohn, & Margaryan, 2013). This results in such innovations not being built upon by others and incorporated effectively into the wider everyday teaching culture at the institution, "In the long run, the goal should be permanent change in the learning culture, not just temporary development projects. Therefore, one important research objective for the future is to follow how sustainable these changes are in the teachers' regular classroom practice" (Lakkala et al., 2005, p. 353). Even research centers and support units working within institutions to support technological innovation are often limited by these strategic shortcomings, considerably slowing development of online teaching practices by academics.

Furthermore, widespread change can be difficult to achieve if academics with online learning and teaching expertise do not play an active role in the implementation of such policies at managerial levels (Bacsich, 2005).

Fear and resistance amongst academics

The legacy of such complications is that online learning can still often be perceived as a poor quality (Blundell, 2015), money saving, automated and 'lazy' approach to teaching in higher education (Brabazon, 2007; McIntyre, 2008). Over the years this has resulted in some academics feeling resistant to adopting unfamiliar teaching approaches; fear of criticism by peers; uncertain about being replaced by technology; and insecure about their role as a teacher (Bozarth, 2006; Ertmer et al., 1999; McIntyre, 2008; Rabak & Cleveland-Innes, 2006). When reasons such as these prevent academics from changing their teaching practices, it can result in them being blamed for being inept at integrating technology into their teaching practice (Dimitriadis & Goodyear, 2013). However, Facer argues, "...this myth presents a profoundly anti-progressive account of education history, one that does little justice to the dynamism of educators, educational activists and their capacity to act as a force of change in the world" (Facer, 2011, p. 7).

Educators primarily need to understand why it is important to embrace new technologies, and when considering their use, to place considerations of pedagogy and curriculum before those of technology to develop effective online learning initiatives (Schnackenberg, Luik, Nisan, & Servant, 2001). Yet even if an academic is open and willing to expand their teaching practice, without a supportive infrastructure in place to help them understand the reasons why technology should be considered, how it can enhance and is relevant to the learning experience for students, and how it can benefit their teaching practice, these reactions are unlikely to abate quickly.

2.4 The growing digital literacy divide in education

Until very recently, access to technology was seen as the primary social separator between the digitally advantaged and disadvantaged. This is commonly referred to as the *digital divide*, a concept that explores how this lack of access to technology within some socioeconomic groups has increasingly disadvantaged and hindered people from participating fully in contemporary society (Black & Akinson, 2007; Chen & Wellman, 2004; Hilbert, 2015; Mulligan, 2013; Norris, 2001; Warschauer, 2003). A lack of participation is conceived as limiting individuals' potential to improve their lives, and widening the gap between the haves and the have-nots (Wresch, 1996). However, the rapidly increasing availability of digital communication technologies means that the issue is becoming less about access to technology, and more about one's ability to use it to effectively participate within professional and educational practices. As digital technology use continues to become ever more ubiquitous, the definition of digital divide will shift from the haves and the have-nots to the *cans and the can-nots*.

This *digital literacy divide* can be defined as a lack of knowledge of how to use digital technologies effectively for valued social, economic and political practices. The development of digital literacy knowledge and attitudes (Sonck, Kuiper, & de Haan, 2012) is becoming critically important for current students (Rheingold, 2012). Rheingold also states that, “Participatory culture, in which citizens feel and exercise the agency of being cocreators of their culture and not just passive consumers of culture created by others, depends on widespread literacies of participation. You can’t participate without knowing how. And cultural participation depends on a social component that is not easily learned alone or from a manual” (Rheingold, 2012, p. 53). Castells also states that in order for a society undergoing significant technological change to be successful and productive, it requires, “...dramatic organizational and institutional changes” (Castells, 2011, p. 78). As previously discussed, education plays an important role in defining the capabilities of any society, therefore, as a socially oriented institution, it must change so that it remains relevant in its support of social improvement and evolution. However, if a significant proportion of educators are not proficient with the digital literacies that contemporary work practice demand, and cannot demonstrate their use in pedagogical contexts, authentic work or knowledge practices, how can they effectively help their students to do the same; to prepare them to be fully participatory citizens?

The social reproduction of knowledge and the literacy divide

The concept of social reproduction is one that further explores the notion of how the passing on of knowledge and experience can perpetuate social inequity (Doob, 2013). In its broadest terms, the concept is defined as an encapsulation and transmission of knowledge, behaviours, processes and identity from one generation to the next, and is often discussed in terms of social stratification and inequality in relation to educational, social and economic opportunity (Doob, 2013; Tzanakis, 2011; Warschauer, 2003).

Warschauer discusses social reproduction from an educational perspective, describing how institutions are constructed such that they both reflect and contribute to the larger society in ways that align with current social convention (Warschauer, 2003); reinforcing the Vygotskian argument that the social environment is inextricably intertwined with educational practice and process. Within the concept of social reproduction within an educational context, as new knowledge is developed and applied through the practice of teaching and learning, it then cycles back into society via students entering the workplace, and publication of research, which in turn influences society. This change in society then reciprocally influences what needs to be taught and how it is taught in the institution. Theoretically, this cycle continues and advances process and practice in both spheres. Education’s role in this is to be an evolutionary conduit for a population — as educational systems have the opportunity of being key innovators; of questioning ineffective or irrelevant trains of thought; of enlightening society via the development of new ideas and processes that inject new knowledge and skills into the cycle, “Whatever a sociology of education does, it must make sense of the contribution of educational activity to the processes of socialization as a source of social continuity and potential discontinuity, or reproduction of

the given and production of the new” (Morrow & Torres, 1995, p. 7). It is a symbiotic concept, but if the education sector is to continue to make valuable contributions to the development of a society, it must also allow the same society to inform the evolution of its own practices.

The digital literacy divide can be reduced with both access to technology and the knowledge of how to use it for valued social economic and political practices. As discussed in this chapter, there is evidence of a digital literacy divide existing within educational structures and teaching practices, or in how teachers and students approach using technology in learning (Waycott, Bennett, Kennedy, Dalgarno, & Gray, 2010). As such, there is a significant possibility that this can adversely affect the development of digital literacies by students (Warschauer, 2007). In this respect, the educational process fails to play an effective role in reducing the digital literacy divide in society.

The New Media Consortium highlights perhaps one of the most telling explanations for continued misalignment between education and contemporary societal practices,

“Digital media literacy continues its rise in importance as a key skill in every discipline and profession. This challenge appears at the top of the list because despite the widespread agreement on the importance of digital media literacy, training in the supporting skills and techniques is still very rare in teacher education. As classroom professionals begin to realise that they are limiting their students by not helping them to develop and use digital media literacy skills across the curriculum, the lack of formal training is being offset through professional development or informal learning, but we are far from seeing digital media literacy as a norm. This challenge is exacerbated by the fact that digital literacy is less about tools and more about thinking, and thus skills and standards based on tools and platforms have proven to be somewhat ephemeral” (L. Johnson, S. Adams, & M. Cummins, 2012, p. 20).

In short, to help educators construct effective digital literacies, professional development needs to be about transferable pedagogical principles, and developing sustainable skills, rather than specifically focusing on technological ephemera.

2.5 Reducing the digital literacy divide

Why universities need to address this issue

Universities have a responsibility to contribute to the advancement and betterment of the societies in which they exist. In order to do this, they must stay in sync with social and professional practices, and provide relevant and effective graduate attributes, curricula and teaching practices to facilitate positive social reproduction.

Goodyear and Ellis argue that the jobs most university graduates are employed for require knowledge-work, "...adding value to a product or service through the application of knowledge" (Goodyear & Ellis, 2007). Recent years have seen a, "...change in the relative demand for more educated workers, which has been driven largely by skill-biased technological change" (Goldin & Katz, 2009, p. 294). Not only do graduating students need to be capable in their respective fields to be competitive in the contemporary globalised workplace, they must also be competent in using information technology, collaborating and working with others, being flexible and having the ability to continually analyse and adapt to the world in which they find themselves (Goodyear & Zenios, 2007). This places great emphasis upon the higher education system to ensure that graduates develop *epistemic fluency* (the ability to recognise and participate in multiple ways of knowing) (Goodyear & Zenios, 2007) in these knowledge management and analysis skills. In addition, they must be literate in the use of the digital technologies and related emergent societal conventions and practices that have made them necessary.

Contemporary students possess a wide range of technological skill levels, but they are often lower than might be expected of a generation that were once dubbed as technologically self-sufficient 'digital natives' (Prensky, 2001a). The digital native concept has since been heavily disputed (S. Bennett, Maton, & Kervin, 2008; Kennedy, Judd, Dalgarno, & Waycott, 2010; Selwyn, 2009; Thomas, 2011), and even Prensky himself has since recanted, or at least redefined the term, "...it seemed clearer and clearer to me that being a digital native is not, at its core, about capabilities, or even knowledge, regarding all things digital. No matter who you are, all those things have to be learned in some way" (Prensky, 2011, p. 17).

This means that now more than ever, students are expecting academics to help them develop the digital literacies they need (Hall, Nix, & Baker, 2012). If, as Rheingold (2012) suggests, essential digital literacy skills are too complex or sophisticated to be learned by rote, then this has significant implications for how educational institutions define their graduate attributes and curricula, and especially for how academics need to evolve their individual teaching practices to support their students in achieving them. However, this presents a significant problem if many academics do not understand how to do so, or even why they should.

The role of the individual academic in social reproduction of poor digital literacies

As discussed, employers are increasingly demanding their employees have high levels of digital literacy. However, students also expect their university courses to assist them in the development of these skills (Hall et al., 2012). While evolving curricula and graduate attributes will provide an overarching impetus for change within educational institutions, the beliefs, capabilities and teaching practices of individual academics remain critical factors in determining the effectiveness and relevance of the educational experience for students.

A student's experience of higher education includes broadening their exposure to new ways of thinking in a larger context, the development of critical analysis skills, and building cultural and social capital.

Another role of higher education is to prepare students for the workplace. Academics representing specific disciplines or professions therefore, have the responsibility of passing relevant knowledge and processes within the field to a new generation, thus giving the educational experience an authentic connection to work practice. If the use of technology has become integrated within the practice of a particular discipline, an academic has a responsibility to their students to ensure that the content, knowledge and skills they teach about the topic, align with current work practices. As Goodyear and Ellis argue, “Knowing how tasks are carried out by experienced knowledge workers is a prerequisite for helping students learn how to carry out such tasks” (Goodyear & Ellis, 2007, p. 57). This does not mean that academics have to abandon their existing pedagogic practices, and it does not mean they should always use digital technology. However, academics should have a fluent understanding of digital literacies in relation to the practices of the workplaces and society they are preparing students for.

The research of Goodyear and Ellis (2007) also outlines the importance of students participating in authentic learning activities that enable them to engage with a wide range of genuine epistemological processes that are found within the actual discipline or profession. An authentic learning scenario enables students to learn knowledge or processes in a way that mirrors how these are used in real life (Collins, 1991). Such an approach, “...offers opportunities for students to acquire deep understanding of underlying constructs and to practice thinking in the way that an expert thinks” (Herrington, 2009, p. 3). Yet significantly, many academics fail to articulate the importance of this in how they approach their own practice, and there is little literature discussing what effective knowledge-work practice in education actually entails (Goodyear & Ellis, 2007; Markauskaite & Goodyear, 2014). Partly, this stems from academics not fully understanding the implications of the changes in work practices emerging from the ever-deepening entanglement between technology and industry practice, upon the necessity to evolve their own teaching practice. Educators in such a position need to try to understand and learn how to use newer digital technologies effectively in their own practice in a way that is congruent with work and social practice, so as to be a role model of good digital and societal literacies for their students.

One theory useful for describing the relationship between technology, educational practice and professional knowledge-work is TPACK (Koehler & Mishra, 2009). TPACK describes a model for the effective integration of technology into teaching practice, but it is also useful for illustrating how failing to keep pace with technological changes in industry, can contribute to the development of a digital literacy divide in academics. The model consists of three major components representing different spheres of an educator’s knowledge (Figure 5), namely:

- Technological knowledge (digital literacies required to effectively use technology).
- Pedagogical knowledge (processes of teaching and learning).
- Content knowledge (about the subject matter).

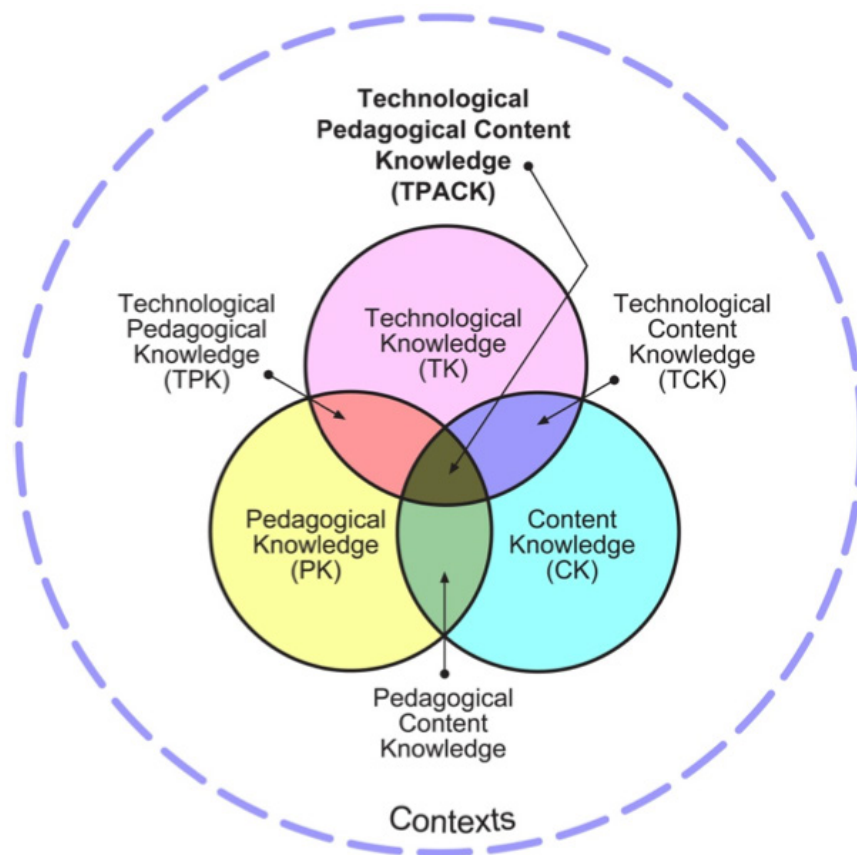


Figure 5. The TPACK framework and its knowledge components [figure]. (2012). Retrieved from <http://tpack.org>. Reproduced by permission of the publisher.

Within this model there are three entanglements of content, pedagogy and technology in an educational context:

- Technological Pedagogical Knowledge (understanding the effects of different technologies upon effective teaching practices – a way of describing the entanglement between technology and education).
- Pedagogical Content Knowledge (what teaching practices are effective for teaching the specific subject matter).
- Technological Content Knowledge (understanding how specific technologies relate to the subject matter; for example, how it is used in the workplace).

Finally, there is the region where all of these elements overlap in the centre of the diagram – embodying an effective understanding of how all of the different elements interrelate to provide the basis for effective technology inclusive teaching practices.

The TPACK model provides a more in depth picture of the way that changing technology, existing content knowledge and pedagogic practices have always intersected; and offers a framework for

understanding how the balance can shift between the three elements. Many academics are experts in their chosen fields. Over many years, they have developed a thorough understanding of the content, and developed understandings of the pedagogy associated with teaching it. However, the TPACK model clearly illustrates how the relevance and effectiveness of an academic's teaching practice can erode, if they do not maintain their understanding of the use of new technologies that are introduced into the work and social practices within their field. This digital literacy gap can cause misalignment of their mastery across the three related knowledge areas, reducing their capacity to teach effectively in authentic knowledge-work contexts as discussed previously. Koehler and Mishra's model highlights the fact that one possible way to overcome this issue is to help academics to discover for themselves how the adoption of certain technologies into their teaching practice may relate to authentic practice in the workplace, and their own existing pedagogic skills, "...knowledge is unlikely to be used unless teachers can conceive of technology uses that are consistent with their existing pedagogical beliefs" (Koehler & Mishra, 2009, p. 62). By linking the understanding of the use of technology more directly to work practices and the area of content knowledge of individual academics, they may better adapt and help to reduce the literacy gap, avoiding the problem of social reproduction in relation to their students. It follows therefore, that some form of professional development is an important element in helping to restore balance in the relationship between technology and education.

The importance of a personalisable approach

Highly structured, institutional professional development strategies, are often designed to address the broader strategic needs of an organisation, and are not necessarily capable of dealing with the diverse circumstances or requirements of individual academics. Rather than trying to homogenise online teaching practices across an entire institution so that they fit within existing organisational and administrative infrastructures, the challenges, frustrations and limitations of teaching online need to be honestly acknowledged. This enables academics to adapt best practice to their own teaching, in the context of their own unique strengths and weaknesses. Dimitriadis & Goodyear argue, "We think it is time to change tack to approach design with the strengths and limitations of real teachers in mind... In short, we want to open up new perspectives on the conception of design for learning that take seriously the uncertainties and complexities of real-world learning environments" (Dimitriadis & Goodyear, 2013, p. 1). If higher education institutions are currently unable to change their approaches to staff development to provide this level of individualised, customisable support, an alternate strategy is to try to help academics assume responsibility for developing their own effective online teaching practices on a more individual basis.

The potential of disruptive innovation to spark systemic change

Bass notes that contemporary digital technologies have created increased opportunities for educational practitioners to draw upon sources of support outside of their immediate institutional and professional contexts, "...a growing appreciation for the porous boundaries between the classroom and life experience, along with the power of social learning, authentic audiences, and integrative contexts, has created not

only promising changes in learning but also disruptive moments in teaching” (Bass, 2012, p. 23). Breaking away from established institutional internal infrastructures in order to seek support from a variety of other sources, has the potential to create a state of disruptive innovation in educational practice. Harvard Business School Professor Clayton Christensen defined disruptive innovation as, “...a process by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves up market, eventually displacing established competitors” (Christensen, n.d.). Christensen states that disruptive innovations typically don’t meet existing customers’ needs as well as currently available products or services, but that a whole new type of customer base is often generated, sometimes eventually usurping the original dominant model. He cites the mainframe computer business being disrupted and eventually largely replaced by the PC market as an example of this process (Christensen, Baumann, Ruggles, & Sadtler, 2006). Christensen goes further to explain that, “Because implementing a simpler, less expensive, more accessible product or service could sabotage their current offerings, it’s almost impossible for them to disrupt themselves. Therefore, the catalytic innovations that will bring new benefits to the most people are likely to come from outside the ranks of the established players” (Christensen et al., 2006, p. 96). Even though Christensen is not speaking specifically about education, his ideas are applicable to the university context (Archer, Anderson, & Garrison, 1999). His insight offers a clear explanation of why large and established educational institutions find it difficult to respond quickly to the rapid technological and societal changes previously discussed. Anderson and McGreal (2012) discuss how initially people may not be drawn to using disruptive innovations such as OER, but if they are of sufficient quality, more users will use them over time as a means of supplementing the shortcomings of more expensive or time consuming face-to-face alternatives. This gives insight into how a customisable, more personally relevant professional development resource that comes from outside of an institution, can help to support beneficial change.

Open and informal professional development

Engaging with informal learning via open resources or networks such as OER, online forums, or even MOOCs that are created by other academics, gives a distinctive opportunity for sharing heuristic knowledge gained from personal experience more broadly. Exposure to, and participation in, such pedagogically driven, knowledge sharing initiatives, greatly improves the effectiveness of professional development, the motivation of academics, and the sustained uptake of online teaching practices (Gold, 2001; Gullett & Bedi, 2007; Laurillard, 2002, 2012; Paavola, Lipponen, & Hakkarainen, 2002; Scrimshaw, 2004). Developing this type of knowledge about technology’s relationship to teaching and professional practices is very useful for establishing lasting change. It is not reliant upon existing knowledge, but is constructed by doing, and is personal for each individual as it is based upon his or her own unique experiences and dispositions (Eraut, 2000). As Wenger suggests, by engaging with resources created by others, people, “...develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems – in short a shared practice” (Wenger, 2011, p. 2).

There are examples of groups of academics adopting more small-scale, community-based, pedagogy-focused staff training initiatives, with good levels of success (Gold, 2001; Lakkala et al., 2005; Markauskaite, Goodwin, Reid, & Reimann, 2006; Pearson, 2003; K. Watson et al., 2009). These examples illustrate the feasibility of a more personalised approach to professional development that tries to address the imbalance between technology and education by promoting instances of disruptive innovation within established practices. It is upon this premise that LTTO was designed, as will be explained in further detail in Chapter 3.

2.6 Existing research on the design of professional development resources for propagation through Web 2.0 networks

Current research practices surrounding online professional development

In the field of education, there is increasing demand for online professional development to be scalable, flexible, and accessible by an increasingly large number of educators when they need it most. This is due to the previously discussed need of institutions to try to help large numbers of educators develop their digital literacy skills in keeping with the rapid changes in technological entanglement with teaching practice (Archer, Anderson, & Garrison, 1999; Johnson, Adams, & Cummins, 2012; Moon, Passmore, Reiser, & Michaels, 2013). This situation has highlighted the critical issue of access to relevant professional development (including day-to-day professional support and mentoring) for a large number of educators – something institutions may not be able to keep up with given the complexity of their structures and demands on resources (Dede, Jass Ketelhut, Whitehouse, Breit, & McCloskey, 2009).

It has been argued that there needs to be a shift in mindset of developers of professional development, from constantly comparing the effect of similar curricula delivered in face-to-face and online modes, to thinking about how to evolve the design of online professional development in order to maximise the educational potential of the online medium. Moon et al. discuss this in terms of the importance of developing design principles specifically for this task, “...a corollary to the challenge of access is the challenge of developing research-based design principles to guide the ongoing development, implementation, and evaluation efforts in online PD to meet these new, complex demands in teacher learning” (Moon et al., 2013, p. 1). However, as mentioned above, there is an increasing amount of online professional development being created that is not as effective as it could be because it is not adhering to such a design-based approach,

“...although such programs are propagating rapidly and consuming substantial resources both fiscally and logistically, little is known about best practices for the design and implementation of these...” (Dede et al., 2009, p. 9).

Institutions know they need to develop the online teaching skills and knowledge of their educators

quickly – but research efforts, for the most part, have not been sufficient in revealing effective design strategies to help developers of online professional development initiatives meet this challenge.

Put simply, there is not yet enough empirical research about effective design principles for new types of online professional development that uses digital technologies effectively for networked learning (Dede et al., 2009; Fishman et al., 2014; Moon et al., 2013). Following their examination of over 40 empirical studies about the effectiveness of online professional development initiatives, Dede et al. stated that there is a significant gap in empirical research into online professional development initiatives that examines both theoretical and practical aspects. In their words, “...a ‘blended’ empirical research model designed not only to answer questions about whether a program design works well but also to provide evidence to explain why it works well seems a reasonable and effective alternative to the evaluation-centric approach now prevalent” (Dede et al., 2009, p. 13). They argue that such an approach satisfies both educational theorists, and those developing professional development programs, who require more practical or pragmatic insights into effective and proven design strategies. This need for a dynamic balance between pragmatism and sound theoretical positioning aligns directly to the underlying philosophy, design process, and evaluation of the LTTO project, as described in Chapter 3.

As outlined in Chapter 1, it is my intention to contribute to the development of effective design principles to improve online learning resources that utilise online networks (defined in Chapter 3), for dissemination and knowledge sharing; and to also help address the lack of effective blended empirical research models to help analyse the effectiveness of such principles when put into practice.

Existing design principles for effective use of Web 2.0 networks in educational professional development

There is an identified need within the literature for more pragmatic and tested design principles, and improved research methods to evaluate them. In further positioning my own research within the field, it is important to briefly discuss relevant work on effective design principles for Web 2.0 online professional development.

Web 2.0 has been defined as, “...the network as platform, spanning all connected devices; Web 2.0 applications are those that make the most of the intrinsic advantages of that platform: delivering software as a continually-updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others, creating network effects through an ‘architecture of participation’...” (O’Reilly, 2005). In Chapter 3, I discuss how the various functionalities of Web 2.0 tools were considered from the outset of the design process of the LTTO resources – in particular, those that enabled individuals to effectively ‘disassemble’, or remove individual episodes from their original context of the LTTO project website, and share or embed them within a range of different networks or websites.

In their commentary about the relationship, challenges and possibilities raised by the integration of Web 2.0 concepts in educational practice, Carr, Crook, Noss, Carmichael, and Selwyn, (2008) identify key social and cognitive learning concepts that are ably supported by the technology, as summarised below:

- **Collaboration.** Web 2.0 tools enable learners to engage in coordinated activities, ranging from anonymous recommender systems to more intense interpersonal communication and debate.
- **Publication.** It is easy for learners to create and publish original content for viewing and sharing by others.
- **Literacies.** Engaging with Web 2.0 technologies can help build digital literacies, but these need to be recognised and integrated into the development of other types of literacy.
- **Inquiry.** Web 2.0 enables learners to undertake personal research, and can empower them as independent learners, seeking information to satisfy their own individual needs.

While highlighting the learning potential of Web 2.0 technologies, Carr et al. also highlight perhaps the most significant potential of these technologies – social networking, “Social networking services may also benefit learners by allowing them to enter new networks of collaborative learning, often based on interests and affinities not catered for in their immediate educational environment” (Carr et al., 2008, p. 17).

There are many examples in the literature about the design or effectiveness of educational initiatives using Web 2.0 principles – often in the context of a known and defined cohort of educators coming together in an online space or accessing online materials for inwards facing (enrolment based) professional development program (Alam & McLoughlin, 2010; Barab & Kling, 2004; Zeeng, Robbie, Adams, & Hutchison, 2009). However, there is less written specifically about design principles related to Web 2.0 centric online professional development. By Web 2.0 centric I refer to instances where individuals remove artefacts from their original context by sharing them outside of their immediate network.

The design principles below have been distilled from the literature because of their relevance to the professional development context and hence my own research. They have not however, all been discussed in the context of online professional development in the literature. Some were derived from discussion about the design of online university courses, yet I believe they are relevant and relatable to the notion of Web 2.0 centric professional development contexts. Relevant design principles include:

- **Connect the professional development to the educator’s own practice by using evidence-based, user-centred content.** Researchers have noted that it is important to consider how the design of online professional development enables educators to relate to the knowledge being presented, and identify how to apply it to areas of their own practice (Levac, Glegg, Camden, Rivard, & Missiuna, 2015; Moon et al., 2013). It has been noted that relating evidence of effectiveness of practice to individual user needs and context is an effective means of achieving this (Levac et

al., 2015). While this has been identified as being an important design principle, it has also been noted that such concepts have not yet been fully defined, “Another design question emerges from considering the implications of connecting to teachers’ own practice. While the goal is clearly important, there are multiple aspects of teachers’ practice that may be relevant, and specific design arguments are needed to identify which aspects and how to support them” (Moon et al., 2013, p. 3).

- **Encourage distributed social knowledge construction within groups by enabling opportunity for discourse.** Many examples of Web 2.0 initiatives incorporate the facilitation of a means to enable discussion and debate between users of the resource (Bennett, Bishop, Dalgarno, Waycott, & Kennedy, 2012; Deters, Cuthrell, & Stapleton, 2010; Grosseck, 2009; Zeeng et al., 2009). However in most instances this refers to bringing participants into one online platform to discuss, rather than encouraging open discussion in many different networks and technologies, as was the case with LTTO.
- **Encourage the creation of interconnections, content creation and remixing to change the way educators engage in scholarship.** The affordances of Web 2.0 technologies specifically encourage collaboration by enabling geographically dispersed people to communicate via a range of different digital messaging systems, publish content, and remix information that has been shared via these networks. Utilising these affordances in the context of distributing scholarship about learning and teaching practice is a principle that has been discussed as having potential to increase educators’ awareness of and engagement with different forms of scholarship than they otherwise may not engage with (Greenhow, Robelia, & Hughes, 2009).
- **Online resources should be adaptable and changeable in order to meet the demands of a Web 2.0 driven learning network.** Carr et al. note that with an increase in digitisation of information, Web 2.0 based resources need to be flexible enough to undergo constant updating and development, resulting in, “...a fluid and iterative approach to product design and to internet services more generally. It is captured in the fashionable web 2.0 phrase ‘perpetual beta’. In development talk, the ‘beta’ stage of design is where a product is released while understood to be still only approaching complete and stable form. The ease with which digital products can be upgraded has encouraged a perpetual beta attitude towards design, where products and practices are inherently evolving, rather than comfortably finished” (Carr et al., 2008, p. 7).
- **Tailor content to the online format.** It has been noted that professional development resources designed to maximise the affordances of Web 2.0 formats and processes are imperative in providing a good user experience and meeting the expectations of the users (Levac et al., 2015). This was also a principle adopted in the development of the LTTO artefacts as described in the following chapter.
- **Discuss how technology is used and not what technology is used.** Moon et al. (2013) in particular discuss how it is important to ensure that any discussion of technology in an online professional

development context, is focused upon how the technology is used in teaching practice, rather than delving into which technology is used. This principle is strongly echoed in the design of the LTTO artefacts, and indeed in the design of the original COFA Online Fellowship programs.

These relevant design principles help to initially position the research surrounding LTTO explored within this thesis. I will revisit the principles above within my concluding comments in Chapter 8, when I discuss how the design strategies derived from my own research relate and contribute to this area.

2.7 Chapter 2 summary

This contextual overview has outlined relationships between technology and societal practices; the complexities caused by the entanglement of technology in practice that can result in the inability of educational institutions to adapt quickly to change; the critical need for new digital literacies to enable a greater level of social participation and inclusion; the role that education and individual academics need to play in preparing students to participate more fully as citizens within this new society; the unpreparedness of some institutions and educators to understand and adopt the necessary practices to help achieve this; the potential of disruptive innovation through individual engagement with external professional development resources; and has outlined the need for further development of effective design principles for online professional development resources to improve their dissemination and adoption, and to improve the research methods used to evaluate this.

These were the aspects of the contemporary higher educational landscape that drove the conception of the central case study for this thesis – the LTTO project. It was devised to help address the issue of the digital literacy divide in higher education. An approach to professional development that is designed with consideration of the aforementioned points has the potential to help restore the balance between the rate of development of both technological and cultural practices within higher education. Perhaps Facer best summarises the ultimate intentions of restoring such a balance, “Our concern as educators when we inquire into the future, then, should not simply be one of preparing ourselves for an inevitable future and attempting to ‘future-proof’ our systems. Instead, we should see that the relationship between the future and education as a reciprocal dialogue of anticipation, adaption and creation. We may need to adapt and change on a short timescale, but over the longer term education can also be a motor for radical transformation of social values, practices and ideas” (Facer, 2011, p. 10).

CHAPTER 3.

LEARNING TO TEACH ONLINE

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Synopsis

This chapter describes the origins, intentions and outputs of LTTO as the central focus of the narrative inquiry within this thesis. It outlines what the LTTO project is, and how it is structured. The processes involved with its conception, iterative design development, production and dissemination are also explained. An understanding of the design decisions taken when producing LTTO artefacts, will help to contextualise the sub narratives within the larger story related to the impacts and wider perception of the project that are discussed in Chapter 4.

3.1 Origins of the project

Recent history of professional development in online pedagogy — COFA Online Fellowships

As mentioned in Chapter 1, I led the 'COFA Online Fellowship' programs between 2004 and 2008 (the first program co-created with Professor Rick Bennett), in order to create an effective and collaborative community of practice for staff development (R. Bennett & McIntyre, 2004). The initial idea for the fellowships evolved from the practice of a small number of academics who were involved in teaching the very first online course at COFA, meeting over a cup of coffee to discuss ideas and report back on their disasters and triumphs. These were very informal and open meetings, where online teaching experiences could be shared without any fear of judgement or failure.

Because of this experience, it was decided to extend the concept of the fellowship program in order to help other COFA academics develop their digital literacies and online teaching skills. The idea was to replicate the feeling of collegial support (that we experienced in our informal meetings) among the wider faculty. The name fellowship, meaning, "...friendly association, especially with people who share one's interests" ("Fellowship", 2011), was chosen carefully as a means of symbolising this, but also as a way of further formalising the endeavours of the academics involved. This helped to legitimise the process, and improved acceptance of the concept of online learning amongst those who were resistant within the faculty. Since the first iteration in 2004, there were a total of nine fellowship programs covering undergraduate and postgraduate fully online art and design education, special cross-disciplinary collaborative projects, and blended learning initiatives. After co-designing the first fellowship, I became responsible for the design, development, implementation and management of subsequent programs and the staff within them.

Each iteration of the professional development program was structured such that a group of eight to ten fellows were supported over a period of six months to develop their own online course and pedagogic strategy, and were then mentored during the subsequent teaching of that course the following semester. Throughout the process, fellows were given comprehensive notes and relevant readings detailing key pedagogical theories, and their application in individual contexts was explored in monthly workshops. In addition fellows received practical assistance, mentoring and developmental review of their progress. They were also encouraged to share their experiences with each other as an additional informal method of ongoing support.

The fellows in each group were from a range of different creative disciplines, and did not usually work or teach together. The programs focused upon building an understanding of effective, transferable pedagogic principles rather than specifics of individual disciplines. The fellowship community grew over the years, with members sharing experiences and ideas within a loose network (Dron & Anderson, 2014). This network eventually involved over 75 academics, working in a range of disciplines, and teaching COFA Online courses from locations such as Australia, Germany, Korea, Dubai and Serbia. The rigour and pedagogy-driven approach of the fellowship programs received an official commendation from the

Australian University Quality Agency (AUQA) in its 2006 review of UNSW Australia (AUQA, 2006, p. 31), and was also nationally recognised by a Carrick Citation for Outstanding Contributions to Student Learning 'For pioneering internationally recognised best practice in online education in the creative arts and design' in 2006.

Limitations of the fellowship programs

Between 2006 and 2008, COFA Online was approached by an increasing number of academics and units from other UNSW Australia faculties who wanted the same type of support for developing their own online learning initiatives. While the programs had a significant impact at a faculty level, the rigidity of this structure became apparent when it was applied to a larger number of academics in a wider variety of different contexts:

- **Balance of workload and time management.** Not all academics could commit to a full six-month training program, or attend face-to-face workshops. This was because not all faculties would reduce the workload of its participating staff so that they could focus on their professional development, and many participating academics were casual and not paid to attend workshops.
- **Training was comprehensive, but had insufficient flexibility for different staff needs.** The design of the fellowship programs was not sufficient to help academics develop such a diversity of online learning applications, as it originally was focused upon the creation and teaching of fully online curricula. Even where blended learning was dealt with in the fellowships, the format of the workshops was too prescriptive to enable enough time to effectively explore individual solutions for the diversity of approaches required by different academics.
- **Where more teachers were involved, training was less effective.** Situations where many tutors were involved in one large class proved problematic because not all had attended training, and they could not quickly access support when specific issues arose while teaching. In addition, it became clear that where course or program coordinators were attending workshops, they did not always correctly convey enough information to their tutors and lecturers to enable them to develop a thorough understanding of the principles involved.
- **Current training system was not cost or time efficient for expanded use.** Limited staffing resources in COFA Online and the resultant logistical problems this caused meant that running multiple professional development workshops for larger numbers of academics was not sustainable.

Key observations of the fellowship programs informing the development of LTTO

The experience of the fellowship programs revealed critical insights that inspired the future development of the LTTO project:

- **Pedagogic principles transcending disciplinary boundaries.** The diverse disciplinary environment of the fellowships allowed academics to examine their teaching in an environment not constrained

by their usual discipline specific epistemology. This created an opportunity for them to focus upon developing their understanding of key pedagogic principles, enabling them to find relevance in ideas and strategies from those outside of what was considered normal teaching practice by their usual cohort. Despite the fact they all taught different things, they were all teachers; connected by many common principles, goals and challenges.

Interestingly, program evaluations revealed that when working with others from different disciplines, the fellows did not feel that they were exposing their own private teaching practices to their immediate colleagues for scrutiny. Disciplinary knowledge was set aside as fellows discussed and critiqued each other's curricula, assessment structures and learning outcomes for the new online courses. The interpersonal relationships that formed during the fellowship were an important factor in their learning (Lattuca, 2002). The fact that academics from different disciplines were working together to understand online-specific pedagogy, and to develop ways to teach familiar content, seemed to improve their learning experience.

- **Need to be flexible and adaptable.** It was decided that if COFA Online was to evolve the design of its professional development programs to be more relevant and useful for a broader range of academics and situations, that a new, more adaptive approach was required. It was wondered whether the key concepts of cross-disciplinary connection and collegiality could be applied on a larger scale by eliminating face-to-face contact altogether and involving an even more diverse range of disciplines.
- **The nature of trust, collegiality and the fostering of change.** Initially, a significant number of academics within the faculty were strongly opposed to the concept of teaching art and design disciplines online. This general attitude changed over the years, with many of those most opposed eventually showing enthusiasm and requesting support for developing online learning initiatives themselves. COFA Online carefully documented and evaluated all endeavours so that there was always solid evidence to demonstrate the outcomes of the online teaching initiatives in the faculty. While this tended to attract an increase in support for online learning from academic leadership within the faculty, such data did little to convince some of the most reluctant academic staff. Academics who were nervous or hesitant to embrace any change that may affect their well-established and disciplinary-ratified teaching practices, seemed to be more open to the concept of change when new ideas were brought into their fold by trusted colleagues who had tested and made them relevant to existing convention and practice. Carvalho and Goodyear (2014) also observed this phenomenon, "Trust can be infectious in networks. People are more likely to trust friends of friends than random individuals" (p. 25). The concept of a 'trusted agent' formed the basis of the LTTO project, and was observed in different forms in the digital and material networks surrounding it. As explored in Chapters 5 and 6, this turned out to be a critical factor in enabling the artefacts to penetrate and become a part of so many different educational networks.

The conception of the LTTO project

The intent of LTTO was to help a larger number of educators, from within a wider range of different disciplines, teaching situations and institutions. It was essential that the new design of this resource maintain the collegial spirit of the original fellowships that made them successful. Of primary concern were the challenges facing educators trying to develop an online teaching practice as discussed in Chapter 2:

- An increasing global demand for flexible digitally supported education options (Larry Johnson, Becker, Estrada, & Freeman, 2014).
- Resistance amongst academics because of online learning's perceived poor reputation (Brabazon, 2007; McIntyre, Watson, & Larsen, 2009).
- A lack of pedagogically focused training opportunities (L. Johnson, Adams, & Cummins, 2012; Uys & Gunn, 2012).
- Gaps between institutional goals and policies (Stiles & Yorke, 2004), and pedagogical support offered to teachers.
- High levels of dissatisfaction amongst students and teachers (Garrett, 2004; Gunn, 2010; Klopfer, Haas, & Jenkins, 2012; Lentell, 2012; Means, Bakia, & Murphy, 2014) involved in technology focused online learning initiatives lacking effective pedagogical approaches (Davis, Preston, & Sahin, 2009; Watson, 2001).
- A lack of time for analysing the available theory and research to apply to their own practice (McIntyre, 2011), leading academics to feel overburdened or resentful when asked to teach online (Bozarth, 2006; Ertmer, Addison, Lane, Ross, & Woods, 1999; Kim & Bonk, 2006; Rabak & Cleveland-Innes, 2006; Walker & Johnson, 2008).
- A lack of sharing of online teaching knowledge and expertise between disciplinary 'silos' (S. Bennett, Priest, & Macpherson, 1999).

The ALTC (the funding body for the project) required that LTTO be of benefit to the wider Australian higher education sector. Therefore, the resource was to be open to educators outside of my own institution. Despite the proven foundation of the fellowships, the concept of broadening the program was untested. It was unknown whether the principles and collegiality underlying the success of the fellowships (whose design was initially specific to educators in the creative disciplines) could translate to a resource that was so broad in its aims and intended audience. There was a real risk of the resource becoming too broad in an attempt to appeal to different disciplines, and that it would fail to provide exploration or discussion of key pedagogic issues in sufficient depth to be of any real value to educators. In essence, LTTO became a live experiment, the intent being to find the balance between designing a professional development resource that appealed to many different disciplines, and maintaining sufficient depth in the exploration of key principles so as to be useful and effective for those using it.

3.2 Overview of the Learning to Teach Online project

Project aims

The LTTO project was designed to provide academics in any discipline who are new to online teaching, with a practical understanding of the specific pedagogical approaches required to successfully plan, develop and teach in a fully online or online supported environment. A video summary of the project (Figure 6) may be viewed online for additional context if desired [bit.ly/9pOeEE].

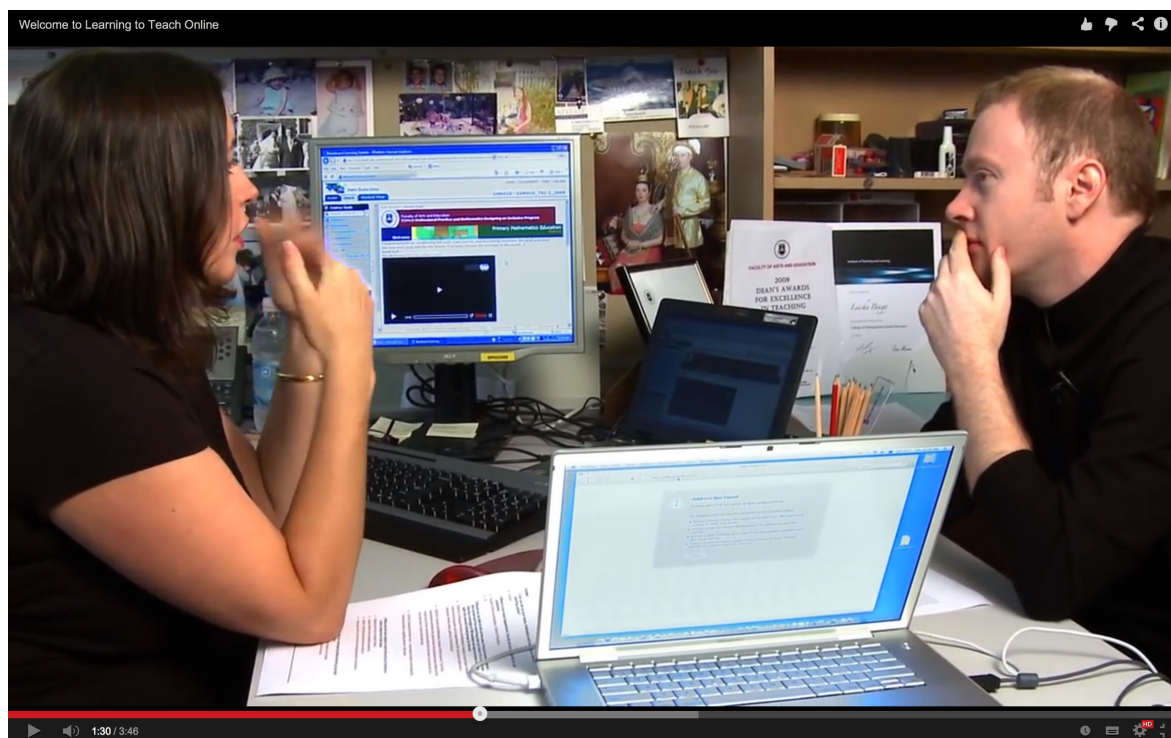


Figure 6. An introductory video presenting an overview of the aims and structure of the project was included as part of the LTTO resources.

It is important to note that LTTO was not intended to be a ‘one stop’ comprehensive professional development solution to improve online teaching practice. The different contexts and individual teaching circumstances within higher education are far too complex and variable for one resource to be able to achieve this. Rather LTTO was designed as a ‘first step’ for educators who were apprehensive about trying online teaching, or those still relatively new to the practice who wanted more exposure to different strategies and examples of good practice. It was intended as a flexible professional development option for time-poor academics, allowing quick access to strategies, techniques and examples of good practice. The tone of the resource was intended as informal, with a deliberate attempt to replicate the collegial nature of the original fellowship programs. This aimed to make the idea of teaching online more approachable, and to build confidence in those educators who needed some support to give online teaching a try, encouraging them to begin their own research and exploration of the concepts that were presented.

Project outputs summary

The outputs of the LTTO project included the following:

1. A suite of 32 online teaching professional development ‘episodes’, freely available under a Creative Commons license through several online sources. Each episode comprises video and PDF components (Figure 7). For a full description of each episode please refer to the LTTO website [bit.ly/1sDLK00]. This information is not essential for the thesis but provides more detail if desired.

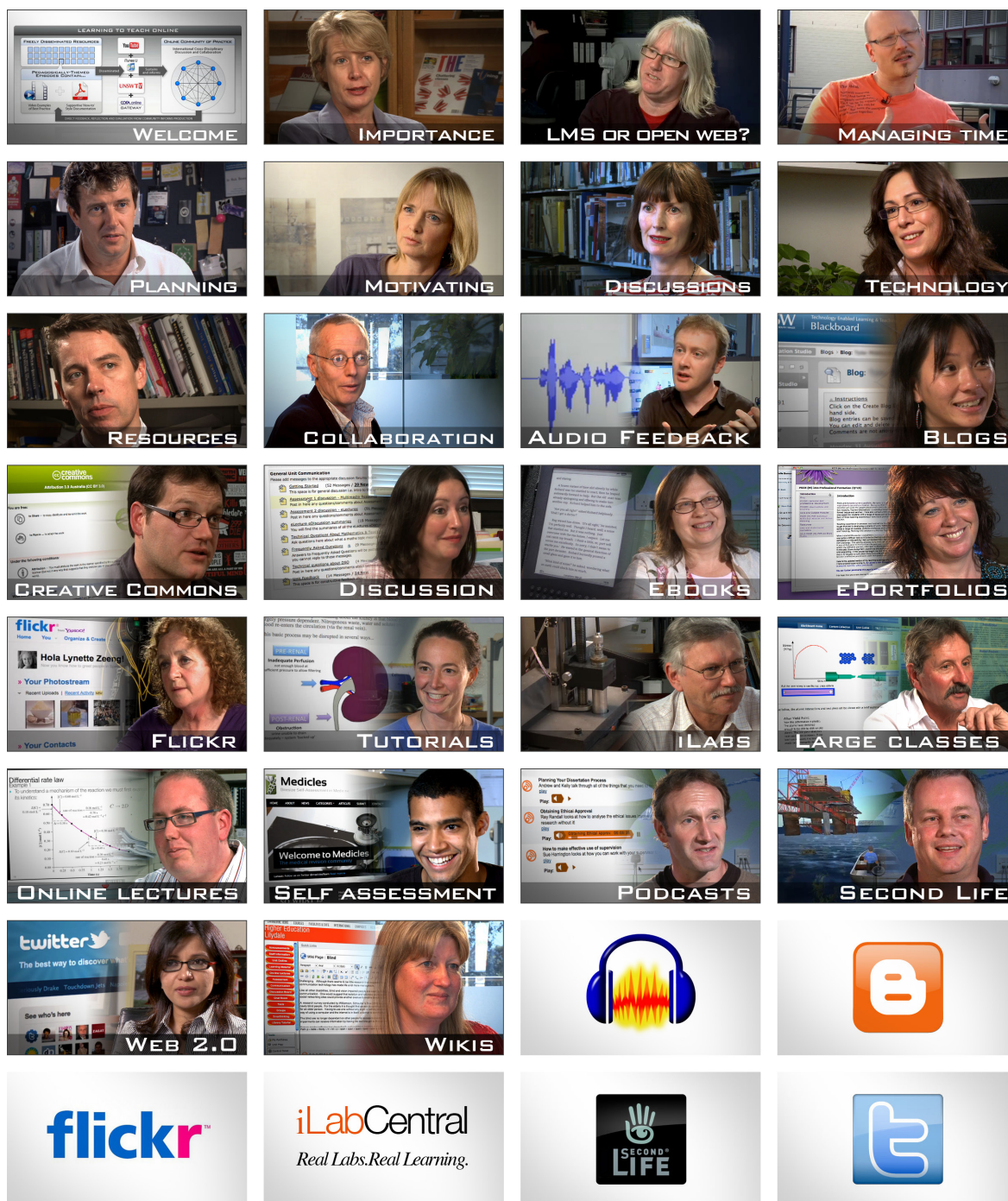
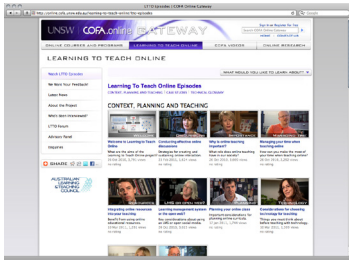


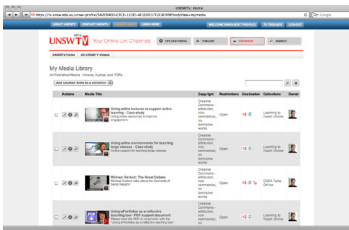
Figure 7. Thumbnails from the LTTO website of all 32 episodes produced as part of the project.

2. A set of integrated online dissemination systems for the resources.



Learning to Teach Online website [bit.ly/d18ac5]

LTOO has a dedicated website that collates all statistical data, and is the 'hub' of the dissemination system. It also contains further information about the project, the project team and the participating academics and university staff.



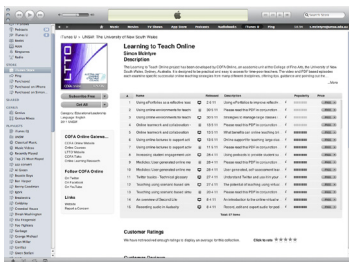
UNSW TV collection [service now decommissioned]

Content was first uploaded into UNSW Australia's online video publication and management system. From here all of our other online points of distribution were automatically populated.



YouTube channel [bit.ly/hbnhqZ]

LTOO's dedicated YouTube channel. Content was automatically pushed to this channel from which users may embed the content into their own websites.



iTunes U collection [bit.ly/9VeRm0]

Content was also pushed to the LTOO iTunes U collection. Episodes and PDF documents are available for download as podcasts for viewing on portable devices.

Figure 8. Various dissemination systems for the LTOO artefacts.

3. An online community forum for those using resources to connect and collaborate. This system was integrated into the Learning to Teach Online website (Figure 9). It was envisaged that educators using the resource would form an online community of practice, providing feedback, asking questions, and sharing ideas inspired by the resource.

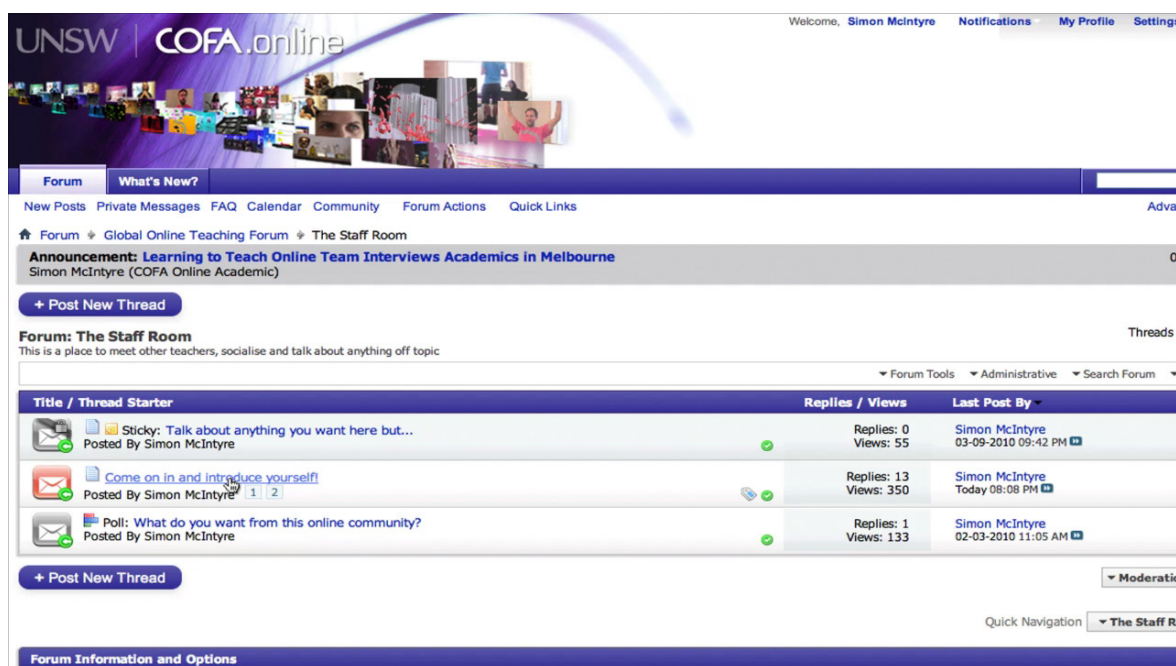


Figure 9. Screenshot of a section of the Learning to Teach Online community forum.

Institutional and collegial participation

It was envisaged that by witnessing colleagues discussing the importance, potential, strategies and even problems of online teaching from the LTTO resources, educators would be able to improve their own understanding, confidence and ability. Therefore, LTTO episodes contained interviews from a range of different academics, academic support staff, learning and teaching professionals, and students from different disciplines and institutions. Potential contributors were identified via social media callouts, promotion via secondary organisations, recommendations from university learning and teaching units, and word of mouth. During the course of development, 53 interviewees donated their time and expertise to LTTO. They comprised university leaders, educators, academic support staff and 14 students (who cannot be named in this thesis due to the conditions of the UNSW Australia ethics agreement) from 18 different disciplines within 18 institutions in three countries. By contributing in this way, these educators and institutions became active stakeholders in the project, and agents of promotion within their own institutions and organisations. A complete list of institutions and interviewees who participated is available on the LTTO website as supplementary information if desired [tinyurl.com/lttointerviewees].

Determining themes and key issues for the episodes

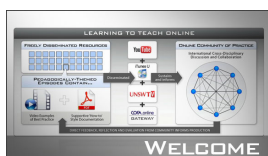
A crucial aspect of the design of the project was determining which key pedagogical issues the resources would cover, given that production would be limited to a finite number of episodes. The widely inclusive aims of the project made the process of determining the structure of the resources extremely challenging. If the project was to be successful, the episodes had to be self-contained to cater for teachers using episodes individually, and to be cohesive as a collection. They also had to be flexible

enough that episodes could easily be added or removed from the collection at a later date (to maintain currency of the content), without compromising the overall structure of the project. This ability would enable the project to maintain a long lifespan if development was to continue after the initial period of funding from the ALTC. The 32 episodes that were eventually produced through the project were categorised into three broad areas; Context, planning and teaching; Case studies; and Technical glossary.

Context, planning and teaching

These episodes contained a large number of interviews, carefully juxtaposed within certain themes related to the context of online learning, and issues of planning and teaching. They were designed to give educators a sense of the importance and place of online teaching in contemporary practice, and to address some of the common questions or concerns that those new to online teaching often have (based upon years of experience within the fellowship programs).

The ten episodes in this category were:



Welcome to Learning to Teach Online [bit.ly/9pOeEE]

An explanation of the project and its aims.
Released 26 October 2010.



Why is online teaching important? [bit.ly/cKqHwc]

What role does online teaching have in our society?
Released 26 October 2010.



Learning management system or open web? [bit.ly/aL55Yj]

Key considerations about using an LMS or open social media.
Released 26 October 2010



Managing your time when teaching online [bit.ly/cnzReG]

How can you make the most of your time when teaching online?
Released 26 October 2010.



Planning your online class [bit.ly/gFPzbN]

Important considerations for planning online curricula.
Released 17 January 2011.



Engaging and motivating students [bit.ly/ijlL3g]

Spark and sustain students' interest in online learning.
Released 19 January 2011



Conducting effective online discussions [bit.ly/fhEFBn]

Strategies for creating and sustaining online interaction.
Released 23 February 2011.



Considerations for choosing technology for teaching [<http://bit.ly/1191vzx>]

Things you must think about before teaching with technology.
Released 10 March 2011.



Integrating online resources into your teaching [bit.ly/fk8gAF]

Benefits of using online educational resources.
Released 10 March 2011



Online teamwork and collaboration [bit.ly/ieDVEh]

What benefits can online teaching bring to teamwork?
Released 03 May 2011.

Case studies

Case studies took one educator's pedagogical approach to using online technology and explored in-depth issues surrounding planning, development and teaching. They delved more deeply into specific examples of good practice, enabling practical techniques and strategies to be documented and shared in a collegial, conversational manner. These episodes looked at the realities of challenges faced and the successes experienced that motivated the academic to continue.

The issues that were discussed in the case studies were exemplifications of the content explored in the context, planning and teaching episodes. While each case study focused upon a single disciplinary example, they were designed such that the applicability of the processes and strategies to other disciplines was highlighted. In addition, each case study contained demonstrations of the online teaching environment used by the featured academic. While demonstrating the practical operation of the technology, academics talked through how the class was planned, and how the online pedagogy was applied in context. Care was taken to try to represent as many different disciplines and institutions as possible in the range of case studies completed, within the budgetary and time constraints of the project.

The 16 case studies represented in the project were:



Using audio feedback [bit.ly/bobJOD]

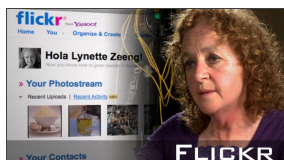
UNSW Australia (Art & Design)

Effectively give student feedback by recording your voice.
Released 26 October 2010.



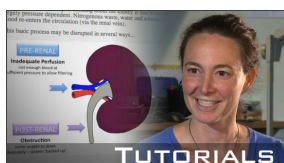
Using blogs for peer feedback and discussion [bit.ly/bH53dD]
UNSW Australia (Architecture)

Using blogs for presentation, discussion and peer feedback.
Released 26 October 2010.



Using Flickr as an online classroom [bit.ly/989e9Y]
Swinburne University (Design / Photography)

How the image-sharing site Flickr can be used in teaching.
Released 26 October 2010.



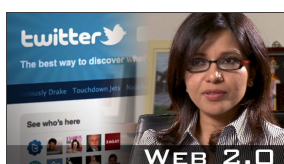
Hippocrates: Online medical tutorials [bit.ly/9MI13Z]
University of Bristol (UK) (Medicine)

Effectively use online tutorials with face-to-face classes.
Released 26 October 2010.



iLabs: Online access to remote laboratories [bit.ly/9iuO94]
The University of Queensland (Science)

Remotely access laboratories and online learning resources.
Released 26 October 2010.



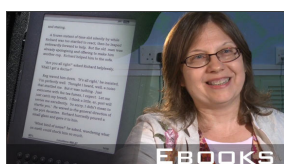
Teaching with web 2.0 technologies [bit.ly/e2Hxss]
University of Canberra (Information Science)

Teaching effectively using online social media such as Twitter, wikis and blogs. *Released 17 February 2011*



Increasing student engagement using podcasts [bit.ly/fEveZU]
The University of Leicester (UK) (Psychology)

Using podcasts to provide student support and feedback.
Released 17 February 2011.



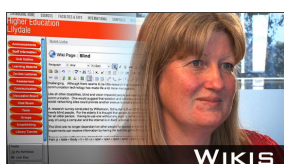
Creating eBooks for distance education [bit.ly/f1v3iH]
The University of Leicester (UK) (Learning and Teaching)

A quick 'how to' on creating eBooks for use in education.
Released 17 February 2011.



Understanding Creative Commons [bit.ly/gZXd6p]
Curtin University (Internet Studies)

Guide to understanding Creative Commons use & registration.
Released 01 March 2011.



Using wikis for student collaboration [bit.ly/hjdR88]
Swinburne University (Social Science)

How can wikis be used to enhance collaborative learning?
Released 21 March 2011.



Online discussions in maths teacher education [bit.ly/gd02CZ]
Deakin University (Education)

How online discussion can improve learning in a mathematical context.
Released 23 March 2011.



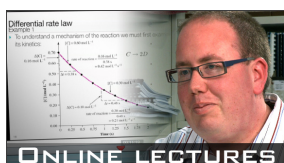
Using scenario based simulations in Second Life [bit.ly/eSFZBS]
The University of Leicester (UK) (Psychology)

Exploring the potential and problems of teaching using virtual worlds.
Released 19 April 2011.



Medices: User generated online medical tutorials [bit.ly/igOvwL]
University of Bristol (UK) (Medicine)

User generated, self-assessment learning objects.
Released 28 April 2011.



Using online lectures to support active learning [bit.ly/mpbROH]
Curtin University (Chemistry)

Using online resources to improve engagement.
Released 3 May 2011.



Using online environments for teaching large classes [bit.ly/IMjbGt]
UNSW Australia (Engineering)

Strategies to improve large class management using online technologies.
Released 17 May 2011.



Using ePortfolios as a reflective teaching tool [bit.ly/koVNA2]
University of Wolverhampton (UK) (Education)

Using ePortfolios to improve reflective learning practice.
Released 2 June 2011.

Technical glossary

While developing an understanding of online pedagogy is of primary importance for effective online teaching, it is also necessary for educators to generate these understandings with reference to the online technologies in which the pedagogy will be applied. Therefore the technical glossary category of episodes was designed to support those case studies where specific technologies were used. They comprised very basic 'how to' style technical help in the form of screen capture videos, that showed how to get started in setting up various technologies. These were short stand-alone videos, but they were also directly linked to the relevant case studies on the LTTO website. For example, if someone in a case study talked about how they used Twitter in their class, a short technical video describing how to get started with Twitter could be referred to from the case study page on the web site.

Unlike the context, planning and teaching, and case study episodes where pedagogic principles were discussed, the technical glossary videos were the most likely out of all of the content to become outdated quickly, as technology is always changing and being updated. Using separate episodes for

simple technical help allows the technical glossary videos to be updated or replaced when technology changes in the future. In this way, the pedagogic principles discussed in the case studies remains useful, and can be supported by up to date technical help, if the glossary videos are updated. This design, incorporating loose coupling of inter-related episodes, significantly increased the ability to easily and quickly expand this category, and supplement existing case study episodes with more up to date technological support in the future if required.

The following six topics were covered in the technical glossary videos:



Setting up a simple blog in Blogger [bit.ly/IWuQ1x]

Learn how to make your own blog.
Released 26 October 2010.



Getting started in Flickr [bit.ly/mgwWuX]

Learn the basics and some ideas for teaching.
Released 26 October 2010.



Using the iLabCentral resource [bit.ly/mKSGvI]

Understand the free resource for science students and teachers.
Released 26 October 2010.



An overview of Second Life [bit.ly/eBn5vS]

An introduction to the online virtual world.
Released 08 April 2011.



Recording audio in Audacity [bit.ly/gbjSYZ]

Record, edit and export audio for podcasts.
Released 08 April 2011.



Twitter basics [bit.ly/hHGiwQ]

Understand Twitter and how to use it in your teaching.
Released 27 April 2011.

3.3 The importance of the design process

As discussed in Chapter 1, my background in design had a great influence on my approach to the development of LTTO and the research within this thesis. The LTTO project was conceived as an extension of the fellowship concept – with an iterative design methodology at its core. My intent in this chapter is

not to chart every detail of the evolution of LTTO's design process. Rather, it is to highlight the different aspects of the design of the project that relate to the philosophy of LTTO, the phenomena that were subsequently observed, and the iterative research methodology and structure adopted within this thesis. More complete descriptions of the design process are described in the final project report to the funding body (McIntyre, 2011), which can be downloaded as optional information if desired [bit.ly/1vNDmt3].

3.3.1 Design methodology

The methodologies involved with the development of ideas and artefacts in creative practices such as design, are often different from those utilised within other disciplines. Collaboration and discussion during the development of ideas is an essential element, and often there are many attempts at solving the particular design problem along the way that fail to provide an adequate resolution. The solution to a brief is often bespoke, yet created by building upon pre-existing knowledge, experience or artefacts. Farrell and Hooker describe the brief as an artefact that, "...sets out a characterisation of the problem that motivated it, typically some social imbalance, dislocation or aggravation, and the kind of solution goal or goals normative for the work, here the societal condition that is desired in place of the present reality" (Farrell & Hooker, 2013, p. 682). Design is a process in which a certain amount of experimentation and risk is required in order to arrive at an appropriate outcome. As each design problem is unique in its requirements and context, a good solution often has to make a conceptual leap beyond what has gone before; a leap that improves an existing product, area of knowledge or process by introducing something disruptive or unique that solves the specific problem at hand.

There are a number of factors that can combine to cause an almost infinite variation in the requirements of each individual design problem, meaning that the ability to read and adapt to these factors during the development process is paramount. Despite such potential issues, the design process is often articulated in terms of different tasks or activities that cumulate into determining a solution to a particular problem. However the actual process is rarely this linear or simple in practice (Lawson, 2006). Even though the process could, and has been, systemised into broad definable steps by many designers and design researchers – not to mention educators (Blessing & Chakrabarti, 2009; Bonk & Zhang, 2006; Parker, 2011; Reigeluth, 2013; Salmon, 2002), such procedural maps are often a greatly simplified and sanitised depiction of the actual design experience. These normative, systematised representations of the design are intended as a means of providing a procedural framework to guide others in their thinking and approaches; a starting point from which more individualised and complex process may begin to evolve.

Many design researchers openly state that such idealised procedures are often not closely tied to the reality of practice (Cross, 2006; Goodyear & Dimitriadis, 2013; Lawson, 2006; Parnas & Clements, 1986). In his book *'How designers think: the design process demystified'*, Lawson has characterised such attempts at compartmentalising the design processes into neat schema as, "...theoretical and prescriptive" (Lawson,

2006, p. 40). Lawson goes on to say that such systems or design process maps, “...seem to have been derived more by thinking about design than by experientially observing it, and characteristically they are logical and systematic” (Lawson, 2006, p. 40). However, more detailed descriptive accounts of the process, while able to convey the random and sometimes unpredictable lines of thought that can occur in design, can often be more difficult to interpret and adapt by others to different situations or problems, as they inherently contain processes specific to the problem being addressed.

While normative descriptions of the design process, broken into distinct stages or steps, may not adequately describe the need or process for fluidity and adaptive thinking during design work, they are useful in helping understand and approach a design problem if they are understood to be guides rather than tightly prescriptive models for action. In fact a great deal of systematic thinking is necessary in order to undertake a design process, as long as there is room for creative deviation. Such design guides can help minimise time lost through extraneous investigation by following procedures or strategies previously known not to be effective; provide a basis for experimentation and the development of creative conceptual frameworks; and help to create recognisable milestones through which progress may be measured and the project managed (Parnas & Clements, 1986). It is therefore wise to consider any attempt at describing the design process as a sequence of steps as a guide only — a place to start.

This design thinking was adopted for the design of the LTTO artefacts. Additionally, this also reflected the intention of how artefacts would be used by educators — as starting points that acted as a guide for effective online teaching practices, and not prescriptive ‘instructions’. This was because the different contexts and variables within an almost limitless number of teaching scenarios are impossible to account for in the design of a professional development resource. If the resource becomes very narrow in focus it can only ever relate to a small number of people or situations. Alternatively, by taking a normative approach and providing a place to start, the design offers the best chance for success in a variety of different educational contexts and scenarios.

Iterative development, unexpected lines of thought, and new directions

One can never account for the creative spark or unbidden inspiration that can completely derail a line of thought and take it in unexpected directions. This is where iterative development plays an important role in design in general, in the development of LTTO, and in the research methodology of this thesis.

While normative maps of a design process are useful in communicating the overarching sequence of events and providing a starting point, the designer must embark on their own more specific journey when attempting to solve a problem. Rather than following a predetermined linear sequence of steps to arrive at a complete solution, designers find themselves constantly testing new ideas against all other parameters of the project, revisiting the brief or the original concept several times in order to test the appropriateness of a new line of thought that is sparked by the investigation of the design problem or exploration of possible solutions. Through constantly reframing the problem in this manner, rather than

sequentially experimenting with different solutions by completing a series of ideas from beginning to end, a designer will often work with several interesting conceptual ideas simultaneously — experimentally testing partly formed solutions, comparing, synthesising and adapting them in a series of developmental ‘sweeps’ across all aspects of a project; always cross-checking the aims and requirements for best fit as they do so.

The outcomes of a design process cannot always be predicted or hypothesised, and can evolve from iterative reflection about any aspect of a project (Beckman & Barry, 2007). It is this aspect of the design process that imbues it with more potential than the process of simple problem solving. Creative reframing of a problem — viewing it repeatedly from a myriad of different and sometimes unexpected angles — can inspire new ‘lines of thought’ that connect one concept to another seemingly unrelated one, vastly improving the effectiveness and appropriateness of the design solution. Thus the design of a project occurs in an iterative cycle that begins well before final designs are put into practice, enabling as many different aspects of the project to be tested and refined as possible, reducing the risk of such failure (but never eliminating completely). Conducting experiments; collaborating with and receiving feedback from peers and stakeholders; applying knowledge and insights gained back into the creative process; constantly revisiting and revising the design brief; adjusting the parameters of the project where necessary and refining the generated ideas, only to begin the process again a little further down the track — are all activities conducted during typical design development.

The project team adopted such iterative approaches in the design of LTTO, and I approached the research in this thesis in a similar manner. I also discovered that the artefacts were able to inspire new ‘lines of thought’ for many who used them — congruent with Deleuze and Guattari’s (1987) concept of the rhizome as introduced in Chapter 1 (a fuller account of the concept of the rhizome will be given in Chapter 6). In some cases, this caused even those well versed in online teaching to reflect, revisit, and redefine their own practice, as discussed in Chapter 7.

Guiding principles — refining the design brief

In order for LTTO to achieve its aims, the project team began by creating a set of guiding principles to use as a ‘developmental compass’ — to help improve the chances that all of the interrelated design decisions being made about various aspects of the project were headed in the right direction. These principles were developed by drawing upon the team’s own experience, and an analysis of the issues impeding the wider adoption of online learning in Australian Higher education previously discussed in Chapter 2. Any ideas for the guidelines were referred back to the aims of the project, and tested through hypothetical exploration of the emerging design features of LTTO against scenarios in which educators find themselves faced with any of the roadblocks to developing online competency. From this process, the project team developed the following guidelines that would serve as a constant design checklist during the creation of any professional development artefacts within the project:

- The resources were to be practical, pragmatic, easy to access and useful.
- They should be aimed at academics who are at the ‘coalface’ of teaching — those who don’t necessarily have much time, many resources, or support for online teaching.
- The project was not to be about COFA Online dictating approaches or specific pedagogical approaches, but rather a vehicle to bring together and share a cross-section of the knowledge and skill of educators who are already successfully teaching online within a range of contexts.
- It was to be primarily focused upon pedagogy, not technology. Technology will always change, but a sound understanding of the pedagogy behind online teaching can be widely adapted by academics in different contexts using different technologies.
- It should not be the intention of the project to produce a heavily theoretical resource, nor one offering specific step-by-step solutions for specific online teaching scenarios. Rather, the episodes should take a more practical position that sits between available institutional technical support and theoretically based scholarly research about online education. Episodes should also present pedagogical concepts in such a manner that it is easy for teachers to relate them to their own teaching situations.
- The resource should take a pragmatic approach, explaining and demonstrating the realities, advantages and disadvantages of a range of online pedagogies and technologies used in different disciplines and teaching contexts, in an accessible and conversational manner.
- The resources must be widely applicable. It should be of primary importance to facilitate good representation of, and cross-pollination of ideas from different teaching scenarios and disciplines.
- The project should attempt to break down the perceived barriers between disciplines, and highlight that all online teachers face similar challenges, and that we can all learn from each other’s experiences no matter what type of students or what subject we teach.
- Given the project is about online teaching, every effort should be taken to maximise the dissemination potential of the Internet to freely share the resources as widely as possible.

Format of the episodes

The design and format of the episodes themselves were considered carefully. Each LTTO episode comprises both a video (typically eight to nine minutes for case studies, and five minutes for other episode types), and a supporting PDF document, that summarises the topics raised in the video, highlights key pedagogic strategies or principles, and contains links to further information and scholarly resources exploring the particular online teaching concept being discussed (Figure 10).

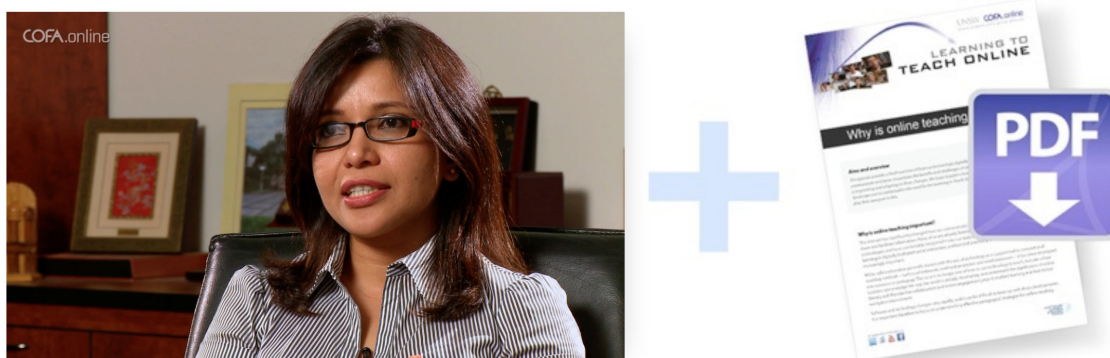


Figure 10. Each of the 32 episodes produced contains a video and supportive PDF document. By using both formats in each episode, the complexity of information presented could be scaffolded. The video component gave an overview of the concepts from the point of view of practicing academics, while the PDF explored these concepts in more detail.

It was decided to combine both types of resources in each episode to cater for different preferences for learning. The videos were intended to have a conversational style, with the tone designed to elicit the feeling that those watching were hearing informally from their own colleagues. This was intended to emulate the more personal elements of COFA Online's face-to-face fellowship programs, and provided a means of extending the concept of a community of practice in a professional development context (So, Lossman, Lim, & Jacobson, 2009). Therefore video was chosen as the primary medium for the episodes because it enabled humanisation (facial expression, tone of voice, and body language) of the information being communicated (Lee Chye & Tan Tiong, 2003). The intent was that by being able to see and hear a range of different 'real' academics talking casually and informally about their own experiences, those watching the videos would experience a similar ethos as when they might visit their colleagues in the next office to discuss ideas or issues in an environment that is personal, friendly, accessible and honest. If those using the resources felt that they were interested in the topic presented in the video component of an episode, they were able to also read the accompanying PDF support documents that explored the ideas presented in the videos in more depth.

A modular approach was taken with the design of the episodes, meaning that they could be more interconnected, and easier to update or change with emerging online teaching practices and technologies. The length of the videos and the format of the PDF documents were in part designed around feedback provided by a wide range of academics involved in a pilot test of a number of pre-production episodes selected from the context, planning and teaching, case study and technical glossary categories. Feedback from this pilot testing process indicated that academics from the sample group found information presented in bullet point style easier to read and absorb in the PDF documents, and preferred to watch videos around eight or nine minutes in length as a maximum. Interestingly, recent research about the engagement of audiences watching educational videos in MOOCs indicates that shorter videos have proven to be more engaging with online audiences (Guo, Kim, & Rubin, 2014). By triangulating the feedback from the pilot test with that of the project's advisory panel and our own observations of the

time and resources required to produce each episode, the design of both video and PDF elements of the episodes were modified before production proper began.

Organising conceptual relationships within content

Hyperlinking, cross-reference and search engine recognition are primary elements of the design of Web 2.0 content on the Internet. One key element that enables dynamic collation of related data is the principle of tagging – attaching metadata in the form of keywords that describe content for easy cross-referencing. Tags enable distributed content across the Internet to be more easily searched, categorised and grouped. It was important for LTTO that a series of accurate tags were created for all content – such that someone conducting a search for material related to online teaching on the Internet, or within iTunes U or YouTube, would be led to the project. In addition to flagging the project in a web search, the tags served the purpose of relating each episode to other relevant episodes, so that someone using the LTTO website could search for an area of interest rather than browse each individual episode looking for specific content (Figure 11).

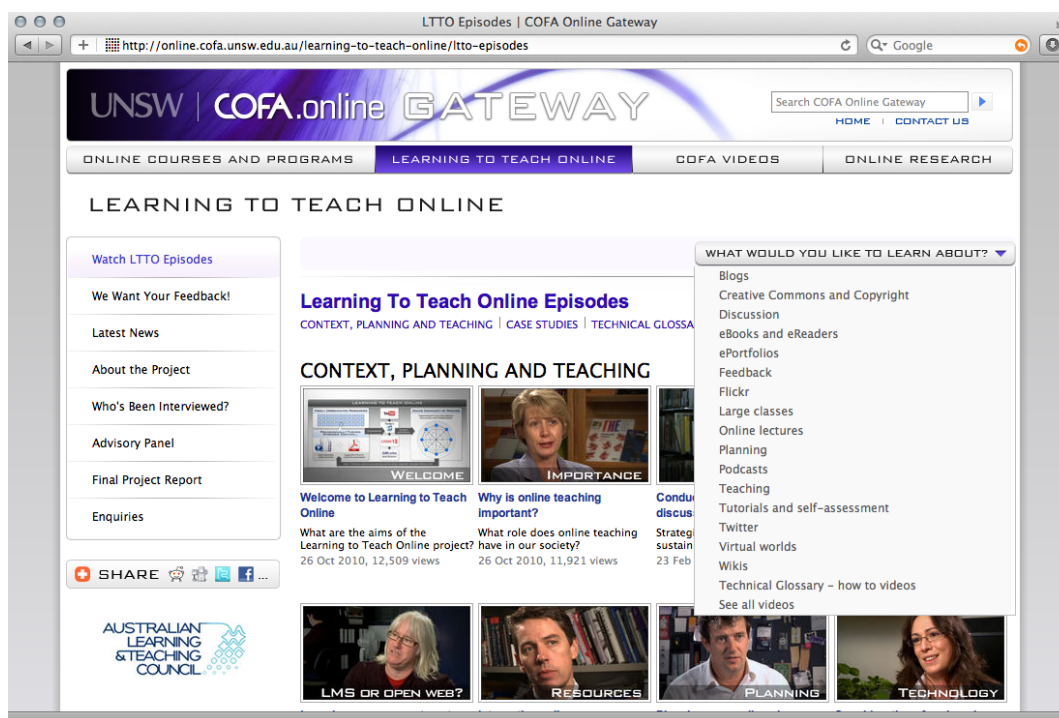


Figure 11. The LTTO website used a series of tags attached to each episode to enable users to quickly find relevant content based upon similar principles, strategies or topics. These metadata also helped the episodes to be found more easily during web searches.

The concept behind using tags in this way was so that someone encountering one episode would also be shown a number of related episodes that supported or expanded the ideas presented in the first – thus gradually deepening and broadening the exploration of key concepts.

3.3.2 Dissemination strategy

No matter how well designed the LTTO resources may have been, without being seen by educators, they would have little effect upon improving online teaching practice. Therefore effective dissemination was a prime consideration of the project from its very conception. The technical infrastructure for the project was designed around the notion of integrating a wide range of social media dissemination tools into the LTTO website. This enabled visitors to easily and quickly share information with colleagues or friends, thus alleviating the need for all promotion to always originate from the project team. In addition, publishing the content on platforms such as YouTube and iTunes U enabled people to easily share episodes from a number of different sources. YouTube and the LTTO website also enabled people to embed video content into their own websites using existing embed code provided on the individual video pages. In principle, this adoption of Web 2.0 technologies enabled information to reach a larger number and greater diversity of people.

Dissemination of the episodes

The dissemination of the episode content was designed to take place over several months, rather than all content being released simultaneously. It was envisaged that a single release would only gain a relatively 'short lived' amount of exposure, whereas episodes being released gradually meant that there was significantly more opportunity for promotion, with potential to reach more people over a sustained period of time. A more gradual release also allowed the project team to identify any emerging gaps or issues with the content, via unsolicited feedback from users, and to incorporate any improvements into subsequent episodes.

By using Web 2.0 technologies, information is not limited to a single existence in one online location. Rather, it can easily be embedded within or referred to from many websites, information services and even mobile devices. An examination of Web 2.0 practice following the failure of the LTTO online community (discussed in Chapter 4), suggested that the best strategy was to disseminate the episodes as widely as possible into many different existing online forums and social media groups, in order to reach as many people as possible in a broad range of contexts. By taking the project into regularly-frequented online spaces such as Twitter, Facebook, YouTube, and existing online professional groups, larger numbers of diverse users would become aware of the project, and potentially share it with other colleagues in a variety of contexts. Those interested in the project could then be directed back to the central information hub for the project — the LTTO website (Figure 12).

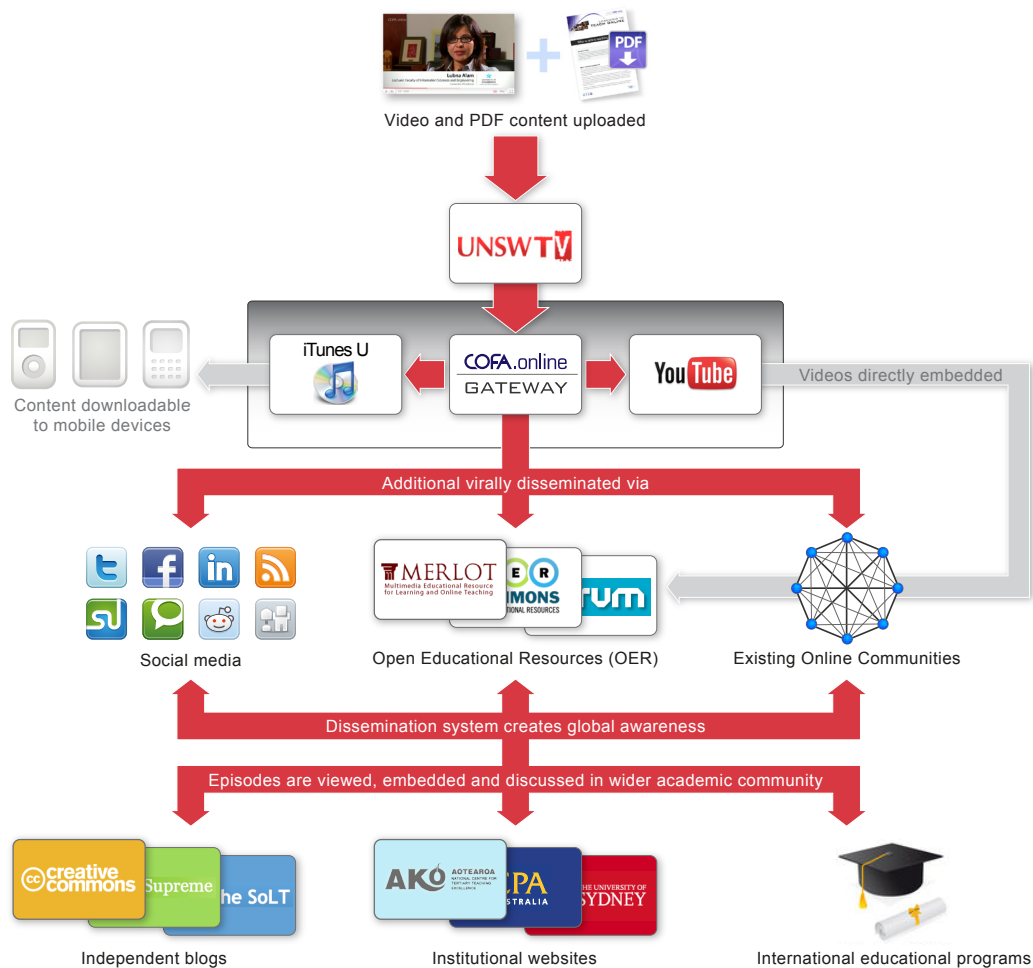


Figure 12. The LTTO project's integrated online dissemination strategy.

The following mechanisms were used to fulfill this dissemination strategy:

1. **Integrated online dissemination system.** Content was uploaded once into UNSW Australia's media management system UNSW TV, and was automatically pushed to populate the LTTO website, iTunes U collection and YouTube channel. These are the only places where video content is hosted. However, videos from YouTube and the LTTO website can be freely embedded in other websites by users.
2. **Open Educational Resources.** OER contain free, digitally shared educational content created by universities, other institutions, and individuals. There are several searchable OER databases that were used to redistribute LTTO:
 - **MERLOT** [merlot.org]. MERLOT is a US based peer reviewed OER with over 133 thousand members, and was the highest referrer of traffic to the LTTO website. MERLOT chose to peer review the project twice giving it 5/5 stars, and 4.5/5 stars respectively for quality and educational value [bit.ly/13LA7bw]. LTTO was also awarded the 2012 MERLOT Award for Exemplary Online Learning Resources – MERLOT Classics [bit.ly/1LRaV7m].

- **OER Commons** [bit.ly/lrTm8q]. This website has contributed the sixth highest number of visits to the project website over the duration of this study.
 - **Jorum** [jorum.ac.uk]. This is a UK-only OER that made a special exception to allow the inclusion of the LTTO resources in its database, due to their positive impression of the project. On average over 5 million views and downloads were recorded of resources in the database between 2010 and 2015 (Jorum, n.d.).
 - **Scribd** [scribd.com]. Scribd is an open and subscription based document and ebook sharing network, with over 80 million readers visiting the site every month (Scribd.com, n.d.). All PDF components of each episode were freely shared within this database.
3. **Distribution of resources via existing online groups and organisations.** The following select examples exemplify the type of online networks in which content was shared:
- **Academia** [bit.ly/14XITR]. This is a global network of over 22 million academics (Academia.edu, 2015), who share research papers, interests and other information. The PDF components from each episode were uploaded to the personal profiles of the project leaders, and tagged so that they would be visible to many different interest groups within the community.
 - **Classroom 2.0** [classroom20.com]. This is a high profile and very active global education network populated by over 80 thousand teachers from all education sectors (Classroom_2.0, 2015).
4. **Social media.** The use of social media has been discussed previously. However it is important to note that there are two different ways that social media are used in the promotion process:
- **Self-promotion.** COFA Online used tools such as Twitter, Facebook, and LinkedIn extensively to promote the project.
 - **'Viral' promotion.** Consisting of what other people said about the project on various social media channels, the viral dissemination and reach of LTTO exceeded expectations, as discussed in Chapter 4.
5. **Stakeholders.** Universities and interviewees who contributed to the project were emailed links to episodes in which they appeared, and asked to share the resources amongst colleagues and any educational networks they may be part of.

3.4 Chapter 3 summary

The original COFA Online Fellowship programs were effective, localised professional development programs. They drew upon the principles of design practice because they were developed for creative subject areas. This design process was iterative, and involved literature research; contextualisation and hybridisation of curriculum development with design practice; development of workshops and pedagogies; practical application of these in the design and teaching of the resultant courses; feedback from the academics involved; sharing of collective experience; formalised and casual feedback from students, then iteratively changing the professional development based upon these factors to continually fine tune the outcomes.

LTTO was conceived as an evolution of the fellowships that would extend COFA Online's professional development support to academics outside of UNSW Australia. It was a new design iteration of knowledge developed from the entirety of COFA Online's previous developmental experience. Web 2.0 technologies were adopted as the central vehicle for the dissemination of this support, with an analysis of information sharing practices using this technology being an important consideration informing the design, content and production of episodes. LTTO was designed to take advantage of the dissemination potential of the digital technologies that it was created to explain. The resource drew upon the collective wisdom of a number of academics, students and university staff teaching and learning in a variety of different ways using technology, in different disciplines, institutions, and countries. The tone of LTTO was designed to be pragmatic, practical and collegial — echoing the ethos of the COFA Online Fellowships that preceded it. The editing of the video components within episodes reflected this concept. By juxtaposing common experiences and viewpoints between interviewees, with the aim of demonstrating to the audience that despite differences in what we teach, we are all able to learn about the process of teaching from sharing experiences and practical strategies within our professional community, no matter the differences in content. The design process adopted to create LTTO was more than a description of a linear process adopted to create an artefact. Rather, an inclusive iterative design approach was required to redress the constantly shifting parameters of all aspects within the project; from planning, management, production, dissemination, and iterative evaluation — with each of these elements deeply interrelated.

The research within this thesis echoes the process of creation described in this chapter — it also follows an iterative path like the design process used to create LTTO. The more data about the spread and use of the project that were collected and analysed, the more questions arose, necessitating changes in the direction of the research in order to investigate and understand their significance.

CHAPTER 4.

UNEXPECTED OUTCOMES

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Synopsis

This chapter summarises the unexpected and extensive measured impacts of LTTO. These were revealed through examination of the quantitative and qualitative data that were gathered as part of the project evaluation process. The purpose of exploring these data here is to demonstrate that LTTO was widely shared within the academic community, and perceived as relevant and useful to a large number of diverse educators around the world – and as such was worthy of further investigation. This chapter also discusses how these surprising results highlighted interesting phenomena that triggered the deeper exploration into other elements of the larger LTTO story that I explore in this thesis.

4.1 Data used in this part of the study

In Chapter 1, a summary of the unexpected project outcomes of the LTTO project was presented. In order to better understand how these outcomes eventuated, it is important to detail what the data revealed about LTTO's spread around the world, and the perceived value of the project by those using it in different ways. The unexpected outcomes revealed by these data triggered a curiosity, and motivated the subsequent investigation that became the next focus of this thesis.

This section summarises the main measurable outcomes of LTTO, by examining the key findings revealed by the significant volume of quantitative and qualitative data that were collected between October 29, 2009 and October 23, 2012. Due to the subsequent events that I wish to explore, I will only discuss the data in enough depth within this chapter to support the position that LTTO was deemed to be a worthwhile and valuable professional development resource amongst the wider education community, and to establish the basis for further exploration of emerging concepts in the following chapters.

Determining the required data

As I will describe below, I established several online quantitative data collection instruments to inform the iterative design process and to provide evidence of impact for the summative report to the grant funding body (see the final project report if desired, for a description of the evaluation strategy [bit.ly/1vNDmt3]). These instruments recorded (and continue to record) a large amount of information about the extent of use of the artefacts. The data revealed by these sources quickly made me realise that an understanding of where and who the project had reached, but more importantly how and why it was shared so widely, was vital in developing a deeper understanding of the significance of the design choices made throughout the project.

This thesis references the aforementioned data that was collected under ethics approval of UNSW Australia during the development and subsequent implementation of LTTO. The University of Sydney ethics committee approved the analysis of these existing data for this thesis.

Population and sampling

The effectiveness of LTTO's Web 2.0 dissemination strategy was unpredictable, and resulted in data being collected that was generated by users who were much more widely distributed than was initially predicted (Australian higher education). Therefore, I made the decision to examine the breadth of data that was returned from the collection instruments in its entirety, rather than drawing a random sample of academics from Australian higher education as was originally anticipated.

This chapter uses the data collected between 2009 and 2012 to paint an initial, broad picture of the use and perception of LTTO. As this study progressed, more detailed investigations were carried out, within more specific population samples, to investigate in further depth how LTTO's design enabled educators

in specific contexts to relate to the information being presented, and to determine any significant commonalities and differences in the way the resource was used in these circumstances.

4.2 The spread of LTTO – collation of quantitative data

Analysis of the quantitative data collected, directly supported the investigation of the following:

- **Project practicalities.** The design and editorial aspects of the LTTO artefacts.
- **Pedagogical merit.** The perception of usefulness of the information presented within the LTTO episodes, and the impact of this information upon those who engaged with them.
- **Perceived relevance and value.** The multi-disciplinary relevance of the information presented within LTTO.

Data related to the spread of the project were collected over the entire timeframe of the study from the instruments specified in the next section below. The spread of the project can be defined as a quantitative measurement of access to, and sharing of the LTTO artefacts across different geographic, institutional and educational instances. The nature of the artefacts means that they could be accessed in three distinct ways:

- **In context.** Artefacts were viewed within the LTTO website, YouTube or iTunes U channels.
- **Out of context.** Artefacts were removed from the LTTO website via Web 2.0 sharing and viewed in isolation within social media networks.
- **New context.** Artefacts were embedded and recontextualised within other existing contexts such as blogs, institutional websites or educational programs.

It is important to note that I am only presenting simplified summaries of the quantitative data in this chapter to establish that LTTO did indeed exceed expectations in the spread and use around the globe. The exact nature of the spread (use in context, sharing out of context, and re-embedding in new contexts), and the nuances of how the resource was used in the new contexts will be explored in more depth in Chapter 5.

Quantitative data instruments

The digital instruments described below are able to record information such as the number of views of the different episodes; the location of those accessing the LTTO website; how long they remained on the site; how many web pages they viewed; and where artefacts were embedded in other websites. They also contain sophisticated analytical capabilities that enable data to be interrogated using a wide variety of methods. The quantitative data instruments that were used are detailed below:

- **LTTO website statistics from Google Analytics** [google.com/analytics]. This is a free, powerful tool that collects data on all aspects of a website's use. It was embedded within the LTTO website during its development.
- **Statistics from iTunes U**. Apple's iTunes U regularly makes available statistics about the number of views and downloads of episode content. This information was amalgamated with the LTTO website and YouTube view statistics.
- **YouTube Statistics**. Information was also gathered directly from YouTube about how many views the videos were receiving within the YouTube website, and from embedded videos in other websites.
- **Google Alerts** [google.com/alerts]. This tool enables automated daily searches of the Internet for specific phrases, with results collated and sent to an email address. I set up searches for phrases related to LTTO, and for the title of each individual episode. It was through Google Alerts, that I was able to discover many of the new contexts that referenced the project such as blogs, institutional websites and some non-password protected educational programs.
- **Open online questionnaire via SurveyMonkey** [surveymonkey.net]. This is an online survey design, management and analysis tool. It was used to create and analyse the LTTO open online questionnaire [surveymonkey.com/s/ltto], which was concerned with evaluating the use of the artefacts. This questionnaire gathered both quantitative data in the form of multiple-choice questions, and qualitative data in the form of open responses.

Limitations of the quantitative data collection instruments

While these sources returned a great quantity of data related to the appropriation of LTTO artefacts in new contexts within different websites, they were not in many cases able to gather information about links to the project website, or artefacts embedded on websites that were behind password protection, such as in a Learning Management System (LMS). In some cases Google Alerts were able to return the URL (uniform resource locator, or web address) for the log in page of an LMS where an LTTO episode was embedded, but the exact context of its use was indeterminable. In many of these instances, contacting the Learning and Teaching units of the institutions in question enabled me to track down more information, but if none could be found, it was noted that the site was behind password protection and the exact nature of LTTO use was not known. In addition, the automated data collection instruments such as Google, YouTube or iTunes U are only able to gather statistics about online access or use of the resource, and cannot detect instances where links to the project may be reproduced in print, emails or other secure or non-digital formats. Therefore I am confident that the data detailed below is an *underestimation* of the external reference to or use of LTTO artefacts.

Another limitation of these quantitative data is that while showing the extent of the use and sharing of the artefacts out of context, they cannot conclusively determine the perceived relevance and value or

pedagogical merit of LTTO beyond a series of Likert scale questions and short open responses in the open online questionnaire; and a broad assumption on my part that if the resources were ineffective, artefacts would not have been used to the extent they were. However, these data are significant in that they do provide a useful overview of the use and acceptance of LTTO by the wider education community, providing a reasonable basis for further investigation.

Quantitative data collected

The data sources revealed a variety of different types of quantifiable information detailing the use of, and external reference to, the LTTO artefacts in context (official LTTO dissemination channels), out of context (shared within social media), and new contexts (artefacts being relocated to existing websites). These could be broadly categorised as follows:

- Unique video views on the LTTO website, YouTube or iTunes U channels (in context).
- Statistics regarding referrals to and use of the LTTO website (out of context).
- Details of institutional websites containing links to the LTTO website (new context).
- Details of unsolicited blog posts and websites containing reviews of LTTO (new context).
- Details of websites where LTTO artefacts were used in education or professional development programs (new context).

Unique video views on the LTTO website, YouTube or iTunes U

The following data about in context use of the LTTO videos were collected via Google Analytics, as well as the built in analytic tools within YouTube and iTunes U during the timeframe of the data collection. They record the number of unique views of the video components of each episode and on which platform these views took place. A unique view is classed as one in which the Internet Protocol (IP) address of the local network the user is viewing the content from is previously unknown. In other words, if someone used the same network connection to watch an episode more than once on each of the technology platforms mentioned above, any views past the first one were not counted towards the total. For example, this could mean that someone could watch a YouTube video 10 times from home, or a group of people could watch an iTunes U video from their institution's wireless network, but it would only be recorded as being seen once on each platform. Therefore the figures in the table will be lower than the actual number of views, as data from the open online questionnaire supports the fact that many users watch a video more than once. However, only counting unique views is a good way to improve the validity of the data, as it eliminates the possibility of someone simply watching a video over and over (or reloading the video webpage) in order to falsify its popularity — a noted practice adopted by some publishers of content on YouTube in its early form (circa 2005) before the unique view mechanism was put in place after Google purchased the platform (“How Does YouTube Count Views?,” 2010).

Table 1 below shows the number of unique views of LTTO episodes from the three main delivery platforms. These data give an overview of the popularity of each episode on the different dissemination platforms that were used.

Episode	LTTO website	YouTube	iTunes U
Context planning and teaching			
Welcome to Learning to Teach Online	6,916	3,034	2,301
Why is online teaching important?	4,866	4,090	2,679
Learning management system or open web?	3,750	3,152	2,593
Considerations for choosing technology	2,812	1,438	1,117
Planning your online class	5,030	2,771	2,391
Integrating online resources into your teaching	2,770	1,727	976
Managing your time when teaching online	3,332	2,041	1,348
Conducting effective online discussions	5,462	3,833	3,761
Engaging and motivating students	8,170	7,771	2,979
Online teamwork and collaboration	2,832	2,575	1,385
Case studies			
Using audio feedback	3,140	2,462	1,509
Using blogs for peer feedback and discussion	2,570	1,402	989
Using Flickr as an online classroom	5,258	1,474	713
Hippocrates: Online medical tutorials	1,444	1,443	946
iLabs: Online access to remote laboratories	1,032	845	376
Teaching with web 2.0 technologies	3,536	3,571	2,652
Increasing student engagement using podcasts	1,738	1,399	623
Creating eBooks for distance education	1,938	1,414	1,098
Understanding Creative Commons	2,380	1,511	620
Using wikis for student collaboration	2,478	3,053	2,236
Online discussions in maths teacher education	1,000	670	308
Using scenario based simulations in Second Life	1,384	1,297	812
Medicles: User generated online medical tutorials	714	436	209
Using online lectures to support active learning	2,642	1,650	754
Using online environments for teaching large classes	1,888	900	278
Using ePortfolios as a reflective teaching tool	3,936	2,715	1,717
Technical glossary			
Setting up a simple blog in Blogger	922	565	298
Getting started in Flickr	862	443	265
Using the iLabCentral resource	752	468	301
An overview of Second Life	696	467	123
Recording audio in Audacity	1414	1,022	345
Twitter basics	1318	956	258
TOTAL UNIQUE VIEWS ON EACH PLATFORM	88,982	62,595	38,960

Table 1. Unique views of LTTO episodes from the project website, YouTube and iTunes U (October 29, 2009 to October 23, 2012).

The central LTTO website proved to be the primary means of access for the LTTO artefacts for many educators. However access via YouTube and iTunes U was significant enough to merit their use as additional dissemination points. In fact, as data below will attest, YouTube in particular enabled video content to be embedded into other websites, which drastically improved the global exposure and spread of the project.

Statistics regarding referrals to, and use of, the LTTO website

It is important to note that these data are only concerned with how educators found, came to and used the central LTTO website from external locations. They do not represent the entirety of educators' level of engagement with the project. Statistics gathered about the use of the LTTO website from Google Analytics provided useful information including how visitors were finding the site, the length of their visits, and the content that they viewed whilst they were there. The following series of tables are a summary of data regarding the use of the LTTO website during the data collection period between October 29, 2009 and October 23, 2012.

General visitor statistics

The data in Table 2 provide a general picture of the reach of the LTTO project. A total of 46,077 visits to the LTTO website were recorded during the data collection timeframe, with 42% of visitors returning more than once. Of particular interest was the fact that people within 146 countries and territories visited the website. My initial prediction that LTTO would predominantly be used within Australia was conclusively proved to be a significant underestimation by these data.

Event	Number
Number of unique visitors	(57.6%) 26,542
Number of returning visitors	(42.4%) 19,535
Number of visits total	46,077
Average number of pages per visit	2.16
Number of countries and territories visited	146
Number of visits on mobile devices	2,267

Table 2. General visitor statistics.

Time spent on site

These data in Table 3 suggest that on average, people did not watch a whole video while on the site (the average video duration being approximately five minutes).

Event	Time
Average duration of visit	00:03:15
Average time new visitors spent on site	00:03:04
Average time returning visitor spent on site per visit	00:03:30
Longest time spent on site	01:05:05
Shortest time spent on site	< 00:00:10

Table 3. Time spent on site.

It is important to note that these data are skewed somewhat because a large percentage of visitors for whom LTTO was not of interest left the website within the first 10 seconds of arriving (see Table 4 below).

Visitor engagement with the site

The data in Table 4 provide an interesting insight about the nature of Web 2.0. Of the 46,077 total number of visits to the LTTO website, some 37,428 visitors (81%) left within two minutes – a timeframe that suggests significant engagement with the content may not have occurred (the average length of an LTTO video being 363.91 seconds, or six minutes and three point nine one seconds).

Visit duration	Visits	Page views
0-10 seconds	30,598	31,899
11-30 seconds	1,907	4,234
31-60 seconds	1,859	4,716
61-180 seconds	3,064	9,744
181-600 seconds	3,984	16,599
601-1800 seconds	3,500	19,158
1801+ seconds	1,165	13,078

Table 4. Visitor engagement with the site.

However, it is also evident that be seen that 3,984 visitors (9%) stayed on the site long enough to view one complete video on average; 3,500 (8%) stayed long enough to watch five complete videos on average; and a further 1,165 (3%) stayed on the site long enough to watch more than five episodes. Even though only 19% of visitors to the LTTO website stayed long enough to watch one or more videos in full, sharing of the resources with colleagues using the built in Web 2.0 sharing tools on the site can easily occur within a much shorter time frame – as can bookmarking the page to return to later. Web 2.0 technologies, by their very nature, can present users with a large volume of links to a wide variety of content in a very short time. In effect, a message can be broadcast to a large number of people very quickly, but the percentage of people for whom the message is relevant may be relatively small. The

LTTO dissemination strategy was designed with this in mind. There is little effort required to broadcast to such a large number of people, and the reach is not limited by geographic or budgetary considerations. For every thousand people who are uninterested, there may be one or two who are. It was always expected that there would be a proportion of people who encountered information about LTTO who would not engage. It should also be noted that many educators who engaged with the content in places other than the project website, are not reflected in the above data. This includes instances where content was embedded into other websites. This will be explored later in this chapter.

Returning visitors

While the majority of visitors to the LTTO website only visited once, the data in Table 5 reveal that a significant 19,535 of the 46,077 total number of visitors returned several times.

Number of visits	Visits	Page views
1 (unique visitors)	26,542	56,855
2	5,485	13,384
3	2,334	5,558
4	1,302	3,014
5	827	1,869
6	574	1,298
7	443	863
8	357	681
9-14	1,241	2,422
15-25	1,073	1,978
26-50	959	1,509
51-100	835	1,415
101-200	852	1,103
201+	3,253	7,479

Table 5. Returning visitors

The table above seems to suggest that some visitors returned over one or two hundred times, however, a more likely explanation is that many different users may have visited the website from a common IP address, such as an institutional campus network. Even though people may use different computers or mobile devices to access the LTTO website, if they do so using a common network — such as a university wireless network — Google Analytics may recognise these as being the same visitor returning a high number of times. Such traffic could be from an institution that posted a link to the LTTO website on their own website to support staff, or where educators or students are accessing LTTO artefacts used as part of an educational or professional development program from their campus network. Whichever explanation is more likely, the fact remains that a significant percentage of visitors returned to the website several times during the period of data collection. This suggests that the visitors perceived LTTO as being valuable and relevant for their purposes, but these data alone are inconclusive at this point.

Top 25 countries and territories

The countries with a significantly higher level of engagement with the LTTO website were Australia, the USA, the UK, Canada, and New Zealand (Table 6).

Rank	Country	Total visits	Pages / visit	Av time on site	% New visitors
1	Australia	19,321	2.39	00:03:46	49.64%
2	United States	10,012	2.04	00:02:59	70.98%
3	United Kingdom	4,346	1.85	00:02:13	44.18%
4	Canada	2,637	2.16	00:03:18	64.51%
5	New Zealand	1,207	2.26	00:03:26	59.65%
6	Barbados	444	1.06	00:00:20	2.03%
7	Ireland	422	2.46	00:04:46	64.22%
8	Colombia	418	1.80	00:03:35	59.09%
9	Portugal	381	1.99	00:03:53	66.93%
10	France	356	1.48	00:01:41	71.63%
11	India	345	1.63	00:02:07	82.03%
12	Malaysia	339	1.72	00:01:58	66.96%
13	Spain	331	2.04	00:02:28	73.72%
14	Netherlands	313	1.89	00:02:07	70.93%
15	Italy	279	1.98	00:02:37	49.82%
16	South Africa	257	2.24	00:04:32	53.70%
17	Singapore	240	1.89	00:02:24	70.83%
18	Hong Kong	230	1.98	00:03:15	49.57%
19	Germany	225	1.94	00:02:41	70.67%
20	Mexico	216	2.04	00:04:09	64.81%
21	Philippines	188	2.14	00:04:03	65.96%
22	Denmark	187	2.55	00:04:05	57.75%
23	Sweden	162	1.99	00:02:56	67.90%
24	China	161	2.13	00:02:25	62.11%
25	Brazil	154	2.11	00:02:54	81.82%

Table 6. Top 25 countries and territories.

Not surprisingly, these are countries in which English is spoken as a first language. As the resources were developed using English as the only language, such a result is to be expected. The ‘% New Visitors’ column indicates the percentage of the visitors from that country had never been to the website before. The lower the percentage, the more returning visitors the website had from that country. In addition, it is worthy of note that the Web 2.0 dissemination strategy used technologies developed and based in the USA (such as Twitter, YouTube, iTunes U, etc). The OER where LTTO artefacts were deposited were also within the USA and the UK.

One significant observation of these data is that visitors seem to have spent a relatively consistent amount of time engaging with the LTTO website despite often large variations in the number of visits

from the different countries. To illustrate:

- The average time spent on the website by 46,077 visitors from 146 countries was three minutes and 15 seconds.
- The average time spent on the site from the 37,523 visitors from the top five countries was three minutes and eight seconds. These visitors represent 81% of all visitors to the website.

This suggests that LTTO may have in fact been equally useful to educators from different countries; and that it may have been limitations in the use or reach of the Web 2.0 digital networks (used to share and promote the project) within different countries that reduced awareness and therefore the number of visits. One anomaly worth mentioning is number six in the table – Barbados. Of the 444 visitors from this country, the average time on the site was 20 seconds, and only one page was viewed. However the percentage of new visitors was only 2.03%, suggesting that the majority of visits were conducted via the same IP address. This suggests that whatever link was followed to the website from this country was placed in a context that did not reach a relevant audience, the content itself was perceived as being inappropriate for educators within this country, or (most likely) the visits were from an Internet bot (software running automated tasks) trying to hack the website. While the actions of bots may be included in other data, it is more unlikely given that there were no other similar occurrences of an unusually high number of hits on the site with short durations from one location.

Top 25 countries by amount of time spent on site

Interestingly, it seems that on average, educators who visited the LTTO website in fewer numbers from small countries, spent a longer amount of time on average engaging with the website and artefacts (Table 7). It must be noted that the validity of these results is questionable because the average times from countries with a higher frequency of visits must be calculated over a vastly greater number of visitors. However, the analysis of visitor engagement with the website (as discussed in Table 4,) shows that 19% of the 46,077 visitors during the data collection timeframe did stay long enough to watch one or more LTTO videos of average length. The 744 visitors in the table below represent 2% of the total number of visitors to the site – well within the 19% figure – which adds credibility to the accuracy of the results.

Rank	Country	Total visits	Pages / visit	Av time on site	% new visitors
1.	Mongolia	1	13.00	01:05:05	100.00%
2.	Ghana	4	4.50	00:18:08	100.00%
3.	Belarus	3	6.00	00:14:39	100.00%
4.	Zambia	4	2.50	00:14:05	75.00%
5.	Haiti	6	7.17	00:14:04	33.33%
6.	Bhutan	3	3.00	00:11:36	100.00%
7.	Zimbabwe	2	1.50	00:10:44	100.00%
8.	Suriname	1	4.00	00:10:24	100.00%
9.	Albania	3	5.00	00:10:23	100.00%
10.	Papua New Guinea	13	4.00	00:09:32	53.85%
11.	Panama	3	5.67	00:09:14	100.00%
12.	Lebanon	5	1.40	00:06:58	80.00%
13.	Peru	27	2.41	00:06:36	81.48%
14.	Venezuela	37	2.68	00:06:24	70.27%
15.	Iraq	2	1.50	00:05:59	50.00%
16.	Trinidad and Tobago	27	3.30	00:05:51	74.07%
17.	Cambodia	9	3.89	00:05:50	55.56%
18.	Brunei	5	2.40	00:05:26	80.00%
19.	Slovenia	26	2.38	00:05:24	50.00%
20.	Botswana	4	2.25	00:05:22	50.00%
21.	Russia	66	2.42	00:05:02	74.24%
22.	Indonesia	56	2.75	00:04:59	80.36%
23.	Malta	8	3.00	00:04:56	100.00%
24.	Slovakia	7	1.57	00:04:54	100.00%
25.	Ireland	422	2.46	00:04:46	64.22%

Table 7. Top 25 countries by amount of time spent on site.

I believe that these data are worth showing as they are indicative of the reach, and value of the LTTO artefacts in these communities. They suggest that there is interest in online teaching even in many smaller or less technologically saturated countries, and that LTTO may have proven useful in situations where other forms of relevant professional development may have been more difficult to access.

Top 25 referrers to the LTTO website

Table 8 illustrates that there were a variety of different websites that referred significant amounts of visitors to the central LTTO website.

Rank	Referrer	Type	Total visits	Pages / visit	Av time	% new visitors
1.	(direct) / (none)		18,795	2.03	00:02:51	61.48%
2.	google / organic*	Internet search	4,767	2.57	00:03:57	49.76%
3.	twitter.com	Web 2.0 / social	2,091	1.39	00:01:14	22.33%
4.	merlot.org	OER	2,022	2.18	00:03:45	73.84%
5.	cofa.unsw.edu.au	Institutional link	997	2.61	00:04:37	33.50%
6.	youtube.com	Web 2.0 / social	972	2.34	00:04:08	64.71%
7.	oercommons.org	OER	908	2.03	00:03:08	62.78%
8.	facebook.com	Web 2.0 / social	704	1.98	00:02:36	58.38%
9.	altc.edu.au	Institutional link	628	2.62	00:03:51	40.29%
10.	t.co (mobile Twitter)	Web 2.0 / social	518	1.95	00:03:02	36.29%
11.	stumbleupon.com	Web 2.0 / social	424	1.12	00:00:03	99.53%
12.	qbn.com	Web 2.0 / social	395	1.11	00:00:16	71.65%
13.	staff.think.edu.au	Institutional link	377	2.17	00:06:27	35.81%
14.	cpaaustralia.com.au	Institutional link	372	1.80	00:01:54	79.84%
15.	www2.le.ac.uk	Institutional link	347	4.17	00:10:59	19.60%
16.	cel.curtin.edu.au	Use in program	346	2.12	00:02:59	67.05%
17.	feedburner	Web 2.0 / social	327	2.83	00:04:40	20.80%
18.	academia.edu	Web 2.0 / social	327	2.60	00:05:08	66.67%
19.	tonybates.ca	Blog post	299	2.99	00:04:33	68.56%
20.	classroom20.com	Web 2.0 / social	283	2.85	00:04:56	60.42%
21.	linkedin.com	Web 2.0 / social	275	2.17	00:03:45	51.64%
22.	djiigo.com	Web 2.0 / social	264	2.41	00:03:30	40.15%
23.	mvcr.org	Use in program	262	1.50	00:01:38	72.90%
24.	delicious.com	Web 2.0 / social	250	2.05	00:01:42	27.60%
25.	futureofeducation.com	Web 2.0 / social	242	2.36	00:03:51	72.73%

Table 8. Top 25 referrers to the LTTO website. *Organic references are unpaid search results (as opposed to paid advertising).

The number one 'referrer' was direct traffic, meaning that visitors typed the correct URL of the website directly into their browser. This could have been the result of various promotional activities undertaken by the project team such as presentations at conferences; several print and online articles in the media discussing the project; research papers about the project; or word of mouth. These can be thought of as 'out of context' referrals to the project.

It is also worthy of note that the number two referrer was Google organic search results based upon key search terms. This additional out of context reference can be attributed to carefully considered keywords and tags being added to the metadata of all episode content during the planning stage of the project, so that they would be more visible to online search engines. In addition, Google uses an algorithm

called PageRank that determines a website's 'importance', and ranks it higher or lower in search results accordingly (Karch, n.d.). A website's importance is determined by how many other websites link to it, how 'important' the linking websites are themselves (or how many other sites link to them), and whether the linking websites have few external links within them (indicating more considered linking behaviour). This enables Google to determine a website's importance by how many times other people's websites refer to it on the web. The more important a website becomes, the higher it will appear in a web search that hits upon keywords associated with the site. Therefore, as LTTO was shared more widely between educators over time and embedded in other websites and blogs, its importance increased, causing it to rise in web search rankings, and be found more often by people conducting online learning and teaching related searches.

The original LTTO dissemination strategy was intended to use a variety of different digital distribution points scattered around the Internet, in order to reach a wider audience and attract attention to the central LTTO website. This strategy seems to have been successful in that many of the top 'out of context' referrers to the website were different Web 2.0 social platforms, such as Twitter, Facebook, Stumbleupon [stumbleupon.com] or Academia. In addition, these data highlight the fact that many educators found the LTTO website from instances of new contexts – by clicking on a link that their own institution placed on their web site, or from within online learning management systems or wikis used for particular professional development or educational programs. Such institutions include; CPA (Certified Practising Accountants) Australia [cpaaustralia.com.au] and Curtin University [curtin.edu.au]. In addition to the online dissemination strategy, some institutions, such as Think Education [think.edu.au] and The University of Leicester [www2.le.ac.uk], had prior knowledge of the LTTO project through existing professional connections with UNSW Australia.

It was interesting to discover that both word of mouth and online discovery resulted in comparable rates of adoption. Use of the LTTO resources at institutional level was in effect a form of peer review. If educational institutions endorsed LTTO artefacts by linking to the website from their own, it was a strong indication that they thought of the resource as being of valuable and relevant for their own staff and students – raising the importance of the website from the perspectives of colleagues in education and Google's PageRank algorithm. In total, I found such links from 153 different institutions in 19 different countries worldwide. These will be examined in more detail later in the chapter.

Interestingly, these data evidence that the context in which the links to the project are shared is a significant factor determining the number of relevant people it can reach. For example, QBN [qbn.com], the twelfth highest referrer, is a website dedicated to promoting and sharing online content related to art and design. Stumbleupon, the eleventh highest referrer, is a Web 2.0 network where people share interesting websites to a central database, and then users of the site are presented with random links each day. While both sites referred significant numbers of people to LTTO, they could be considered 'out of context' as their focus was not strictly education. The average time people spent on the site after

being referred to it from these ‘out of context’ referrers is much lower than instances where LTTO was shared within ‘new contexts’ that were more education focused, such as MERLOT, OER Commons, or Tonybates.ca (an educational blog that I will discuss later). This suggests that the proportion of interested people frequenting these out of context instances where LTTO is shared is significantly lower, thus the conversion rate of sharing amongst such networks is also correspondingly low. However, given Web 2.0 sharing (by other people) costs nothing in terms of time or money, and does not detract from the project in any way, there were few drawbacks to such a broad dissemination strategy.

The notion of new contexts, or networks of common interest, became a primary focus of this thesis as my investigations into why and how the LTTO project was shared so widely continued.

Quantitative data about reference to LTTO beyond the project website

The quantitative data examined to date revealed that the LTTO artefacts were being used by a much more geographically dispersed and disciplinary-diverse cohort of educators than was originally anticipated. These results about the use of the LTTO website form only one part of the larger quantitative narrative. I was prompted to further examine other aspects of the story as told by different datasets, so as to develop a better understanding of how the visits to the website were actually generated. The use of Web 2.0 technologies enabled people to take the artefacts out of context and share links to the project, but also to take the episodes from the LTTO website or YouTube and embed them into their own websites in new contexts. The data regarding this usage was collected primarily via Google Alerts, and supplemented by the other quantitative data collection instruments.

The types of instances where LTTO was referenced or where artefacts were embedded could be categorised as:

- discussion and sharing related to LTTO on Twitter (out of context);
- links or embeds on institutional websites (new contexts);
- unsolicited blog posts and reviews (new contexts); and
- use in educational and professional development programs (new contexts).

Further quantitative information about the use and perception of LTTO came from Likert scale questions from the previously discussed online open questionnaire hosted in SurveyMonkey.

In order to develop an understanding of how LTTO artefacts were being used in these circumstances, it was important that the following data were gathered for every instance discovered:

- Website title and URL.
- Twitter username of author.
- Institution name and type.
- Geographic location.

- Discipline.
- Education sector.
- Date of embed or discovery.
- Number of LTTO website referrals from location.
- Number of episodes embedded.
- Number of video plays.

It was my intent to collect as much data about each instance of LTTO use or reference as possible throughout the research time frame, as I was not sure what would eventually be required. However, the automated data collection systems that I put in place could only obtain a certain level of information, meaning I had to employ other methods for gathering further information about each instance discovered. The tables below do not contain all of the data I have mentioned above. Rather I have presented these data as summarised tables to establish the extent of and variations in the spread of the project (for full tables see Appendix 2).

The investigative process

Determining details about the geographic location, discipline, education sector, and depth of engagement with the LTTO resources was relatively straightforward in the case of data retrieved from the open online questionnaire in SurveyMonkey [surveyMonkey.com/s/ltto]. Here respondents answered a series of questions that fleshed out this information. However, in most cases, data returned from the automated instruments such as Google Analytics consisted of a URL leading to the instance, or often just the homepage of the website where the LTTO project was referred to or an artefact was embedded. Sometimes these were easily identifiable as in institutional website, and sometimes they may have been a blog post where the identity of the author was not readily available.

In such cases, in order to collect the necessary information, I undertook a process of manual research, gathering public information from open websites in order to piece together more detail about an instance of LTTO use that was discovered. For example, Google Alerts would send me an email with a link to a blog post that mentions the name of one of the LTTO episodes. Often there was little information about the blog or its author on the website, and in many cases only a username of the author was evident. In such cases I would search for the author's username in Twitter to determine if they had a Twitter account. Often a Twitter account would mention the general geographic location of the author (state or city), and perhaps their professional role (such as primary school teacher or librarian). Following this, cross-referencing this information with professional profiles found on LinkedIn would often reveal the exact institution where the author worked, enabling me to obtain its address from which I could obtain latitude and longitude coordinates in Google Earth. An additional check on the institution's website would usually furnish me with further information such as the author's discipline. The investigative process was

different depending upon each instance. However, gathering sufficient information about each use of LTTO that was found on the Internet was usually achieved by triangulating several sources of information. From an ethical perspective, all of this information was freely available online on public websites, placed there by the individuals themselves or their employers. As much information was gathered as possible, however there were instances where some information could not be found. In these instances privacy was respected and missing data are represented as blanks in the tables in Appendix 2.

Discussion and sharing related to LTTO on Twitter

Twitter is a popular Web 2.0 micro-blogging technology related to the promotion and viral dissemination of the project, where users can publicly broadcast messages of 140 characters. During the data collection period, 581 Twitter users tweeted (broadcast) information about the project to their respective follower networks. As of the time of publication, the COFA Online Twitter account had over 2,554 followers in 34 countries worldwide. Each of these users has the potential to have hundreds or thousands of followers of their own, meaning tweets (messages) about the project that they send, have enormous potential to reach ever-increasing numbers of people. Locations of the Twitter users who follow COFA Online's Twitter feed include Australia, Africa, Belgium, Brazil, Canada, China, Denmark, Dominican Republic, Egypt, Finland, France, Germany, Holland, India, Ireland, Italy, Japan, Mexico, Netherlands, New Zealand, North America, Norway, Philippines, Portugal, Puerto Rico, Russia, Serbia, Singapore, Spain, Sweden, Switzerland, United Kingdom, Ukraine, and the United Arab Emirates. Twitter enabled people to share links to LTTO artefacts out of context, translocating them into new contexts of their own social and professional networks. It is clear from the data collected, that this particular Web 2.0 tool was instrumental in helping to rapidly spread awareness of LTTO around the world. More detail about the extent of this Twitter activity will be explored in Chapter 5.

Links or embeds on institutional websites

Over the duration of the data collection window, 153 instances from 19 different countries were found where institutions linked to the LTTO website or embedded LTTO artefacts in new contexts to support staff development. Table 1 in Appendix 2 is a summary table of key information including institution, educational sector and country. The full dataset, which includes information about the exact nature of the activity in each instance, will be explored in more detail in Chapter 5.

Of particular note is the variation in the types of institutions that were willing to endorse LTTO by recommending it to their own staff and visitors to their institutional websites. Educational sectors such as university, K-12, community college — usually a US based, "... non-residential, publicly funded higher education college established to serve a specific community" ("Community College", 2015), private education and even private enterprise such as software developers, thought LTTO appropriate to share with the wider population within their own organisations. Also of interest is that several countries in which English is spoken as a second language also endorsed the resources by sharing them on their websites.

Unsolicited blog posts and reviews

Table 2 in Appendix 2 documents 82 different blogs from 23 different countries that were found to have referred to the LTTO project. These references varied in each instance from embedding videos, providing a link to the LTTO website when discussing a related concept, or full reviews of the quality, relevance and merits of the project. Examples from the latter category will be discussed later in this chapter. Of significance is that once again, educators from a range of different disciplines, educational sectors and countries are represented, implying that the design of LTTO was successful in being applicable to a diverse range of educational contexts.

LTTO artefacts being used in education or professional development programs

Perhaps the most significant quantitative data that were collected, relate to instances in which institutions referred to or embedded LTTO artefacts in their own educational or professional development programs. Table 3 in Appendix 2 shows 133 discoveries of artefacts used in education or professional development programs across 23 countries. The programs were in higher education, K-12, vocational and private education sectors, and even government agencies (including the European Commission).

The LTTO project was conceived to help individual educators improve their online teaching practices. It was a welcome surprise to find that they were also using the resources to improve their own students' learning in this area at an institutional level. Due to the fact that LTTO was used as a resource within different curricula, many instances of this use were protected behind passwords in LMS – making some details of the programs difficult to determine. However the cross-referencing of quantitative data from my different collection instruments shows activity that can be attributed to these institutions. The reasons for these educators deciding to include the resource in the new contexts of their own educational offerings, is indeterminate at this stage however.

Quantitative data from the online open questionnaire

Further quantitative and some qualitative data came from the open online questionnaire that was designed to elicit feedback directly from individual educators using LTTO (see Appendix 3). It comprised a series of questions categorised into the key concepts of project practicalities, pedagogical merit, perceived relevance and value. Links to the questionnaire were put in the video description and accompanying PDF document for each episode, and a page describing the questionnaire was established on the central project website. This meant that the sample population for the instrument defined itself by who volunteered to take part. I made no assumptions about who would or would not take the survey, and did not prevent anyone who wished to take part from doing so. Given that LTTO was designed to appeal to as broad an audience as possible, I did not wish to limit the potential sample.

Data taken from the questionnaire between March 5, 2011 and October 23, 2012 was examined. During this time, 193 respondents from 40 countries contributed. This was a noticeably low response rate when compared to the number of unique views of the artefacts on the different dissemination platforms, and

any generalisations had to be drawn with caution. However, these data offer a little more insight into the performance of the different aspects of the project design. In addition, they give an indication of sentiment amongst those who used the resource, whereas the previously discussed data collected via the automated online instruments does not. The open online questionnaire enabled individual users of the resource to tell a small part of their own story about their contexts, use and opinions of LTTO. In this respect the data has value, and when triangulated with other qualitative data later in the thesis, helps to provide an overall indicative picture of LTTO's performance amongst the educators who used it.

Questionnaire respondent profiles

The questionnaire was useful in identifying some characteristics of the LTTO audience. It revealed that 58% of respondents were aged 45 and above, with 22% being aged between 20 and 35. In addition, 41% reported that they have taught online for three or more years, while those with no online teaching experience comprised 31% of respondents. It appears from this small sample that both experienced and novice online educators were using LTTO.

Number of questionnaire respondents and countries

Of the 193 respondents, 165 volunteered their country (Table 9).

Country	Number of respondents	Country	Number of respondents
Australia	54	Chile	1
USA	54	Dominican Republic	1
Canada	12	Finland	1
UK	12	France	1
Ireland	5	Germany	1
Colombia	3	Ghana	1
New Zealand	3	India	1
Albania	2	Indonesia	1
China	2	Italy	1
Croatia	2	Kenya	1
Mexico	2	Malta	1
Netherlands	2	Norway	1
Romania	2	Oman	1
Spain	2	Peru	1
Turkey	2	Russia	1
UAE	2	Scotland	1
Algeria	1	Sudan	1
Austria	1	Sweden	1
Belgium	1	Thailand	1
Brazil	1	Ukraine	1

Table 9. Number of questionnaire respondents and countries.

It is clear that the majority of respondents were from Australia, the USA, Canada and the UK, which is congruent with data related to the LTTO website and artefact use collected by the automated online instruments previously discussed.

Disciplines of respondents

Of the 193 respondents, 186 provided their discipline. These data were categorised as below (Table 10).

Disciplines	Number of respondents
Education	30
Educational Technology and ICT	26
English as a second language (ESL)	11
Educational / Content Design	11
English	9
K-12 or High School Teacher	9
Learning and Teaching / Training	9
Teachers of students with disabilities	6
Business	6
Vocational / Adult Education	6
Sciences	5
Nursing	5
Fine Art	5
Media and Communications	5
Psychotherapy / Psychology	5
Marketing	3
Higher Education Student	3
Design	3
Librarian	3
Medicine	3
Nutrition	2
Mathematics	2
Languages	2
History	2
IT	2
Career Advice	2
Social Studies	2
Law	1
Engineering	1
Humanities	1
Geology	1
Audio Engineering	1
Academic writing and publishing	1
Philosophy	1
Speech Language Pathology	1
Counselling	1

Table 10. Disciplines of respondents.

As may be expected, education and educational technology related disciplines comprised the majority of responses, however there is a broad and thin representation of different disciplines represented in the questionnaire results, supporting the observations of the data from the automated online instruments that LTTO appealed to a diverse range of educational contexts. All respondents were educators in these 36 disciplines, except notably, for three higher education students.

Education sector of respondents

Of the 193 respondents, 183 people described the type of educational institution they worked in as below (Table 11).

Institution type	Number of respondents
University	101
Other	35
Adult Education	29
High School	22
Vocational Training	17
Primary / Junior school	16

Table 11. Education sector of respondents.

Within the ‘other’ category, the most popular response was community college. From these data it is clear that university academics were the most prominent users of LTTO amongst the sample who completed the questionnaire, but all other major sectors were represented. Interestingly, this correlated with the larger quantitative data set collected from the automated instruments, and will be explored more in Chapter 5.

Engagement with LTTO artefacts

A particularly interesting aspect of the online questionnaire was that it asked respondents to specify the level of their engagement with LTTO artefacts in terms of number of individual episodes viewed and the number of times these episodes were viewed on average (Figure 13 and Figure 14).

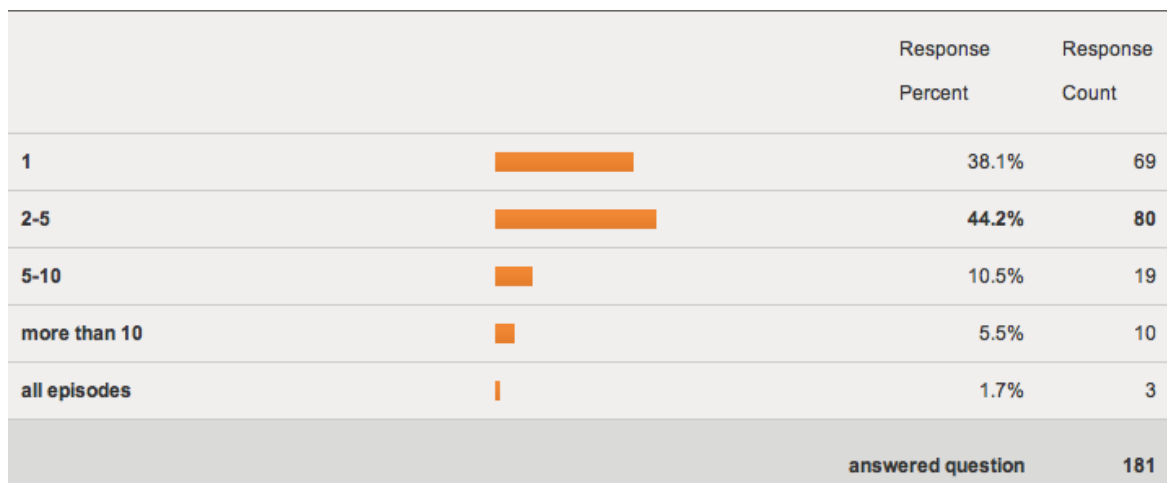


Figure 13. Number of LTTO episodes viewed

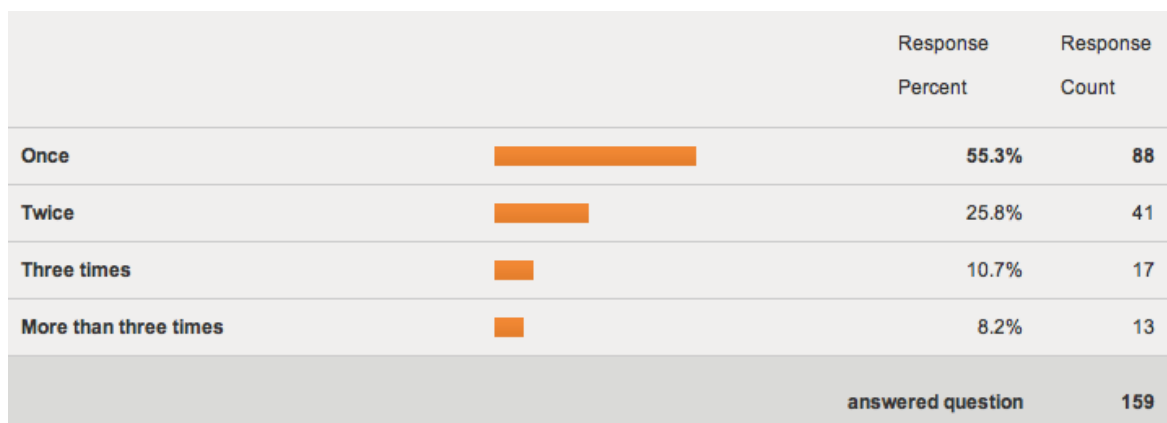


Figure 14. Number of times episodes were viewed on average

Observations related to the modular design and Web 2.0 dissemination of LTTO

The data in the previous two tables suggest that the modular, episodic design of LTTO, and the Web 2.0 dissemination strategy both had a significant impact upon the level of engagement with the resource. When cross-referenced with data about the discovery of the project as discussed below, it is apparent that many users first encountered LTTO via a single episode embedded in an external website in a context other than the LTTO project website. The artefacts were designed to be recontextualised from their original dissemination points and spread via Web 2.0 technologies – with the aim of drawing people back to the main LTTO website via links embedded in the content. In addition, it could be that users taking an artefact out of its original context and sharing or embed individual episodes that had personal relevance to them into new contexts may have increased exposure for the project in a range of different educational contexts. This, in turn, enabled a larger number of educators to see an LTTO artefact in their own familiar contexts – where they may not have otherwise been exposed to it if not for this re-contextualisation. Conversely, the ability for users to take one episode and share it, out of the

context of the rest of the LTTO artefacts, may have in fact limited the number of episodes seen by any one person. They may not have been aware of the other content if they were viewing one single episode shared via social media. I felt that this was an area requiring further investigation (I have explored this in more detail in Chapter 6).

It is worth noting that in terms of the goals of the original project, it was intended and expected that episodes would be viewed individually out of context or in new contexts, and this was not seen as a negative. It is apparent from the data above that many users in this sample only saw one episode, but the majority saw between 2 to 5 episodes. This data is consistent with the large number of return visitors to the LTTO website discussed earlier. It was a main aim of the modular design of the resource that single episodes seen out of context would guide interested educators back to the main website where they could explore other content in the context of the project in its entirety.

It is also interesting to note that around 45% of respondents viewed episodes more than once, suggesting a deeper level of engagement with the content being presented. Of course this could also indicate that the information was not being presented in a clear manner, requiring multiple views for someone to make sense of the content. However, after cross-referencing this with the data from the project practicalities, pedagogical merit, and perceived relevance and value sections of the questionnaire, the latter did not seem to be the case. This question is also pursued in Chapter 7, when individuals are interviewed about their experiences finding and using LTTO artefacts.

Project practicalities

The project practicalities section of the questionnaire contained three questions concerned with: perceptions of the effectiveness of the video and PDF format of the episodes (Figure 15); motivations for engaging with the content (Figure 16); and determining how respondents first discovered LTTO (Figure 18). An additional question from later in the questionnaire about intended actions following engagement with LTTO (Figure 17) is also discussed here as it is related to the notion of motivation.

	strongly disagree	disagree	agree	strongly agree	Rating Average	Rating Count
The information within the videos was engaging and easy to follow?	3.7% (6)	1.8% (3)	39.0% (64)	55.5% (91)	3.46	164
The information within the accompanying PDF files was easy to follow and engaging?	2.7% (4)	5.4% (8)	45.6% (67)	46.3% (68)	3.35	147
				answered question		165

Figure 15. Perceptions of the effectiveness of episode format.

This question was very broad in nature, and was intended to determine the overall perception of effectiveness of using video and PDF components of each episode (Figure 15). Significantly, 94.5% of respondents agreed or strongly agreed that the video component was engaging and easy to follow, and 91.9% of respondents agreed or strongly agreed that the PDF component was engaging and easy to follow. Although no particular detail about the individual design features of the episode can be determined from these data, the results seem to show an almost universal approval of the episode format of using a video and a PDF. This is particularly interesting considering the range of different disciplines and educational sectors of the respondents. This aligns with the data from the automated online instruments, showing a diverse use of the resource in these different contexts.







		Response Percent	Response Count
just browsing		17.8%	29
searching for more information on a specific topic of online teaching		43.6%	71
searching for strategies on how to start teaching online		22.1%	36
searching for strategies on how to improve my online teaching		34.4%	56
required to view them as part of my university's training program		17.8%	29
other		20.9%	34
		additional comments Show Responses	56
		answered question	163

Figure 16. Motivations for engaging with LTTO episodes.

Determining the intent of the respondents in seeking out support for improving their online teaching was important for understanding if episodes were being discovered randomly or in relation to a specific intent to improve online teaching practice (Figure 16). The response with the highest percentage indicates that respondents were searching for a particular online teaching strategy when they discovered LTTO. Of particular interest is the fact that LTTO artefacts were being used as part of institutions' professional development programs, and that a relatively similar number of respondents were looking for information on how to start teaching online (22.1%) as those who were already experienced but looking for ways to improve (34.4%). Considering this information in the context of the very positive overall rating of episode components discussed above, suggests that LTTO was useful for both novices and experienced online teachers (41.2% of respondents had three or more years experience).

The 'other' category comprised references to links to the LTTO artefacts from blogs, institutional websites

and institutional professional development programs. Several respondents also report that they were looking specifically for content to help them develop their own online courses, and that colleagues recommended LTTO. This information echoes the quantitative data discussed earlier regarding where LTTO artefacts or links were found in a variety of different contexts around the world.





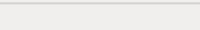



		Response Percent	Response Count
watch further episodes produced by COFA Online		83.1%	118
follow the research of COFA Online		54.9%	78
contact COFA Online for more advice or guidance		21.8%	31
follow the research of an academic featured in the episodes		24.6%	35
read more research papers related to topics raised in the episodes		53.5%	76
contact academics featured in the episodes for more information and/or advice		19.7%	28
try and collaborate with academics featured in the episodes on future papers or ventures		19.0%	27
conduct new research of my own into online learning and teaching		40.8%	58
		other/additional comments Show Responses	12
answered question			142

Figure 17. Intended actions following engagement with LTTO.

Respondents were asked what actions they intended taking after engaging with LTTO (Figure 17). The majority reported that they would view more LTTO episodes (83.1%), which is in line with the repeat visits to the central project website discussed earlier. Of particular significance is the fact many respondents expressed intent to increase scholarly engagement in the area of online teaching — 53.5% said that they would read further research upon the topics raised in the episodes; while 40.8% responded that they intended to conduct their own research into online teaching practices after engaging with LTTO. This figure could include those already undertaking, or intending to begin, their own research, or those who were inspired by LTTO to begin a new research initiative.












		Response Percent	Response Count
COFA Online Gateway website		9.7%	16
YouTube		19.4%	32
Twitter		7.9%	13
iTunes U		0.0%	0
Facebook		3.0%	5
UNSW TV website		0.6%	1
News or media story		1.2%	2
Australian Learning and Teaching Council (ALTC) website		3.0%	5
Academicia.edu		2.4%	4
recommended by your institutions Learning and Teaching unit		17.6%	29
recommended by colleague		15.8%	26
other (please specify). If a blog or website, please paste the url/name/title into the box below if possible Show Responses		35.2%	58
		answered question	165

Figure 18. How respondents discovered LTTO.

The questionnaire also asked how people discovered LTTO (Figure 18). This question was devised to determine which means of dissemination were effective in creating awareness of LTTO in the wider education community. Of particular note is the fact that Web 2.0 tools such as YouTube, Facebook and Twitter comprised 30.3% of responses, while recommendations by colleagues and learning and teaching units comprised 33.4%. During the first few months after the release of the initial episodes, Web 2.0 tools ranked highly as the means of discovery amongst those who completed the questionnaire. However, as time went by over the course of data collection period, the number of responses in the ‘recommend by your institution’s learning and teaching unit’ and ‘recommend by colleagues’ categories continued to rise, gradually overtaking the Web 2.0 figure. This was a pleasing result, indicative of the increasing acceptance and wider use of LTTO artefacts in a variety of different educational contexts, and of the endorsement of the usefulness and value of LTTO from peers. One respondent pointed out (in the open response section of the questionnaire), that I had forgotten to include Google in the list of choices. This was a significant oversight on my part, as many responses in the other category included Google as the primary means of discovery. This was also clear from Google being the second highest referrer to the LTTO website as illustrated in Table 8.

Pedagogical merit

This section of the questionnaire comprised two questions related to the usefulness of the information presented within the episodes (Figure 19), and the impact of the episodes upon those who engaged with them (Figure 20).

	strongly disagree	disagree	agree	strongly agree	Rating Average	Rating Count
The content, strategies and ideas featured in the episodes (videos and PDFs) were valuable and relevant	3.2% (5)	0.6% (1)	40.4% (63)	55.8% (87)	3.49	156
The resources and links in the PDFs were useful as a starting point for additional information, reading and/or research	2.9% (4)	2.9% (4)	49.6% (69)	44.6% (62)	3.36	139
				additional comments Show Responses		28
				answered question		156

Figure 19. Usefulness of the information presented.

This question was intended to determine whether the type of content, strategies and links for further reading provided in LTTO artefacts were perceived as useful for those using the resource. An overwhelming 96.2% of respondents responded positively about the usefulness of the content and strategies presented, while 94.2% thought that the resource was a useful starting point for more specific individual investigation. This point of view would support the fact that many different institutions linked to or used LTTO in their own programs.








		Response Percent	Response Count
it helped me to get started in online teaching		22.3%	33
I've implemented/adopted some of the ideas into my own teaching		23.6%	35
it motivated me to try something new		45.3%	67
it validated what I was already doing		48.0%	71
I have a better understanding of online teaching		54.7%	81
I've developed some of my own approaches based on what I seen		21.6%	32
they were not useful		2.7%	4
		additional comments Show Responses	22
		answered question	148

Figure 20. Impacts of episodes

Respondents were asked what impact the LTTO artefacts had upon their own online teaching practice, and could choose multiple responses from the options presented (Figure 20). The most common response was that they had helped to develop a better understanding of online teaching, with validation of existing knowledge (48%) and being inspired to try something new (45.3%) being two other significant and almost equal responses. This aligns with earlier data suggesting LTTO appealed in equal measures to both novice and experienced online teachers. Interestingly only 22.3% of respondents said that the episodes helped them to get started in online teaching, which is a lower figure than expected given the intent of LTTO. However, the other responses indicate that the resource was useful in helping to build activity and knowledge around online teaching practice, with only 2.7% not finding the resource useful.

Perceived relevance and value

This section of the questionnaire contained quantitative questions concerning the multi-disciplinary relevance of LTTO, and the relevance of different design elements of the episodes to the respondents' own disciplines (Figure 21).

	strongly disagree	disagree	agree	strongly agree	Rating Average	Rating Count
The ideas, strategies and concepts from the different disciplines represented in the episodes were relevant and useful to me even though my discipline may have been different	2.1% (3)	1.4% (2)	48.3% (70)	48.3% (70)	3.43	145
					additional comments Show Responses	7
					answered question	145

Figure 21. Multi-disciplinary relevance.

As would be expected after examining the data thus far, 96.6% of respondents felt that the concepts and strategies discussed were relevant to their own practice even though they were situated within different discipline. This, along with the previous evidence of extensive multi-disciplinary use of the resource, indicates that the design of LTTO episodes being based upon communication of educational principles rather than specific situations, was successful in a wide range of different disciplinary contexts.

	strongly disagree	disagree	agree	strongly agree	Rating Average	Rating Count
combination of videos and PDF for each episode	2.2% (3)	3.0% (4)	45.9% (62)	48.9% (66)	3.41	135
representation of different opinions of academics in the videos	2.2% (3)	1.5% (2)	48.5% (65)	47.8% (64)	3.42	134
conversational tone of the videos	2.1% (3)	1.4% (2)	45.0% (63)	51.4% (72)	3.46	140
the succinct, bullet point format of the PDFs	2.4% (3)	1.6% (2)	49.2% (62)	46.8% (59)	3.40	126
'case study' episodes showing specific examples	1.5% (2)	1.5% (2)	44.3% (58)	52.7% (69)	3.48	131
'context, planning, teaching' episodes introducing pedagogical concepts	1.7% (2)	1.7% (2)	55.4% (67)	41.3% (50)	3.36	121
'technical glossary' videos to support getting started in different technologies	2.5% (3)	3.4% (4)	53.4% (63)	40.7% (48)	3.32	118
					additional comments Show Responses	19
					answered question	144

Figure 22. Relevance of different design approaches.

Respondents were asked how relevant and valuable different aspects of the LTTO design were to them

(Figure 22). The results were very positive for all aspects of the project, suggesting that the different types of episode categories, and the design of the episode elements had universal appeal. Of particular note were the tone of the resource, and the representation of different voices from a variety of academics. These aspects were mentioned many times in the qualitative free response sections of the questionnaire, with respondents saying that they made the content easier to relate to. However, in the comments section attached to this question, several respondents said that they were not aware of the different categories of episodes available (case studies; context, planning and teaching; and technical glossary), supporting my earlier observation that many educators only interacted with a small proportion of the full range of episodes available if they first encountered LTTO via Web 2.0 sharing. These discoveries were later echoed in Chapter 7 when I interviewed several educators using LTTO in their own programs.

The quantitative story so far

The quantitative data discussed above relates to the in context use of the central LTTO website, the out of context sharing via Web 2.0, and the use of the artefacts in new contexts by the wider educational community. These data, with the online open questionnaire responses from users, have begun to sketch out the broader context of the LTTO narrative in terms of project practicalities, pedagogical merit, and perceived relevance and value, as summarised below.

Project practicalities

LTTO achieved a significant level of national and international exposure and adoption. The volume of data related to the spread of the artefacts implies that the Web 2.0 dissemination strategy was far more successful than was initially envisaged. Equally important was the fact that many users seemed to have discovered artefacts through recommendations of their colleagues, and in new contexts other than the LTTO website, such as from institutions and educational programs. Of significance was the fact that despite being designed specifically for the higher education context, educators in universities, K-12, private and vocational education, and even government agencies and private consultancies in over 140 countries referred to, embedded or viewed the artefacts.

On initial analysis of just the quantitative data taken from the online collection instruments, it seems that the design strategies of focusing upon principles over specific instruction; using a modular, episode based format; attempting to recreate the sense of collegiality and accessibility of a community of practice in the choice of interviewees and the way the videos were edited; and adopting multiple Web 2.0 based dissemination strategy, were on the whole more successful in a greater range of circumstances than anticipated. Potential drawbacks of the Web 2.0 design include the fact that many users were not aware of the existence of other available episodes when encountering an artefact out of context of the LTTO website; and the associated PDF document for each episode was often not shared along with the video component. This was also substantiated in personal interviews conducted later in the research process, as discussed in Chapter 7.

Pedagogical merit

In all quantitative data sets, educators across a range of disciplines, institutions and educational sectors used, discussed or shared LTTO artefacts. This is too consistent to ignore, and suggests that the design of various aspects of the LTTO project were more successful than anticipated in creating an online professional development resource that appealed to, and was deemed useful by, educators within different disciplines.

The quantitative data from the open online questionnaire did not reveal any significant negative data for this aspect of the project. Interestingly, LTTO seems to have appealed to both novices and experienced online educators alike, with both types of user seemingly finding value and improving their knowledge in the area as a result of their engagement. However one interesting point to note is that the questionnaire did indicate that a higher percentage of experienced online teachers were using the resource compared to novices. This is interesting in that LTTO was primarily intended for those new to online teaching. In retrospect this makes sense because there would likely be fewer educators who are unfamiliar with online technologies, accessing a professional development resource that uses such technologies for its dissemination. This paradox proved to be at the core of the rhizome-based theoretical framework (related to the sharing of information between established networks) that I explored following further analysis of these phenomena. This will be discussed in more detail in Chapter 6.

Perceived relevance and value

The data demonstrate that:

- those viewing the episodes in context on the LTTO website visited several times;
- a large number of individuals engaged with the episodes by watching the videos and reading the PDF files;
- educators shared, reviewed and discussed the artefacts out of context via Web 2.0 tools such as Twitter and blogs;
- institutions established new contexts for the artefacts by linked to them, and using them as resources within their own postgraduate or professional development programs; and
- educators in different institutions, education sectors and countries engaged with LTTO at comparable levels.

This suggests that those who engaged with LTTO found it a valuable and relevant resource within their individual circumstances. The online questionnaire also suggested that a significant proportion of educators found LTTO a useful starting point to engage with existing literature, or begin their own research into online teaching practices.

Quantitative summary

While the quantitative data suggests that the resource was relevant and valuable to a wide range of different educators, those examined thus far are not sufficient to conclusively determine the exact reasons for this. So, even though the overarching narrative of the spread of LTTO is beginning to take form, it is not yet clear how and why this occurred to the extent that it did. The quantitative data does not contain detailed individual stories from users of the resource, yet there is a significant pattern of evidence showing that LTTO was regarded as useful across a wide range of different disciplines, institutions, and educational sectors.

Webster and Mertova refer to the structural elements within the process of narrative inquiry as being time, place, and events (Webster & Mertova, 2007). The story told by these data thus far highlight the significance of place and event in particular. The patterns that emerged from the quantitative data surrounding the events of LTTO artefacts being used in context, out of context, and in new contexts in many different locations around the world, become the common touch points between different individual stories as they are investigated, enabling me to continue to construct an overarching framework of the narrative for the study, into which different stories can be woven as the inquiry continues.

4.3 Further exploration of relevance and value – collation and analysis of qualitative data

Collation and initial analysis of qualitative data was primarily concerned with further investigating the value of LTTO as perceived by those who used it or reviewed it; adding another layer of depth to the initial quantitative narrative of the research; and beginning to try to understand why educators chose to share LTTO so widely.

Qualitative data used in this study

Qualitative data collected were both solicited and unsolicited. The following instruments used to collect the solicited data, were designed as a component of the LTTO project evaluation strategy:

Solicited qualitative data:

- Open response questions within the previously discussed open online questionnaire (see Appendix 3).
- Evaluation of the project by an independent project evaluator (see Appendix 4).
- The open response sections of the external experts' review of a sample of the episodes (see page 11 of Appendix 4).

Unsolicited qualitative data:

- National and international awards.

- Emails from educators using the resource.
- Letters from educational institutions or organisations.
- Reviews of the project on independent blogs.
- Messages from educators via Twitter, Facebook and other Web 2.0 platforms.

The data collected from these sources offered a range of brief narratives about various personal interactions with the LTTO artefacts. Despite the variance in the personal contexts and circumstances of the population, by using the key concepts of project practicalities, pedagogical merit and perceived relevance and value as a structural framework, I was able to compare common overlapping aspects within the different stories that emerged from these data. This enabled me to construct a broad narrative of the collective opinion and impact of LTTO in various circumstances.

The personal viewpoints of those telling the stories varied depending upon the data source:

- **Individual educators from any discipline or sector.** The open online questionnaire was concerned with gathering data from individual users of LTTO, no matter where they encountered the artefacts. This questionnaire contained an open response question where respondents could offer opinions on what they considered the most valuable aspect of the project. In addition to the questionnaire, several reviews of LTTO in blogs, comments on Twitter or Facebook, and emails from users of the resource comprise this part of the dataset.
- **Educational experts.** Those involved in the external expert review of LTTO in a more formalised capacity included the independent project evaluator, who examined the merits of LTTO for the funding body, and a panel of seven education experts that the evaluator organised to conduct a blind peer review on a sample of nine of the episodes. All reviewers were chosen by the project's independent evaluator based upon the following criteria:
 - “evidence-based expertise/high standing in learning and teaching in higher education (including practice, scholarship and/or innovation);
 - widely recognized successful record of developing/using online technology for learning, teaching, and/or systematic communication purposes;
 - they had no association with the Project; and
 - they were willing to carry out the review for no payment of any kind.” (Boyle, 2011b, p. 1).
- A detailed description of the panel membership, evaluation methodology and outcomes can be found on page 11 of the independent evaluation report (see Appendix 4).
- **National and international professional bodies.** As mentioned in Chapter 1, during 2011 and 2012, LTTO won two prestigious awards for excellence and for making a valuable contribution to the online education community.

Results

Below I analyse data from the sources stated above. Worthy of note is that the online questionnaire contained seven questions allowing open comment about the practicalities, pedagogical merit, and relevance and value of LTTO. There were 207 anonymised written responses to these questions during the period of data collection for this study. The vast majority of the comments were positive, with only 12 being negative in tone. All 12 negative comments are referred to in the analysis below.

4.3.1 Project practicalities

The following qualitative data contains information that offers further insight into the practicalities of the project as defined by the quantitative data: specifically the format, accessibility, and ease of sharing.

Comments from the open online questionnaire

Of the 207 written responses in the online questionnaire, 195 (94%) were positive in nature and 12 responses (6%) contained some criticism. The following anonymous comments exemplify the type of positive opinion being shared in relation to the practical design of the episode format and content of LTTO:

- “I am looking for resources and models to support faculty in our institution. I am very impressed by the model you have developed. Thank you for creating such a great resource!”.
- “The quality of the information and its presentation; the multiple viewpoints to show that it wasn’t just one guy saying a bunch of stuff; and the accompanying document”.
- “Video/PDF pairing was excellent. Finding more info in the PDF motivates me to download/read future PDFs”.

However, although fewer in number, of more interest perhaps were comments of a critical nature of some of the practicalities of LTTO episodes related to aspects of design and access. The following seven comments exemplify the more negative sentiments expressed:

- “Different opinions; however, there were too many. Using fewer faculty with more in depth conversation”.
- “...I sometimes became irritated with the quick grabs, almost bullet point way speakers made comments – I would have liked more than one sentence per speaker”.
- “Didn’t notice all of the above content (I only watched the first video, and not all the way through before downloading the PDF)”.
- “I have not yet come across case study episodes”.
- “If I could find the PDF files I most likely would agree...”.
- “Didn’t ever see the PDF”.

- “Have not read the PDF as it does not appear to be downloadable. Unlike younger folks, I hate being chained to the computer”.

These comments seem to suggest a small proportion of respondents to the questionnaire felt that in terms of design, the episodes may have included too many interviewees or rapid edits. Other comments in the questionnaire and other quantitative data seem to take an opposing view about this. However, these points are valid and worthy of further consideration when evaluating the overall effectiveness of the design.

The other issue alluded to in the criticism relates to an inherent weakness of the dissemination strategy that the project team were aware of. On the LTTO website, the video component of each episode is presented directly above a large button that links to the accompanying PDF document. When someone embeds a YouTube version of the episode video into their own site, they often fail to include a separate link to the PDF file, therefore the episode becomes bifurcated during the Web 2.0 sharing process, taking the episode even further out of context. This can result in many users of LTTO not realising there is an accompanying PDF file (or even that there are more LTTO episodes) — despite a link to the file appearing at the end of the video credits and in the YouTube video description. Some interviewees in Chapter 7 also highlighted this issue.

External expert evaluation of project practicalities

From the nine episodes that were reviewed by the external panel of seven experts (see page 11 of Appendix 4), the following points summarise the recurring positive comments regarding the episode design and format from the evaluators report:

- Production quality of the video components was rated highly.
- The format of the video components was praised in terms of juxtaposition of views from different academics.
- The inclusion of the PDF component was seen as an effective means to enhance the episode by adding more information, and to provide users with essential links to further research.

While positive on the whole, there were some notable negative comments that aligned with concepts raised from the open online questionnaire:

- More balance between student and teacher viewpoints.
- Occasional spelling mistakes in the PDF documents.
- One reviewer in particular had trouble juggling windows in their browser for both video and PDF components of the episodes.

The project’s independent evaluator summarised the negative findings of the review as follows,

“Suggestions for improvement were generally concerned with practical things such as ease of linking between online elements (e.g. sites and documents), and the provision of a larger number of helpful examples of the suggested practices in some Episodes” (Boyle, 2011a, p. 13).

Independent project evaluation

The independent project evaluator was very positive in their final report about the success of the practical aspects of LTTO. In particular the evaluator referenced the global recognition of the project, and referred to the design of the dissemination strategy as, “...creative and remains highly effective” (Boyle, 2011a, p. 19). In particular, Boyle stated that the structure of the episodes, “...has been shown to be of very high quality in pedagogical, design and production quality terms” (Boyle, 2011a, p. 19).

4.3.2 Pedagogical merit

The wide use of LTTO as indicated in the quantitative data already discussed, suggested that the pedagogical principles represented within the episodes, the choice of concepts and content discussed, and the structuring and presentation of information design, were pedagogically effective as a professional development resource. The following qualitative data is also relevant in the assessment of the pedagogical merit of the design.

Comments from the open online questionnaire

The following eight anonymous comments exemplified the types of positive feedback about the pedagogical merit of the project from respondents to the open online questionnaire:

- “The resources that I’ve viewed have a good balance between student learning and other educational concerns, staff concerns and practicalities”.
- “The learning resource provided really interesting and accessible information about the possibilities of online teaching – as well as currently developing a resource I am involved in the review of our university’s distance learning program and see the COFA resource as a valuable source of information for this review”.
- “There were many interesting points made throughout the information I have observed. I agree with many thoughts these professionals speak of on different topics. Thank you for providing this. As a young adult coming into the world, information like this is very useful indeed”.
- “It woke up desire to learn more. I think it’s collected were thoughtfully and in systematic way”.
- “The pedagogy offered in these videos is completely consistent with current literature and our online learning program’s advice for new online instructors”.
- “They will become a require part of my formal EdTech course and I will be discussing/promoting

them in one or more of my blogs”.

- “I’m an e-learning professional. Although there was nothing new as such, the quality of the presentation and the bonus of PDF materials is [sic] very appreciated. I also feel that this work has excellent academic credibility [sic] and will be very valuable when it comes to training university staff”.
- “Because they are honest and give aspects of both sides, + and -, of online teaching!”.

There were fewer negative comments, however the following five were critical of the effectiveness of the resource:

- “The video I watched (partially) just never gets to the point. It seems to be a collage of various slogans or general ideas, but doesn’t actually teach the viewer what it promises: why online learning is important”.
- “The academics’ opinions did not diverge all that much. It would have been more interesting to have less cheerleading and more problem posing in the video”.
- “Good pragmatic discussion. Did not actually go into pedagogical principles, which in my view is crucial”.
- “I didn’t bother with PDF. Was already familiar with most ideas in the content”.
- “They were ignorant of the needs of Deaf learners. I am not talking [sic] special education. I am talking good teaching strategies. You have chosen not to implement all inclusive strategies”.

The first three comments imply that these respondents found the material shallow or superficial, presenting a bias or overly positive view of the issues being discussed in the episodes. Canadian blogger and educational consultant Tony Bates echoed this sentiment in his critical blog post about the project [bit.ly/1qcVHxz], as discussed later in this chapter. The third comment raises a valid point about the project excluding hearing-impaired educators. This was not considered during the design and production of the artefacts, and audio transcripts were not provided with the video components of the episodes. This may have prevented some people from being able to access the information being presented. The same person however strongly agreed that the PDF documents were effective and useful.

External expert evaluation of pedagogical merit

The following common positive attributes across episodes are summarised from the external review (see Appendix 4):

- Well presented at an appropriate level for the intended audience.
- Presentation of both positive and negative viewpoints.
- Useful additional resources in the PDF files.

- Important principles and strategies well covered.

The following points are a summation of the negative comments made about the pedagogical merit of the LTTO artefacts by the external review. It seems that such comments were more prevalent for some episodes than others:

- While the overview of concepts was praised, several comments related to the need for more specific examples of best practice in the episodes.
- At times information presented could be too general.
- More correlation between the context, planning and teaching, and case study episodes.

The independent project evaluator summarised the feedback from the external panel of experts as, “...largely very positive and indicated an overall judgment by the reviewers that this sample of resources reflected excellence and innovation for providing professional development support for educators” (Boyle, 2011a, p. 13). Despite Boyle’s words however, the qualitative data from the external expert review, where panelists discussed areas that could be improved, seem to echo some of the sentiments from the open online questionnaire about the content of the episodes sometimes not being specific enough in exemplifying the concepts being discussed. The panelists were not in the position of actually using the resource in a real teaching context — they were evaluating it from the position of being an educational expert with existing experience in online teaching. Even so, there is some correlation between comments made by the panelists and a few users in the open online questionnaire.

The intent of the design of the different categories of episodes was such that the context, planning and teaching episodes would discuss concepts in general terms, while the case studies would examine specific examples in more detail. It is apparent from the comments above, and from similar comments from the open online questionnaire, that this implied relationship becomes unclear when individual episodes are seen out of context of the LTTO website (either in social media or individually embedded elsewhere). These comments also imply that the balance between creating an introductory resource, and one that investigates concepts in more empirical detail, was not always achieved in the final episodes.

Independent project evaluation of pedagogical merit

The independent project evaluator was very positive in his review of the pedagogical merits of LTTO, “The evidence available suggests that overall the Episodes reflect good pedagogical practices... It’s clear that a success factor for this achievement was the research and good practice based approach taken to the design and development of the Episodes” (Boyle, 2011a, p. 14).

Peer review of content from MERLOT

Two different groups of peers within the MERLOT organisation reviewed LTTO [bit.ly/13LA7bw]. Several individual episodes have also been reviewed. All reviews were unsolicited. The peer review categories

examined are content quality, potential effectiveness as a teaching tool, and ease of use for both faculty and students.

The first project review conducted in May 2011 by the Teach Education group saw the project receive an overall rating of 4.5/5 stars [bit.ly/1x3AspB], with the positives being the short to the point video and PDF content; the 24/7 nature of the support; and the ease of use of the LTTO website. Concerns were raised, including that the content seemed focused on beginners in online teaching, and a concern that some episodes may become outdated as technologies evolve.

The second project review in December 2011 by the Faculty Development group gave the project a 5/5 star rating overall [bit.ly/1CeUWfF]. Positives included the professionalism of the video production and added depth of the PDF components; the modular nature of the design of the resource; the fact that the resource was filling a much needed niche; consistency in the format of episodes; and ease of navigation of the LTTO website. There were no negative comments.

Emails from educators about inclusion of LTTO in their own programs

Several educators who used LTTO artefacts in a new context as part of their own professional development or educational programs contacted me to share their appreciation of the resource. Two examples exemplifying the general tone of these communications are included below. The following is a quote from a letter received from the Professional Development Manager at a private education institution offering bachelor degrees in a wide range of professional disciplines, “As the developer of the program I have valued the high quality content and suggestions for improving online teaching practices. The footage together with the PDF documentation has raised greater awareness of new approaches that staff can implement to engage their students in blended and online learning” (personal communication, June 23, 2011).

A lecturer in a US university wrote to me explaining how they have incorporated the episodes into two different postgraduate programs dealing with educational technology, research and assessment, “Each year as I get ready to teach my Distance Learning courses I seek out online tutorials and information-rich sites to assist my students in becoming effective online instructors. When I ran across Learning to Teach Online I was delighted to find such a high quality program that addressed the most salient issues in the field. So thank you again for this valuable resource that not only provides high quality information, but also connects my students with your university on the other side of the globe” (personal communication, May 25, 2011).

Review of LTTO within educational blogs

As previously discussed, I was able to find 82 instances where LTTO has appeared in different education-related blogs around the world. These appearances were unsolicited, and are a good example of the positive effect of viral promotion afforded by Web 2.0 technologies. Some of these blogs were attached

to educational institutions or groups, and some were by individual teachers in different countries and disciplines. Below are a number of examples where the attributes of the project was reviewed by the blog authors:

- **Pamela's research blog** (Australia) [bit.ly/m3bmnb]. This blog post contained a review of the significance of the project in the contemporary educational landscape.
- **Creative Commons Australia** [bit.ly/jFHqr3]. Creative Commons Australia embedded both the video and PDF components of the case study about creative commons use in education [bit.ly/gZXd6p] in their official blog. In addition, Creative Commons organisations around the world tweeted about this episode to their own follower networks.
- **LindyKlein.com** (Australia) [post since removed]. The author of this blog post captures the collegial intention of the episodes in her review.
- **EDJUDO** (UK) [bit.ly/gvvUEO]. This educational blog for high school teachers posted a description and links to several episodes. In addition a teacher posted the following comment after the article, "Thanks for producing such great, free, thought provoking videos. I'm only starting to experiment with including online learning into my lessons and the UNSW/COFA website is helping me reflect on what I'm doing and the direction I want to move toward. Keep up the good work" (Jalger, 2011).
- **Learning Supreme** (UK) [bit.ly/jgBq8j]. The author of this blog embedded a video in the blog post and provided a summarised account of the key points.
- **Pass the SoLT** (New Zealand) [bit.ly/l4b6hX]. Professor Mark Brown from Massey University embedded videos, promoted and reviewed LTTO in the university Learning and Teaching blog.
- **Tony Bates** (Canada) [bit.ly/nsRDBE]. Tony Bates is a well-known educational consultant and published author about online learning in Canada. Bates undertook a lengthy review of LTTO.
- **Stephen Downes** (Canada) [bit.ly/pd3lsY]. Downes is another well-known Canadian online educationalist. He has linked to the LTTO project from his blog several times.

4.3.3 Perceived relevance and value

Qualitative data regarding the perceived relevance and value of LTTO came in the form of comments from the open online questionnaire, and awards.

Comments from the open online questionnaire

The following eight comments from the open questionnaire are reflective of the type of positive sentiment from respondents about the relevance and value of LTTO:

- "I'm always interested in video that provides a thoughtful overview of any Online Teaching and

Learning Process. These resources are far superior to what is typically found on YouTube. I'm actively promoting the home website for COFA Online via my university resources and global social networks".

- "As a professor assigned to our Centre for Academic Excellence with responsibility for Professional Development for teaching and learning I am constantly searching for resources. While there is no shortage of resources, excellent ones are hard to find I am currently designing workshops for faculty interested in teaching blended or hybrid courses – I plan to link to these and to share these videos and PDF files with our faculty here at [...] – even though designed for fully online they are relevant to the broad spectrum of blended learning".
- "I felt as though the entire video was valuable. The topics discussed were right on point and provided beneficial information".
- "I've known for sometime that Australia is a leader in distance education. I appreciate the polished expertise of COFA and their efforts to use social media to spread the word about this resource. I'll highly recommend it to my colleagues around the world!".
- "Seeing how things were done elsewhere, and adopting features of other projects to further our own. Even the idea that others out there were having the same ideas and difficulties is encouraging to keep working at improving our own work...".
- "Up to the minute information on technology and e-learning concepts presented from multiple points of view".
- "It's here, it's FREE information I have access too, and I don't have to travel around the world to get this valid, professional, and updated research that is still growing as I write...".
- "The comments were made by people from totally different disciplines (engineering to fine arts) which made them all the more credible. They were general enough to be applied to any discipline".

There were no negative comments about the relevance and value of the project within the open online questionnaire.

National and international awards

As mentioned in Chapter 1, LTTO won the 2011 Ascilite Innovation and Excellence Award, and the 2012 MERLOT Award for Exemplary Online Learning Resources – MERLOT Classics (USA)

. The awards are representative of the acknowledgement and endorsement of peers within the wider educational community.

4.3.4 Design features of LTTO that contributed to its success

Having examined the project practicalities, pedagogical merit, and perceived relevance and value from data collected about the use of the artefacts, I identified key design features within LTTO that were intended and proven to facilitate its widespread sharing and use, and iterative integration within existing networks and processes of knowledge construction. Throughout the stories explored in the rest of this thesis, evidence also emerged that illuminated the impact and affect of these design decisions (through the data visualisation in Chapter 5 and the stories of the educators using artefacts in their own educational programs in Chapter 7). While the findings of research discussed later in the thesis contributed to my understanding of what worked well with the design, it is appropriate to present a summary of the successful design decisions in this chapter while discussing the structure and spread of the artefacts. The key design features of LTTO that contributed to the extent of sharing and use include:

Content designed in modular, episodic format:

- Real educators talking about their actual experiences in a collegial and pragmatic manner. Interviewees presented detailed examples from real teaching scenarios that were easy to relate to.
- Expertise and authenticity. Interviewees were trusted because they were from reputable universities, and demonstrated that their knowledge came from their own experiences in online teaching.
- Based upon pedagogic principles rather than specific technology – easily adapted to other contexts.
- Multi-disciplinary in nature – representing a broad range of teaching contexts.
- Categorised into ‘context, planning and teaching’ (juxtaposing multi-disciplinary viewpoints around central themes), ‘case studies’ (explaining a single application of online teaching practice from conception to completion), and ‘technical glossary’ (demonstrating how to use specific technology related to the case studies).
- Non-sequential ordering, stand-alone concepts but also able to be seen as a series.
- Enabling engagement at varying depths or around specific topics.
- Designed to emulate the interpersonal characteristics of a collegial community of practice.

Online video:

- Enabled information being presented by academics to be humanised through expression, tone of voice and body language.
- Short length suitable for online audiences (around 10 minutes for case studies and five minutes for other categories).

- High production quality (graphics, lighting, editing, consistency, etc.).
- Cohesive narrative.
- Actionable, experiential knowledge.

PDF documents to supplement video:

- More in depth information to supplement video content.
- High production quality in terms of graphics.

Dissemination strategy:

- Able to be shared using many existing Web 2.0 technologies.
- Multiple online dissemination points (project website, YouTube, iTunes U).
- Ability to take artefacts out of their original context and embed them in new contexts.
- Created engagement with interviewees and other stakeholders to facilitate sharing within existing networks.
- Targeted sharing of artefacts within existing online networks and OER databases.
- Artefacts contain references back to the LTTO website.

4.4 Debate about LTTO's value, and failure of the LTTO online community

The data analysed thus far reveals a mostly positive perception of LTTO. However, of equal interest are two more negative incidents related to the project that may begin to offer more insight into the social dynamics underlying teachers' interactions with the artefacts.

Debate amongst education professionals about the value of LTTO

Tony Bates' review of LTTO in his blog post as mentioned in the 'Review of LTTO within educational blogs' section above, was very critical - labelling the project as superficial, unhelpful, and unprofessional; using an, "...amateurish, 'it's up to you', professional development model of asking those with just a bit more experience to help those without any" (Bates, 2011). Bates seemed to have based his comments on a perception that the resource was trying to be a complete professional development solution for educators. In addition, he failed to acknowledge the value of novices developing knowledge within a supportive community of peers (the premise of the original COFA Online Fellowships that inspired LTTO). Interestingly, Bates' criticism drew a strong response from Stephen Downes, who defended LTTO against the comments. Downes labeling them as harsh, and contradicted Bates' opinion, based upon his belief that experts in the field actually do not know how to teach online effectively, "One of my most persistent observations about online learning is that the experts in the field really don't do just [sic] a great job of

doing it” (Downes, 2011). Another educator also wrote a comment on the blog post defending LTTO, and I too provided an explanation of the context and aims of the project in an attempt to contextualise its aims.

In response to Downes’ and other comments from different educators, Bates’ admitted his feedback was too harsh, but maintained that LTTO was designed for the beginner in online learning, and as such fell short of his expectations. He made comments about the lack of research supporting the points of view in the episodes, which echo to some degree the sentiments raised by a few respondents to the open online questionnaire and some of the comments made by the external experts in their evaluation.

Bates wrote a significant criticism of contemporary professional development practices in education as a follow up blog post [bit.ly/1vVPit4], in response to the defense of LTTO from various sources (including myself) sparked by his original blog post. In this post he once again acknowledged that his comments were overly harsh and unfair given the aim and intent of LTTO, but reiterated why he thought resources such as these were symptomatic of the current professional development model being broken (Bates, 2011b). The comments raised in Bates’ and Downes’ blogs align with the dichotomy presented when contrasting some of the negative comments from the external evaluation experts, with the overwhelmingly positive comments about the tone and pedagogical level of LTTO from those with less online teaching experience in the open online questionnaire. Both perspectives are valid when taking into account the scope and complexity of the challenges faced by educators wishing to develop online teaching skills.

This exchange between well-known education professionals about the LTTO project raised a very valid point about the importance of perception of the project by the field. Both Bates and Downes are highly regarded, and well published and cited in the field of online education. Bates’ critical review had the potential to influence many people within his network against LTTO, just as Downes had the potential to positively influence many within his network. During the data collection period, Google Analytics indicate that 299 people visited LTTO directly after reading Bates’ critical post, by clicking the link to the project website that Bates embedded in his review. In addition, many people tweeted to share a link to this blog post with their own Twitter networks, thereby effectively endorsing the criticism and magnifying its reach. Interestingly however, as well as containing a link to Bates’ blog post, the tweets often also contained comments about their author’s positive impression of the resource once they visited the site — such as, “@CraigTaylor74 found the vids great from @drtonybates <http://t.co/ceuKclN>” (teachingtomtom, 2011). Downes’ blog post defending the project sent 187 people to the LTTO website during the same period.

These exchanges and the subsequent social activity within the field highlighted the importance of the concept of trust and influence in helping to guide how the LTTO project spread between existing professional networks around the world. This activity also underscores the importance of how different points of view may have affected perceptions of the project. The debate described above, illustrates that there may be a contrast between novice teachers, who are interested in collegial conversation about basic concepts, and experts like Bates and the external evaluators, who were interested in more scholarly

or comprehensive professional development initiatives and measurable research based evidence of impact. Such contrasting perspectives suggest that LTTO cannot be in of itself a complete professional development solution — it was of course never intended to be. The inclusion of the artefacts in so many different professional development and higher education programs is testament to this. Following further analysis of the data in Chapter 5, I was to discover through a deeper exploration of the rhizome concept, and some related ideas in Chapter 6, that this seeming juxtaposition between novice and expert perceptions was something of particular significance within the LTTO story.

The failure of the LTTO online community

Another interesting, and possibly related phenomenon was the complete failure of the LTTO online community to gain momentum. The original plan for LTTO included an online forum. This was initially set up with the aim of connecting educators to share knowledge and ideas, and to build upon the concepts discussed in the LTTO episodes. My preconception of what this community would look like and how it would work, was based upon my understanding of what a community of practice was and how it operated, from both my experience with the face-to-face fellowship programs and my examination of existing literature on the subject (Lave & Wenger, 1991; Wenger, 1999, 2011; Wenger, White, & Smith, 2010). Despite the extremely wide use of the LTTO artefacts amongst a large number of educators, establishing and maintaining the online community of practice aspect of the project proved to be more challenging. With little engagement from academics, despite a concerted effort made by the project team in trying to generate interest, the online community completely failed to gain momentum. It proved difficult to convince time poor teachers to give their energies to help grow a brand new community. Consequently, it was decided to deactivate the forum midway through 2011 in order to focus attention on the development of the resources themselves.

This failure was paralleled by the successful widespread use and sharing of LTTO. The low levels of participation within the online community did not negatively affect the project in terms of dissemination, application, or positivity of the feedback received. This seemed to present something of a paradox.

The way that LTTO was being shared around the globe between educators who were very different from each other, seemed to be indicative of knowledge sharing within a traditional community of practice. However the actual interaction between these individuals was non-existent, or at least limited to the act of posting links, writing a review, or sharing the resource amongst their own Web 2.0 networks. This fact raised significant questions about why the LTTO online community failed when the rest of the project seemed to be successful. As highlighted by the example of Bates and Downes above, there exist many different networks or communities of influence between practitioners. Within these there are known persons or ideas that seem to exhibit influence upon practice. Sometimes they coexist separately, and sometimes they cross over, as in the case of the blogs above.

The fact that LTTO was shared by so many people through many different existing online networks

demonstrates that people can in fact come together and actively interact around a central interest within digital communities. In fact, there are many examples of thriving online communities centred around a shared interest in learning, within online networking services such as Facebook, Twitter, or LinkedIn (Dron & Anderson 2014). Since the data collection for this study was concluded, a Facebook group for educators who participated in the LTTO MOOC (see Chapter 8) has bloomed with over 5,900 members as of late 2015 [on.fb.me/1KJfQJP] (albeit the intensity of interaction tapers off between MOOC offerings). Why then did people choose not to participate in the original LTTO online community?

That the prescribed online community failed while the LTTO artefacts were shared extensively across and between disciplines and institutions, suggested that I had accidentally uncovered another phenomenon of significance that also warranted further investigation.

4.5 Chapter 4 summary

While the qualitative data indicated that there was a largely positive perception of the effectiveness of LTTO as a professional development resource, the scope of the quantitative data revealed that LTTO was being used by a much larger number of educators around the world than originally anticipated, in a much more diverse range of educational and institutional contexts. These unexpected results seemed to suggest that those using the resource had little in common with each other in terms of discipline, education sector or even the context in which they were using the resource. However, the qualitative data suggested that despite these differences, LTTO might have been perceived as useful and valuable amongst this extremely diverse cohort of educators for similar reasons – suggesting some kind of, as yet intangible, underlying connectivity between them. Entangled within this, was the important observation that people of influence within networks had significant potential to positively or negatively affect colleagues' perceptions of LTTO, based upon their analysis and evaluation of its merits.

The narrative inquiry methodology is about the synthesis of individual stories into a larger cohesive investigative narrative based upon comparative analysis between common key structural elements. It is obvious that despite the vast differences in application and use of LTTO, something within the design of the resource, or some phenomenon sparked by its use, managed to make a connection with all of these disparate educators. It is this, as yet undefined, element of commonality that unifies the different stories. However, in order to begin to understand this, I needed to reflect further upon the details of the sharing and use of the resource. This would help me refine and further develop my research approach, to better understand the patterns of connection and commonality underlying the use of LTTO. This is described in the next chapter.

CHAPTER 5.

QUANTITATIVE DATA VISUALISATION

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Synopsis

The last chapter offered an overview of the widespread use and sharing of LTTO around the world. This chapter explores this phenomenon in more detail by examining the range of quantitative data from another viewpoint, in an attempt to identify the pattern of connections between disparate networks that facilitated such widespread sharing. I engage in a process of exploratory research, using software called Gephi to visualise the datasets discussed in Chapter 4. By exploring visual maps of activity surrounding the project, the existence of new stories within the patterns and relationships underlying the sharing and adoption of LTTO become apparent, inspiring a fresh examination of the theoretical framework of the thesis.

5.1 The importance of the unseen network

In the previous chapter, I presented a broad overview of the data collected. I established the extent of the sharing and use of LTTO around the world, and discovered an interesting similarity between the perceptions of relevance and value of the resource between educators in very different disciplines, sectors and countries. These phenomena highlighted that there were potentially useful connections to explore between the design of the resource, its surprisingly broad appeal, and most importantly, the way educators interpreted and shared it amongst their own networks – once I could figure out exactly what motivated them to do so. In order to fully appreciate why the LTTO design worked the way it did, to the extent it did, it became important to better understand the invisible connections between networks facilitating the sharing of the artefacts.

As previously discussed, the design of LTTO was based upon the observed behaviour of members within the COFA Online Fellowship community: that is, people still within their individual and familiar disciplinary networks, who were able to also temporarily engage with a specially created fellowship network periodically for the purpose of improving their online teaching practice. By participating actively in this group, they became part of a community where they could discuss common goals, challenges, and teaching methods with peers. They worked together under a formalised professional development structure, but then stayed in touch more informally for support and further discussion about their online teaching. Comparatively, the information within LTTO was structured into key pedagogical concepts. A diverse range of different academics contributed their knowledge to LTTO in a casual and collegial manner – offering different viewpoints, opinions and experiences. This in some ways replicated the type of information exchange within the fellowship community (or a community of practice in general). I had therefore, assumed that those using the LTTO artefacts would want to interact in the same way within the online community I set up for them.

Communities of practice are usually naturally occurring social groups, where individuals of different knowledge and skills levels can discuss their working practice. They have been defined as, “...a learning partnership among people who find it useful to learn from and with each other about a particular domain” (Wenger, Trayner, & de Laat, 2011, p. 11). They are usually not strictly organised, and participation is voluntary or comes as part of a job. This was very much the intention within the online community aspect of the LTTO project. It was envisaged that teachers from around the world would be guided to the online forum after encountering the LTTO artefacts, where they would participate in dialogue with other educators when they needed help or had knowledge to share about online teaching.

I had imagined that the technological framework for LTTO would enable a wide range of educators to engage with the process of social knowledge construction in a more informal context, not bound by geographic or time constraints – in principle creating a larger and more dispersed fellowship community. I expected that this larger community would exist within a singular online collective – in other words,

participants would temporarily step away from their own professional contexts, to meet within a digital ‘common ground’ in the form of a large structured online forum. Here I imagined they would socialise and participate in discussions about online teaching that were relevant and of interest to them, with other like minded people from outside of their immediate disciplinary and institutional context.

Over the years, emergent digital technologies have increasingly influenced how knowledge is built and shared within networks and communities (Bereiter, 2005; Moen, Mørch, & Paavola, 2012; Wenger, White, & Smith, 2009). Technology can be a vehicle to expand intelligence through the connection of people, rather than just a means of relocating information from one place to another. It can be an invisible facilitator of communication and collaborative knowledge generation, enhancing learning by facilitating easy, reciprocated access to a ‘transactive’ memory of knowledge (Carvalho & Goodyear, 2014). However, for this to be the case, people have to actually engage in such communities. However, as previously discussed, the LTTO online community certainly did not achieve this.

On the surface, the failure of this constructed online community to attract educators or sustain discourse would seem to imply that, in this specific case, merely establishing a technological infrastructure could not encourage social knowledge construction within a distributed online community of practice. However, the data examined in Chapter 4 revealed that there was obviously some significant social activity taking place around LTTO, within existing professional and Web 2.0 facilitated networks. From the initial examination of the quantitative and qualitative data, it was obvious that there was significant sharing, embedding and peer review activity surrounding the LTTO artefacts.

LTTO was able to prompt a high level of engagement; sharing of information; peer review and assessment of the information; and re-contextualising and application of knowledge – all without the existence of what could be called a community. Rather, LTTO seemed to be being used by individuals within a large number of separate institutions, professional organisations, and physical and online social networks. It seems in many cases the people within one network engaging with LTTO were not aware of the use of the artefacts by the multitude of other professional networks (which were not limited to the same discipline or education sector).

Did knowledge of the LTTO artefacts jump from one distinct professional network to another only through random acts of Web 2.0 facilitated information sharing, or were there more tangible, significant connections or similarities between members of the disparate networks? Wenger et al (2011) describe how established communities and larger more diverse networks can interrelate, but how did this work in practice with LTTO, and how did the notion of trust, reputation and perception within networks (as demonstrated with Bates and Downes) influence this journey?

Granovetter’s (1973) concept of ‘*weak ties*’ describes this type of knowledge transmission between seemingly disparate groups of people. Overlaps in distinct social circles can create the opportunity for temporal and casual contact between groups of people (such as when one person within a particular

social group communicates with a casual acquaintance within another distinct social group). This enables wider diffusion of influence and information, and greater potential for personal opportunity and integration into different networks. It appeared that this type of interaction was underneath the widespread sharing of LTTO artefacts in many different contexts. Yet, in order to begin to understand this phenomenon more, how this outcome was related to the design of the artefacts, and how they were used to construct new knowledge in different contexts, I needed to understand more about the underlying relationships within the network that facilitated global dissemination of LTTO.

5.2 Data visualisation and analysis

Following my initial analysis in Chapter 4, I was faced with the challenge of how to effectively identify and understand the range of activity within the numerous networks surrounding LTTO, from within the vast amounts of data I had collected. Designers tend to explore ideas or problems visually when working through a problem. Sketches, drawings, diagrams, plans etc. can communicate ideas quickly, clearly and unambiguously — often using discipline-specific symbolic visual codes (Ashwin, 1984). Visualisations can be used to explore concepts (Schenk, 1997) and often reveal issues or relationships that would have been difficult to identify via textual analysis or conversation alone. I therefore saw the potential for data visualisation as a means of detecting unanticipated relationships, connections or commonalities I could not otherwise perceive via textual analysis. Up until this point, I felt that important nuances of the story within the complex quantitative data were still to be revealed. As discussed in Chapter 4, I had attempted to collect as much data as I could about the circumstances of each instance where I found a link to the project website, or an embedded artefact in external websites. Where possible this included the following:

- Name of the website.
- Type of reference (eg link, embedded content, blog post etc).
- URL of the specific webpage.
- Twitter username of the author if known.
- Latitude and longitude of the author or institution.
- Education sector.
- Date posted.
- Country.
- References generated back to the LTTO central website.
- Number of videos embedded if applicable.
- Individual embedded video plays for each episode if applicable.
- Total number of embedded video plays if applicable.

The main sub categories of such data were identified as follows:

- Twitter activity.
- Websites containing links to the project website on institutional websites.
- Websites containing unsolicited blog posts and reviews of the project.
- Websites where LTTO artefacts were used in education or professional development programs.

Each instance within these datasets contains as much information as possible in each of the above categories. Visualising these data provided a different means of exploring the extent and characteristics of the larger network surrounding LTTO. It is important to note that I undertook exploratory research on visualisations of the complex data surrounding LTTO, rather than use this technique to test a hypothesis. By looking at the datasets of the larger LTTO network as images, I am able to step back and try to see and make sense of emergent relationships that are not evident by examining individual (or even several obviously related) instances of LTTO use. Sindbæk describes the potential of examining networks holistically as offering, "...insight into local and global properties of systems of interconnected objects, which can neither be discovered by studying the interacting agents individually or in pairs, nor by studying the average properties of the system as a whole ... network models have the power to facilitate structural comparison across different scales and source materials and to formulate hypotheses and models for further exploration" (Sindbæk, 2013, p. 72).

What is data visualisation?

Data visualisation, in its simplest terms, is the graphic representation of data to assist analysis that, "...should aid readers or viewers in seeing the structure in the data" (Chen, Härdle, & Unwin, 2008, p. 6). In recent years, with advances in computer technology, it has become closely associated with the field of computational statistics and digital networks, and used primarily in the analysis of large amounts of quantitative data – although other information can also easily be visualised.

Before the advent of data visualisation software, the information that could be displayed in a graph or diagram was limited by the difficulty of accurately representing large amounts of data in one graphic (where excess visual complexity could impede legibility), and the physical limitations involved in producing it (manually plotting hundreds of thousands of data points in one small diagram etc.). Modern data visualisation however, is driven by the power of specially designed computer programs that enable vast amounts of data to be accurately displayed in a variety of dynamically alterable visual formats. More importantly, such software can create interactive graphic visualisations to be used as a means to efficiently explore large volumes of data rather than just present it as a summary. The software-driven visualisations enable different aspects or permutations of data to be visualised instantly, making exploratory graphics (Chen et al., 2008) an effective and efficient analytical tool. It is also important to note that as an exploratory tool, data visualisation does not necessarily – and indeed does not usually – have to present

final findings or results, but instead can be used as a way of exploring data, highlighting issues, or a means of identifying further questions to be investigated. Exploratory visualisation can be part of a larger reflective process, illustrating concepts and revealing information relevant to the design process, “As an abstract machine a diagram goes beyond its own substance and representation to become an effective conceptual device. It is at the same time a tool for comprehension and design able to create significant relations between reality and its interpretation” (Scagnetti, Ricci, Baule, & Ciuccarelli, 2007, p. 6).

The importance of design and complexity in data visualisation

Whereas graphs and tables are able to map results of data analysis, contemporary data visualisation and comparison of vast amounts of information simultaneously enables the detection of previously invisible and potentially unexpected connections and relationships within the data, “...this is a new kind of representation appropriate for information society [sic]: rather than representing the visible, we now seek to represent – in order to understand – all kinds of data sets” (Lima, 2011, p. 12). Data visualisation is about mapping and understanding the complexity of information in ways that were not previously possible without the aid of computers. In this respect, complexity becomes an analytical advantage rather than a hindrance, providing the opportunity for insight into how, “... technological, scientific, epistemological, philosophical, and anthropological questions intersect...” (Scagnetti et al., 2007, p. 2) – as in the case of LTTO. Put simply, exploring several sets of simplified data can be limiting, and can prevent one from understanding anything beyond the immediate circumstance being represented. Looking at large volumes of complex data through the process of exploratory visualisation allows one to see broader connections and relationships that would otherwise be impossible.

Visualisation of complex data has broken out of the disciplinary bounds of the sciences, and has become increasingly an amalgam of science, art and design (Lima, 2011). Lima describes how sciences use visualisation as a method of discovering new knowledge about the world through the understanding of data. However, design is a critical element of this process because, “...it involves the visual presentation of data in a way that facilitates the perception of patterns” (Lima, 2011, p. 12). The designer, or information visualisation designers, “...choose particular visualization techniques and graphic styles in order to communicate an idea about the data and to evoke particular emotions in the viewer” (Lima, 2011, p. 13). When it comes to presenting concepts through data visualisation, effective communication does not simply result from entering data into a piece of software and accepting the resulting visual output. Graphic communication is essential in data visualisation, yet the theory surrounding data visualisation mainly focuses upon statistical analysis rather than effective graphic design (Chen et al., 2008). There is a requirement for an understanding and interpretation of the underlying message, coupled with the selection of the most appropriate graphic style to clearly convey this, as these decisions have a direct impact upon the perception and legibility of information. I will discuss the design of my visualisations in this context as I explore them later in this chapter.

Advantages and disadvantages of the approach

In the context of my research, data visualisation was an appropriate approach for analysing the quantitative data representing links to the LTTO website or embeds of artefacts in other contexts. This is because as an investigative tool data visualisation can:

- enable efficient exploration and interrogation of large volumes of complex data;
- be effective in presenting large volumes of data succinctly;
- Instantly highlight important or unexpected relationships between disparate datasets or areas of overlapping data that would be difficult to see via textual analysis;
- facilitate the perception of patterns when visual salience is used effectively to highlight important data (Ware, 2012);
- avoid preconceptions of what data is expected to reveal from examination of limited volumes of information, by accurately representing entire raw datasets;
- provide a macro view of how different aspects of data relate holistically; and
- inform the decision about which data are important, and enable unimportant data to be quickly filtered out.

While visualisation as a method has many advantages, it potentially can have disadvantages that were relevant for my own investigation:

- Specialist software is required to run the visualisations. In the case of my research, I used open source software free of charge that was able to run on my laptop.
- The researcher needs to be skilled in using the software and formatting the data. The learning curve for the software I chose to use was steep, and some programming knowledge was necessary in order to format data so the software could interpret it correctly. I was able to contact Sébastien Heymann, one of the software developers in France, for assistance in formatting my data. In addition, through discussion about the specifics of my data and my intentions for mapping it, Heymann was able to make improvements to the software so that I could use it in a way that was relevant for the exploration of my data.

5.3 Choice of visualisation software

Data visualisation is particularly effective for uncovering and understanding relationships and connections within networks (Hansen, Shneiderman, & Smith, 2010; Heer & Boyd, 2005), and has therefore been used extensively in the context of mapping personal behaviours and the exchange of information in social media and Web 2.0 networks. After an investigation of several visualisation tools, I

chose an open source platform called Gephi [gephi.org], which was created to both map and interactively explore relationship or network-based data (Figure 23).

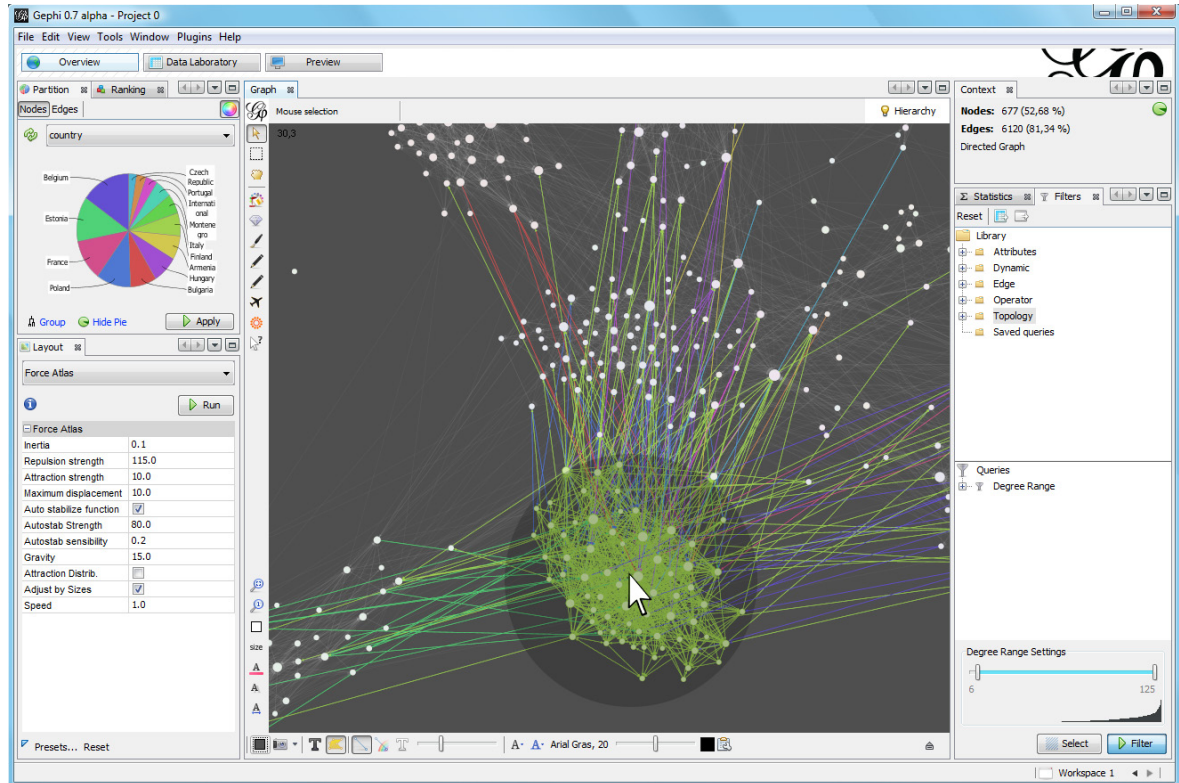


Figure 23. A screenshot from the Gephi website illustrating the software interface. Heymann, S. (2012). Gephi [screenshot]. Retrieved from <http://gephi.org/screenshots>.

The main feature of this software that was particularly useful, was its ability to interactively map connections between individual instances based upon different aspects of the data. This enabled the visualisation of different relationships within one dataset. Further investigation of the software revealed that the amount and type of data fields that could be entered into the software was unlimited, meaning it was capable of dealing with the entirety of the information within my datasets. For visualisation, any aspect of each data entry could also be chosen (in the case of LTTO for example, discipline, number of website referrals, number of embedded video plays etc.), and it could use latitude and longitude coordinates to accurately map geographic information. In addition, while providing a large macro view of the entire network, Gephi could also filter information to display data relative to certain parameters, and examine changes in these parameters over time.

5.4 Visualisation methodology

Clarity within visualisations is achieved by initially abstracting data from its textual or numerical specifics by presenting it in a graphical form. In effect, this equates to 'stepping back' from the data and letting

the visualisations reveal areas of overlap, connection and significance through the emergence of visual patterns. These emergent patterns can be filtered and examined in finer detail with a series of subsequent visualisations using smaller and more focused subsets of data. It is a process of ‘looking from the outside in’, or moving from the macro to the micro, observing important correlations between data without first needing to understand its specific nature – trusting the visualisations to reveal which data is significant through visual emphasis.

Therefore my investigation involved mapping my quantitative data using Gephi, and then examining the visualisations for indications of patterns or significant anomalies. This was an iterative process that began with an inclusive macro view with large sets of data, leading to a series of more focused micro visualisations that enabled exploration of specific subsets of the data. This process enabled me to easily identify potentially meaningful relationships as revealed by patterns in the visualisations. These relationships could then be explored in more depth once identified in this efficient manner, by examining the textual or numerical specifics of a smaller subset of data in more detail. The visualisations illustrated how different aspects of the networks functioned, where LTTO was used, and more importantly where it was used repeatedly or in high volume. These patterns allowed me to differentiate between activity based upon both anonymous Web 2.0 sharing, and instances of more prominent use and evaluation of LTTO in websites, blogs and programs.

At this point, it is worth re-emphasising that my data could not capture the entirety of activity surrounding LTTO, and that there is most likely much use and sharing of the artefacts that could not be documented due to the limitations of the collection instruments. However, it is my intention to visualise the data that I do have, to identify influential individuals or instances of use or sharing within the larger LTTO network.

I define an influential instance as one which resulted in a high number of referrals to the LTTO website, one that resulted in a large number of episode views, or one which facilitated widespread sharing of the artefacts. After identifying such instances in my data, I then investigated them in more detail using qualitative methods such as interviews with those involved at a more micro level. This was done in order to better understand how the design of the artefacts influenced how educators used them in these specific contexts, and what role LTTO played in the construction of knowledge within these different educational networks.

Invitation for the reader to explore the data

Given the volume of data that I collected, there are many different visualisations that could be explored. For the sake of efficiency, I have only included visualisations within this thesis that helped me understand more about the main narrative of the sharing and use of LTTO. There are however, many more stories with the LTTO dataset that I do not present in this research. As I discussed in Chapter 1, Webster and Mertova explain that the reader’s own story and experiences are important aspects

of the authentication process within the narrative inquiry methodology (Webster & Mertova, 2007). I have therefore provided access below to electronic copies of my original datasets, and a simple video demonstration about using Gephi, so that the reader can explore the data as I did, and come to their own views about both my process and outcomes. It is not a necessary part of reading this thesis to explore the data visualisations personally. However, if the reader wishes to do so you, they should:

- download a free open source version of Gephi [gephi.org];
- download my LTTO Gephi datasets [bit.ly/1JLp18s];
- watch my video guide for how to explore these datasets [youtu.be/B97L62t8Ttg]; and
- read additional tutorials about how to use Gephi, if the reader wishes to engage in more sophisticated exploration techniques [gephi.github.io/users].

5.5 Visualisation of activity surrounding LTTO

Within Gephi, each instance in a network is referred to as a node, and is represented as a dot in the visualisation. Each connection between nodes is referred to as an edge. Connections between nodes can be determined in different ways depending upon the relationships within the data. In my data for example, edges primarily indicate where one node has referred web traffic back to the LTTO website, or where Twitter users have retweeted individual messages (re-broadcast them to their own network of Twitter followers). Edges are represented as lines joining the nodes together. The size and colour of the nodes and edges are representative of different aspects of the data. I will explain their significance within each visualisation presented below.

As previously discussed, I had compiled four primary quantitative datasets representing digital activity surrounding LTTO between October 29, 2009 and October 23, 2012. To reiterate, the data includes information regarding:

- 82 Blog posts;
- 153 Institutional links;
- 133 instances of LTTO being used in educational or professional development programs; and
- the activity of 514 Twitter users related to LTTO.

This gives a total of 882 individual data entries, each with up to 12 different elements of information as described above. A breakdown of the different education sectors within these data is given in 'All Activity based upon education sector' section below. Since I had uncovered the latitude and longitude of each of these instances, I was able to use geographic filtering in Gephi to accurately position each node within the network.

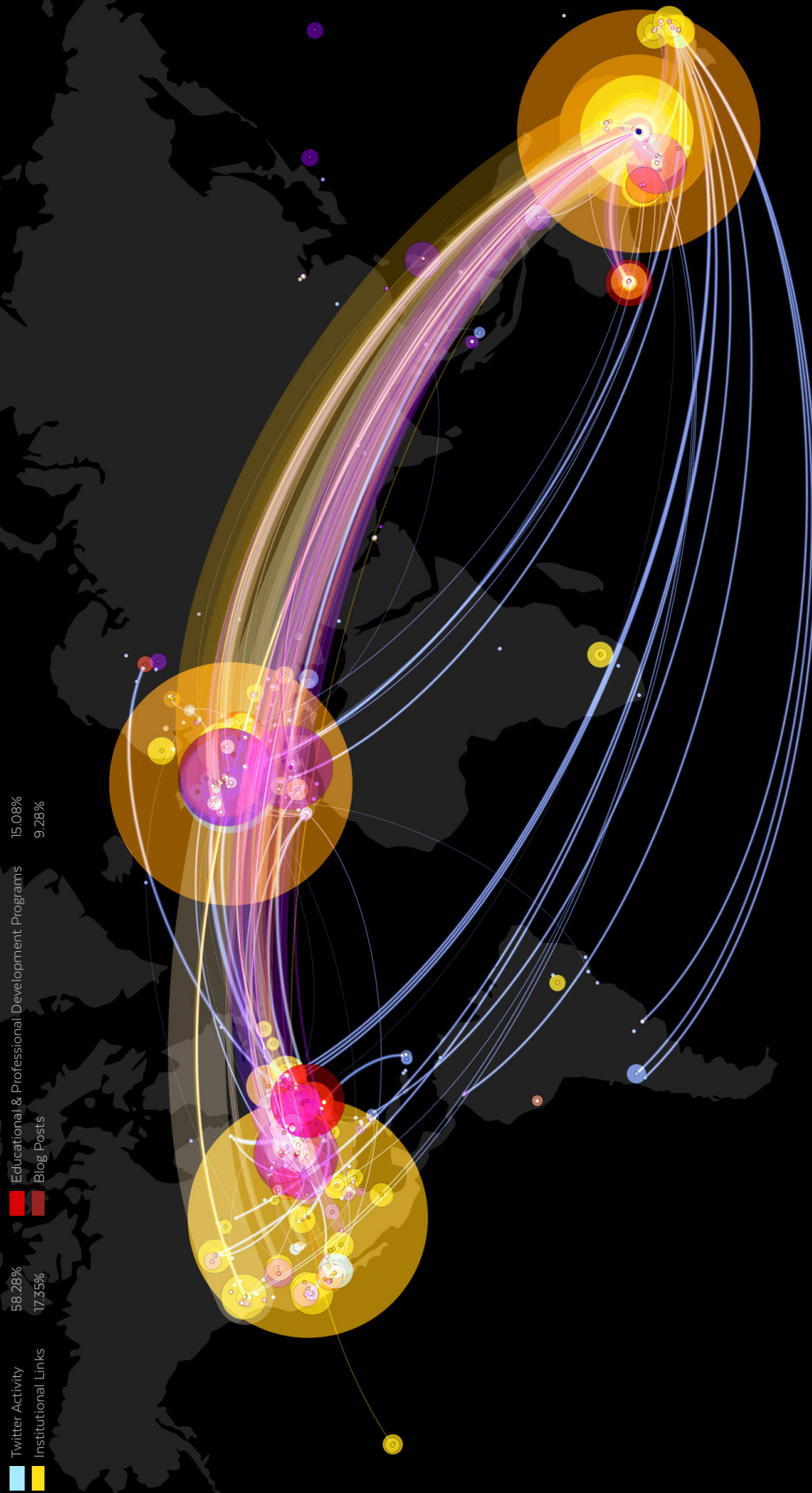


Figure 24. Composite visualisation of online activity surrounding LTTTO including tweets; institutional links and embeds; blog post links and embeds; and professional development and educational program links and embeds. In the case of Twitter activity, node size denotes the number of tweets about LTTTO from that Twitter user and edge (line) thickness represents the number of retweets between users. In all other cases, node size represents the number of embedded YouTube video plays and edge thickness represents the number of referrals from the program to the LTTTO website (represented by the dark blue dot at Sydney Australia).

Visualisation 1 – All Activity based upon type

To begin the visual analytical process at a macro level, I used Gephi to accurately map the entirety of my quantitative data relating to the sharing and use of LTTO (Figure 24). It is inclusive of Twitter activity, links to the LTTO website from institutional websites, blog posts and use of LTTO artefacts in educational or professional development programs. Each of these categories was visualised separately and overlaid in the final visual, along with a map to contextualise the geographic locations of each node. Twitter activity is represented as light blue nodes and edges, blog posts as red, institutional links as yellow and use in programs as purple. The small dark blue node in Australia represents the LTTO website.

In the case of Twitter activity, the size and shade of the nodes represent the number of Tweets about the project from a particular Twitter user. The edges in the Twitter component of the diagram represent retweets between users. In the case of blog posts, institutional links and program use, the size of the nodes represents the number of views of embedded LTTO YouTube videos from that website. The weight of the edges in these instances is directly related to how many visitors the node sent back to the central LTTO website. The thicker the edge, the more referrals were returned from that instance.

I also used Gephi to provide a percentage breakdown of the distribution of the different type of digital activity. Twitter posts were the most numerous of all activity (58.3%); followed by institutional links (17.3%); use in educational and professional development programs (15.1%); and blog posts (9.3%).

Observations

Several pieces of important information about the data are immediately revealed within this first visualisation. Firstly, the layering of visual information highlights in broad terms where activity was most intense, and where it was sporadic, which gives a clear indication of the geographic reach of the LTTO project. There were significant referrals of web traffic back to the central LTTO website from a large number of different nodes, as indicated by the proliferation of edges leading back to the dark blue COFA Online node. In addition, there was also a significant amount of people embedding LTTO artefacts (nearly always the video components of the episodes) in their own websites, as indicated by the large yellow, red and purple nodes.

The majority of activity surrounding LTTO occurred within Australia, the USA, Canada, the UK, and Western Europe. It is also clear that there were at least three different institutions in Australia, the UK and the USA that generated a high number of YouTube views of the LTTO artefacts, as indicated by the large yellow nodes in the visualisation. Figure 25 (Visualisation 2) shows the overall volume of unique views of embedded YouTube videos across all blog posts, institutional websites and educational or professional development programs (outside of UNSW Australia and COFA Online). The size of the circles is a linear representation of the number of unique views from one to the maximum of 36,258 views.

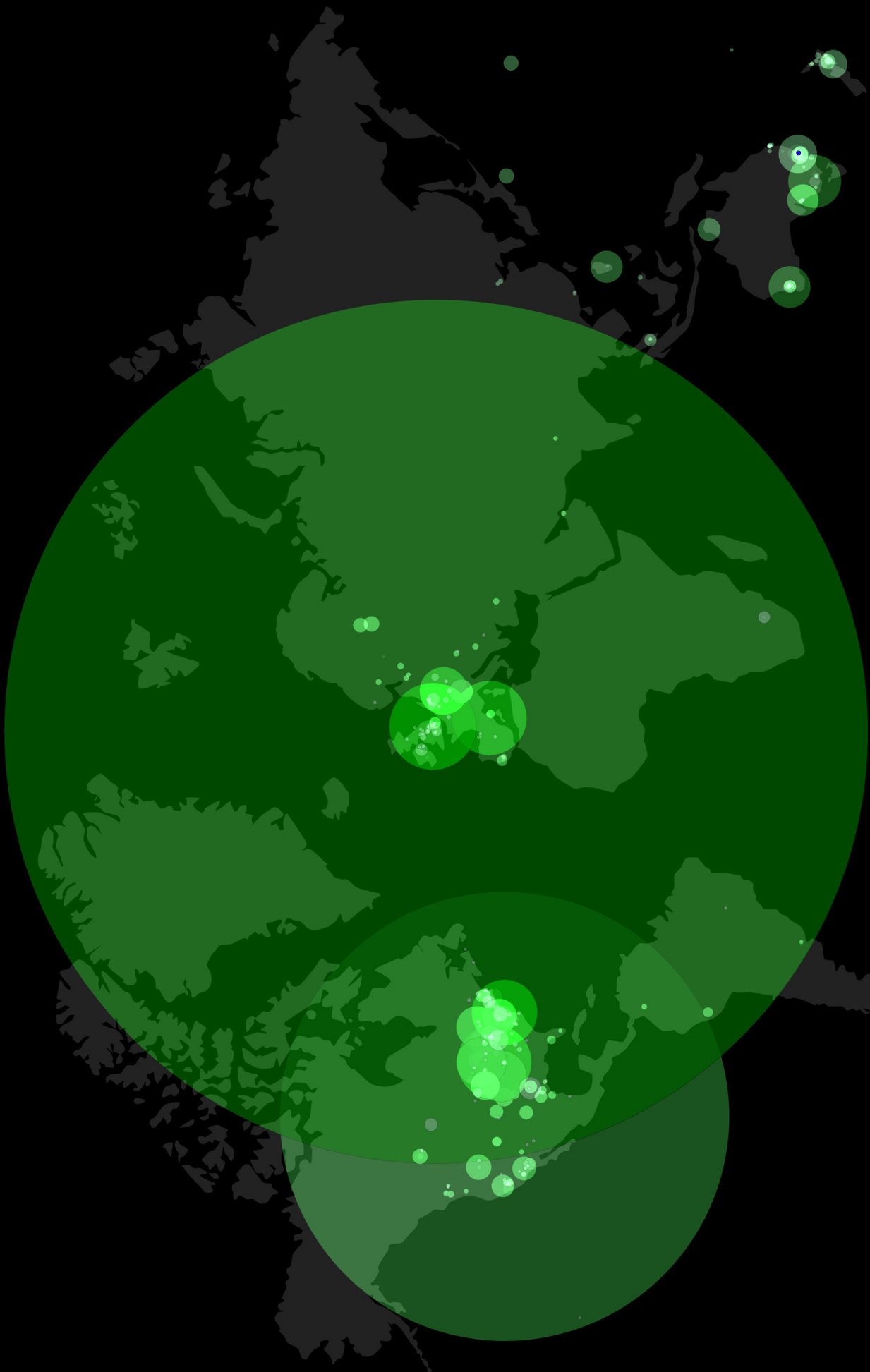


Figure 25. Volume of unique views of embedded YouTube videos across all blog posts, institutional websites and educational or professional development programs (outside of UNSW Australia and COFA Online). The size of the nodes represents the number of unique views from one to the maximum of 36,258.

Activity in Australia and New Zealand seems to be predominantly in the form of institutional links to LTTO, where there seems to be significant evidence of embedding LTTO artefacts into professional development or higher education programs in the USA and Europe. There is evidence of LTTO being discussed or used to a lesser degree in South America, Africa and Asia. However evidence of continued or significant use in these three countries was not apparent using my quantitative data collection methods.

Visualisation 3 – All Activity based upon education sector

The next series of visualisations examine all activity in the context of the education sector from where the activity originated³ (Figure 27, Figure 28 and Figure 29). The educational sectors that were found to have referred to or used LTTO in any capacity were categorised and colour coded as follows in terms of an overall percentage of the total (Figure 26):

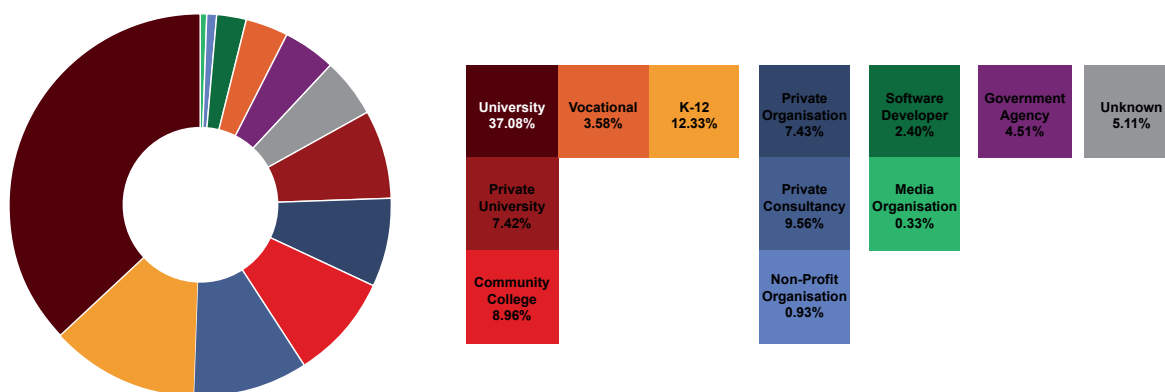


Figure 26. Education sector by percentage of total digital activity surrounding LTTO.

Individual entity types were grouped into similar sub-categories. Educational institutions were coloured using red hues, private educational companies or organisations blue, software development or media production greens, government agencies or departments purple and those nodes where sector could not be determined were coloured grey. In addition, I once again used Gephi to output a table representing the percentage distribution of nodes across different sectors.

Observations

Figure 27, Figure 28 and Figure 29 indicate that educational institutions such as universities, private universities and community colleges used LTTO artefacts more than other sectors, with large number of embedded YouTube views and referrals back to the LTTO website. However, private educational consultancies and organisations were also significant users of LTTO in the USA and Europe. Significant activity surrounding private organisations and software developers is evident in Western Europe and the USA. In addition, the percentage breakdown clearly shows that while universities were the predominant users, a large diversity of other sectors also used or referred to the LTTO artefacts.

³ For those unfamiliar with the term, Community College is defined as a, "...non-residential, publicly funded higher education college established to serve a specific community" ("Community College", 2015). For the purposes of comparison, institutions within Australia and the UK that could not be classified as a private university, but were of similar structure, were placed into this category.

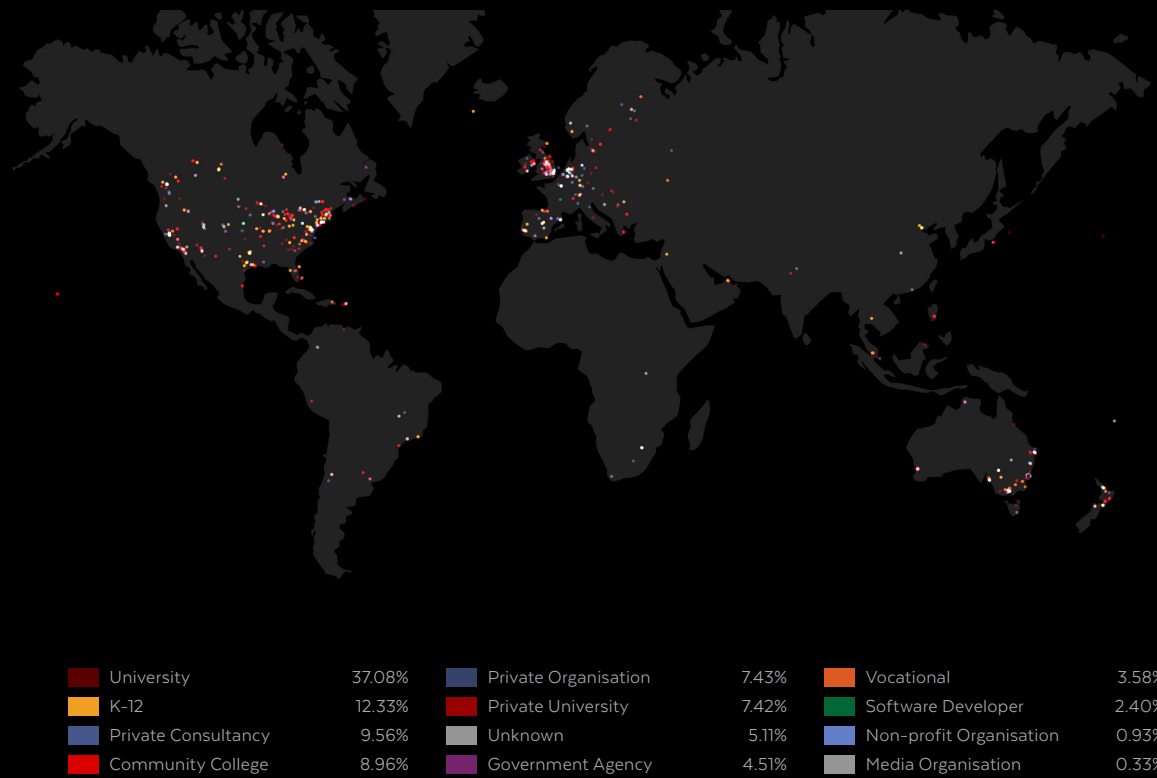


Figure 27. Composite visualisation of online activity surrounding LTTO including tweets; institutional links and embeds; blog post links and embeds; and professional development and educational program links and embeds (based upon education sector).

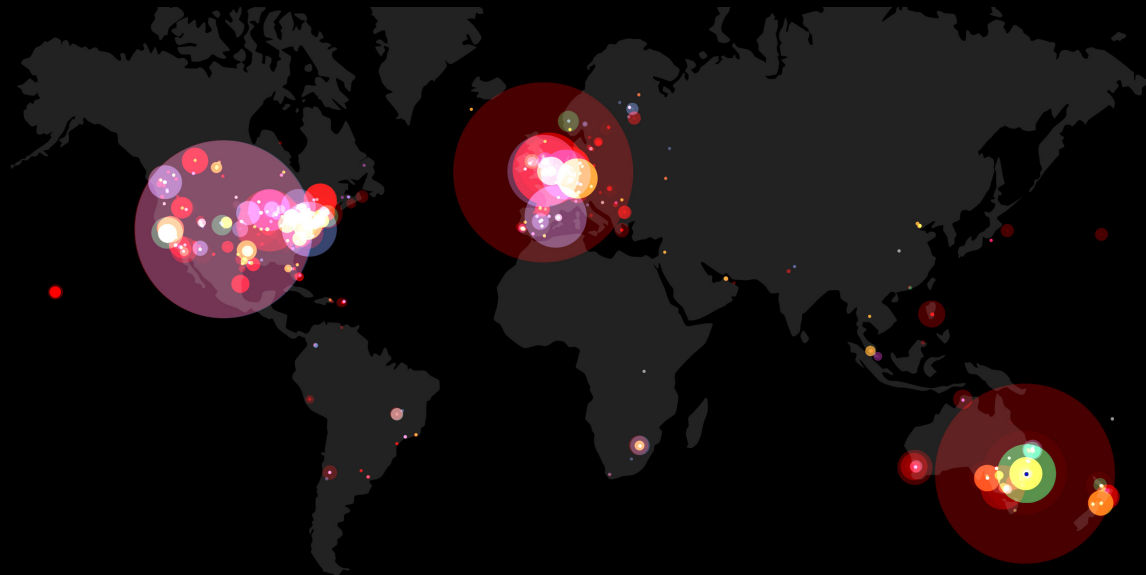


Figure 28. Composite visualisation of online activity surrounding LTTO including tweets; institutional links and embeds; blog post links and embeds; and professional development and educational program links and embeds (based upon education sector). In the case of Twitter activity, node size denotes the number of tweets about LTTO from that Twitter user. In all other cases, node size represents the number of embedded YouTube video plays.

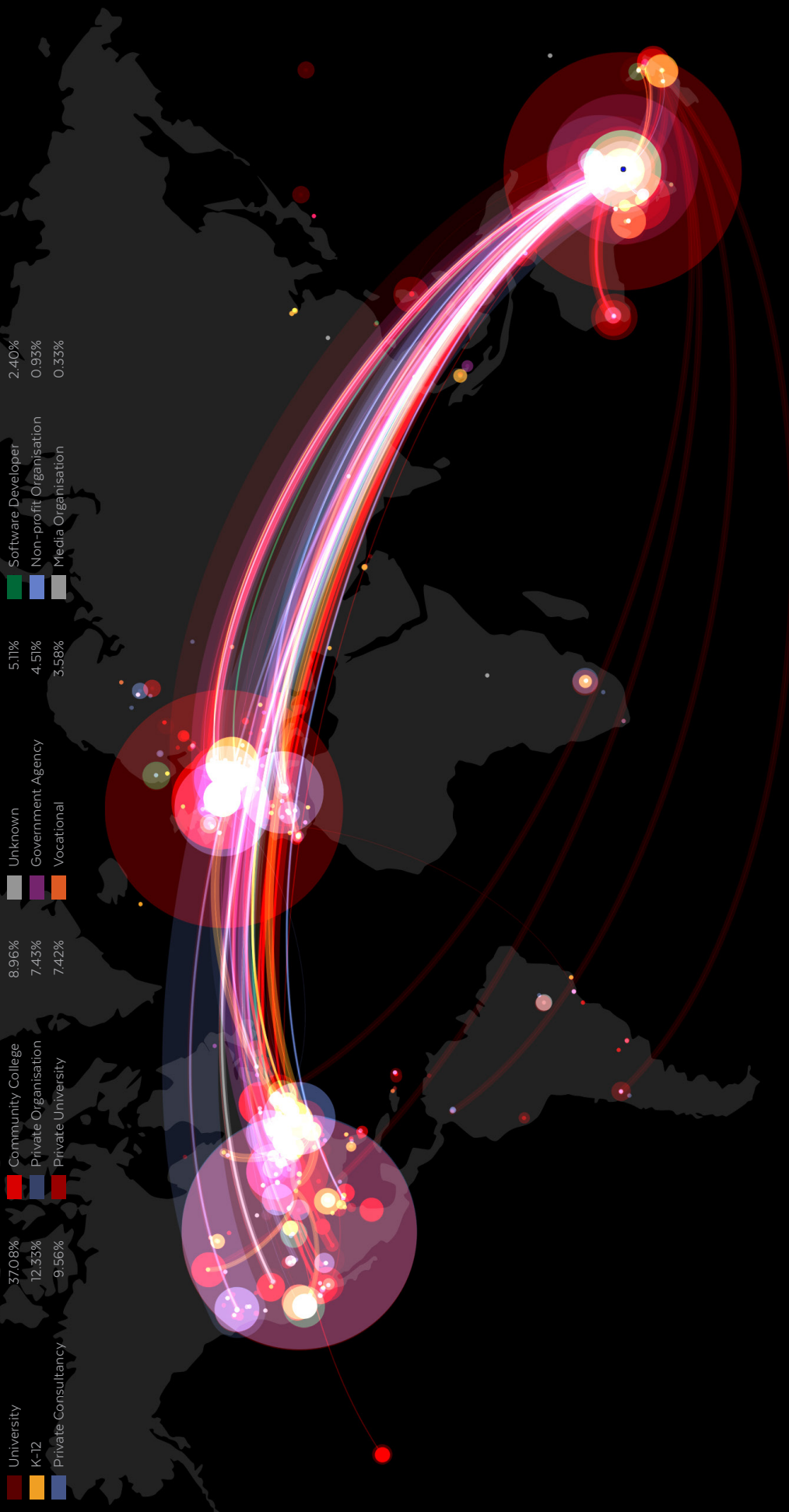


Figure 29. Composite visualisation of online activity surrounding LTTTO including tweets; institutional links and embeds; blog post links and embeds; and professional development and educational program links and embeds (based upon education sector). In the case of Twitter activity, node size denotes the number of tweets about LTTTO from that Twitter user and edge thickness represents the number of retweets between users. In all other cases, node size represents the number of embedded YouTube video plays and edge thickness represents the number of referrals from the program to the LTTTO website (represented by the dark blue dot at Sydney Australia).

Despite the fact that universities (dark red) accounted for 37.1% of all digital activity surrounding LTTO that I was able to record, the visualisation clearly shows that nodes of other colours have a strong presence in the image both in terms of the size of the nodes (representing embedded YouTube plays), and the size of the edges (representing the number of referrals back to the LTTO website). This shows that while other sectors used or referred to the resource in lower numbers, in some cases the volume of use was still significant.

The initial visualisations were very broad in their scope, being inclusive of all data. This gives a good overall indication of the patterns of LTTO usage from geographic and sector perspectives. In order to better understand the significance of each type of Web 2.0 activity, I proceeded to visualise and analyse data specific for blog posts, institutional links, Twitter activity and use in educational programs.

Visualisation 4 – All blog posts

When visualising activity related to blogs, I limited the data within Gephi such that only blog posts were visible in the resulting visualisation (Figure 30). The node size refers to the number of embedded YouTube plays if they were embedded in a blog post (0 to 152), and the edge size indicates the number of visits the blog generated to the central LTTO website (0 to 236).

Observations

It can be seen that there is a fairly equal distribution of blog posts across Australia, the UK, the USA and Canada. It is immediately obvious that there are two nodes in Canada that have referred significant amount of traffic back the LTTO website (due to the thick edges leading back to Sydney Australia and the LTTO website). These blog posts did not embed any YouTube videos however. An examination of the Gephi data identifies these two nodes as being blog posts from Tony Bates and Stephen Downes in Canada, as discussed in Chapter 4. These were significant in that they engaged in critical review of, and debate about, the merits of the LTTO project, rather than simply highlighting its existence, as was the case with some of the other blog posts recorded in the dataset.

Stephen Downes posted about LTTO in his blog on May 16, 2011. Interestingly, Google Analytics data about the LTTO website from this same time period shows that the site received a large spike of visitors between 16 and 20 May, 2011 – the highest number of visitors to the LTTO website in one day since its creation, by a significant margin (Figure 31). Google Analytics also confirms that the Downes blog post was in the top three referrers to the site during this time period.



Figure 30. Geographic locations of the authors of blogs in which LTTTO video artefacts or links to the LTTTO website are embedded. Node size represents the number of embedded YouTube video plays. Edge thickness represents the number of referrals from the program to the LTTTO website (represented by the dark blue dot at Sydney Australia).

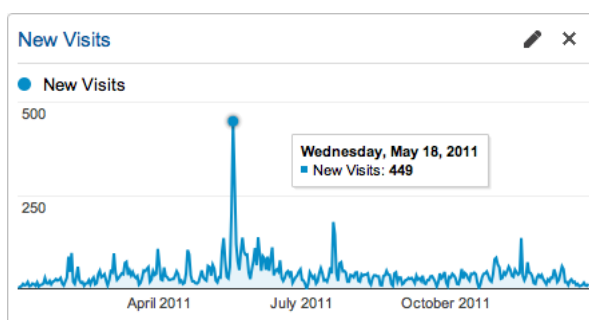


Figure 31. Google Analytics data showing large spike in daily visits coinciding with blog post by Stephen Downes. The blog visualisation above corroborates that a large proportion of these visits came directly from Downes' blog post.

The blog visualisation above, coupled with the information provided from Google Analytics, is one example of the wider academic community engaging in critical discussion about the LTTO artefacts in relation to their existing experience and knowledge. This discourse was shared with educators worldwide via existing Web 2.0 networks – ie those who followed the blog authors because of similar professional interests. Such blog posts, the sharing and discussion they generate, and institutional endorsement in the form of linking to artefacts are a form of testing, rationalising and re-contextualisation of new knowledge into existing epistemological frameworks. I discuss this phenomenon in more detail in conjunction with the concept of disruption and social reproduction within the LTTO rhizome in Chapter 6.

Visualisation 5 – All blog posts based upon education sector

So as to better understand the educational contexts where this type of discourse was taking place, I used Gephi to re-colour the blog nodes based upon education sector (Figure 32, Figure 33 and Figure 34). I also compiled the percentage distribution of nodes by sector.

Observations

University remains the most frequently represented sector in the recorded blog posts, however private consultancy and K-12 also have a significant presence. These percentages correspond with the overall sector breakdown in (Figure 29), indicating that sharing or critical review of LTTO in blogs was related to the level of use or reference to the artefacts within all types of digital activity including blog and Twitter posts, institutional links and use in educational and professional development programs.

In Australia and New Zealand, university and vocational based blogs were more prominent, while private consultancy and K-12 were more prominent in Europe and the USA. This suggests that LTTO was being discussed more prominently within its originally intended context (higher education) in the country of its origin, whereas educators in other countries were more likely to discuss it in relation to sectors other than higher education. This is significant because it illustrates how LTTO jumping between different communities, increases the chance of the artefacts' diversification into different networks, a further illustration of Granovetter's concept of 'weak ties' (1973) between networks enabling diversification of information.

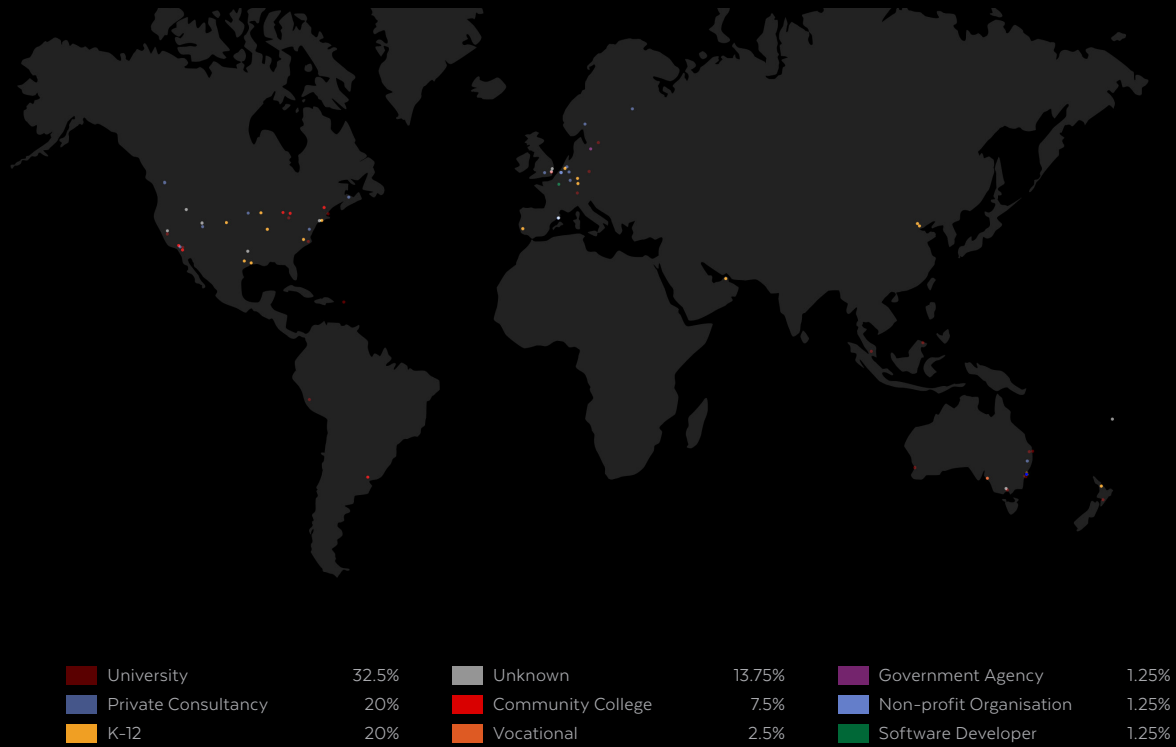


Figure 32. Geographic locations of the authors of blogs in which LTTO video artefacts or links to the LTTO website are embedded (based upon education sector).

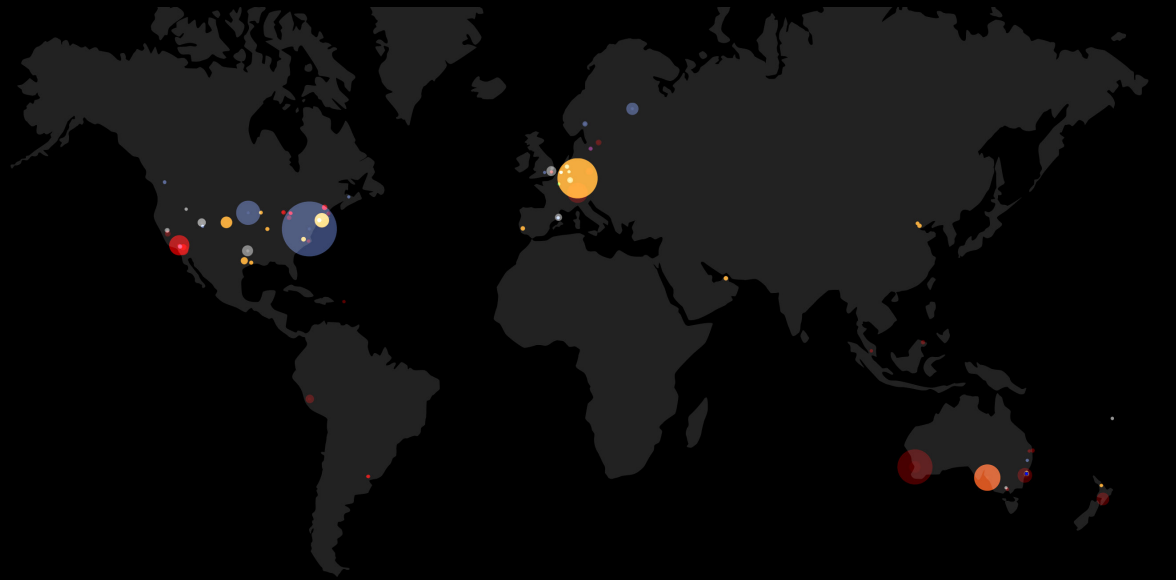


Figure 33. Geographic locations of the authors of blogs in which LTTO video artefacts or links to the LTTO website are embedded (based upon education sector). Node size represents the number of embedded YouTube video plays.



Figure 34. Geographic locations of the authors of blogs in which LTTTO video artefacts or links to the LTTTO website are embedded (based upon education sector). Node size represents the number of embedded YouTube video plays. Edge thickness represents the number of referrals from the program to the LTTTO website (represented by the dark blue dot at Sydney Australia).

Visualisation 6 – All institutional links

Following the previous exploration, I filtered the data to isolate institutional links (Figure 35). The size of the nodes refers to the number of embedded YouTube plays of LTTO episodes within institutional websites (0 to 36,258), and the size of the edges refers to the number of referrals from that institution's web site to the LTTO website (0 to 628). The largest node in Australia represents embedded YouTube views from within the LTTO website.

Observations

The visualisation (Figure 35) indicates that there were high levels of reference to the LTTO website or embedding of episodes at education institutions in Australia, Western Europe, the USA and Canada. There are three particularly large nodes in Australia, the UK and the USA indicating very high numbers of embedded YouTube plays within institutional websites. The large Australian node is the LTTO website. The UK node is JISC Digital Media [jiscdigitalmedia.ac.uk], an organisation dedicated to the integration of technology into higher education for the improvement of learning and teaching. The large node in the USA represents a private educational organisation called Freedom University.TV [freedomuniversity.tv], a private provider of online electrical engineering courses, and an online repository of educational video and multimedia content.

Very few institutions reference LTTO in countries where English is a second language – with notable exceptions in Western Europe, South Africa and South America.

The size of the edges referring back to the LTTO website are significantly more substantial than those in the blogs visualisation, indicating that a much high number of educators visited LTTO upon the recommendation of their institution. Institutional inclusion of LTTO in institutional websites is a significant indication of endorsement, and perceived value of the resource. This aligns with the data within the open online questionnaire in Chapter 4 that indicated that a large proportion of educators were introduced to LTTO artefacts by institutional recommendation. Such endorsement was instrumental in helping LTTO reach more educators who might not find out about the project via Web 2.0 technologies such as social media, because of a lack of skill or confidence with technology.

In addition, the links on institutions' websites are not as transient as those within social media, increasing the potential for more people to see them. These observations also raise the notion of trust – of academics receiving knowledge willingly from sources that they are already familiar with in their own network (this was also observed in academics within my own faculty in relation to the original fellowship programs, as discussed in Chapter 3). These data suggest that institutional recommendations carry more influence upon academics within this network, than information coming from unfamiliar sources (a random tweet from someone not followed for example). Or it may be the case that academics are more likely to see information shared within their own network than from outside it. I will explore this more in Chapter 6 when I examine the interrelationships between disparate networks that LTTO propagated as illustrated in these visualisations.



Figure 35. Geographic locations of institutions who have embedded LTTT video artifacts or links to the LTTT website in their websites. Node size represents the number of embedded YouTube video plays. Edge thickness represents the number of referrals from the program to the LTTT website (represented by the dark blue dot at Sydney, Australia).

Visualisation 7 – All institutional links based upon education sector

I was interested in exploring further to determine if there was any relationship between the education sectors of institutions referring to LTTO and the sectors of the blogs in which it was being discussed (Figure 36, Figure 37 and Figure 38). I used Gephi to recolour the nodes within the institutional links graphic based upon education sector, to enable interrogation of the resulting visualisation through filtering of the data.

Observations

The visualisations revealed that Australian institutions referring to LTTO in their websites were primarily within the university sector by a significant margin (67.5% of seven different sectors). The next most numerous sector was government agencies (one major example being the ALTC who funded the project). The university sector was also the most prominent in the UK (50.1%) of seven different sectors. The next most numerous was community colleges. The USA showed the most diversification of educational sectors with 10 different types being represented. University was still the most numerous however (33.3%), with community colleges the second most frequent type of institution to feature LTTO in this region.

These data support the observation from the blog visualisations (Figure 32, Figure 33 and Figure 34) that LTTO was being used more in the originally intended sector within the country of its origin. This phenomenon does not seem to be coincidental, and there is an apparent similarity between the range of diversification of sectors represented in blog posts where LTTO was discussed and critiqued, and the range of diversification of sectors of the institutions that referred to it.

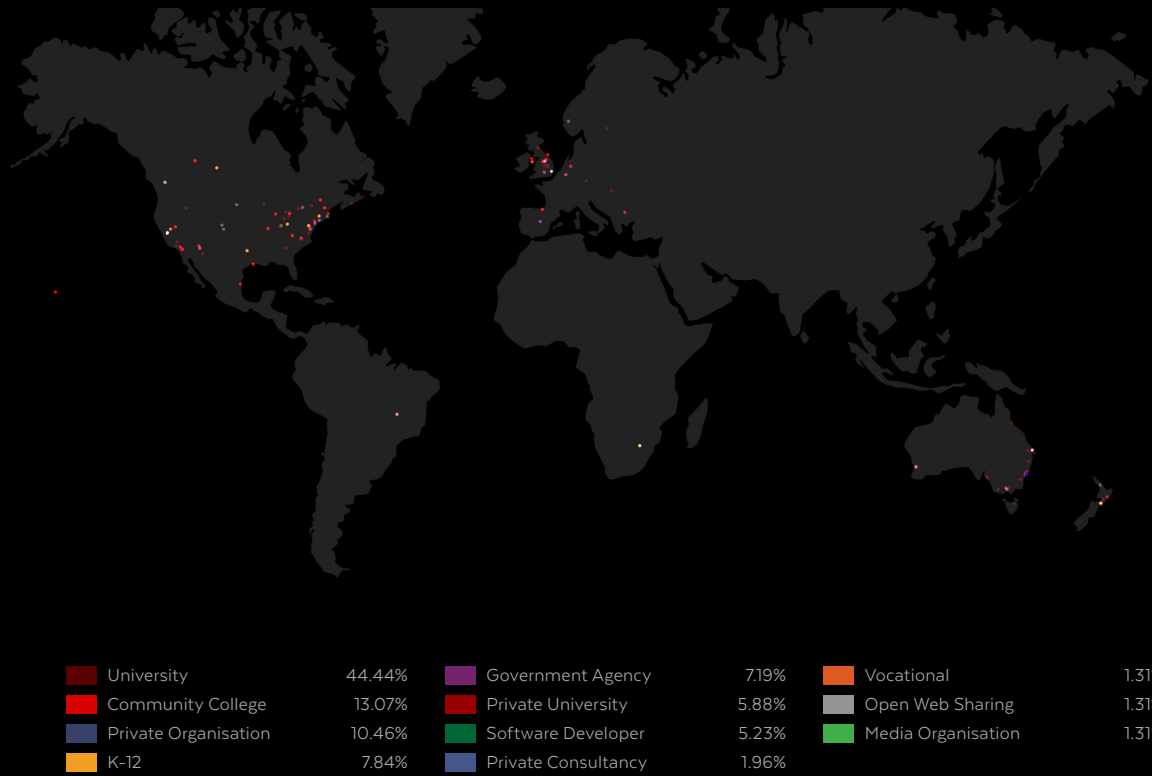


Figure 36 . Geographic locations of institutions who have embedded LTTO video artefacts or links to the LTTO website in their websites (based upon education sector).

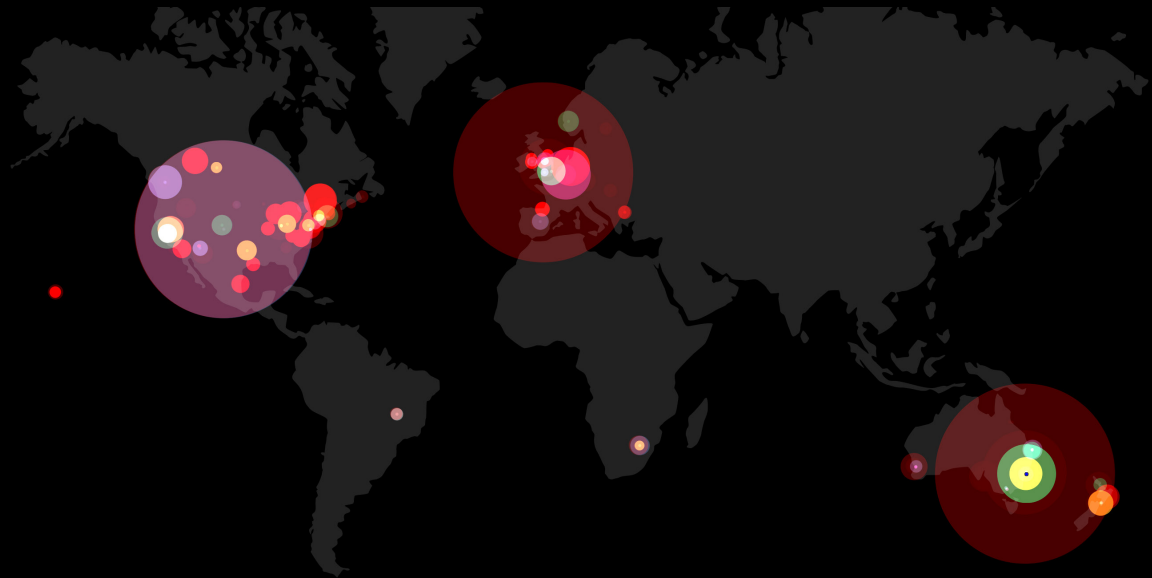


Figure 37. Geographic locations of institutions who have embedded LTTO video artefacts or links to the LTTO website in their websites (based upon education sector). Node size represents the number of embedded YouTube video plays.

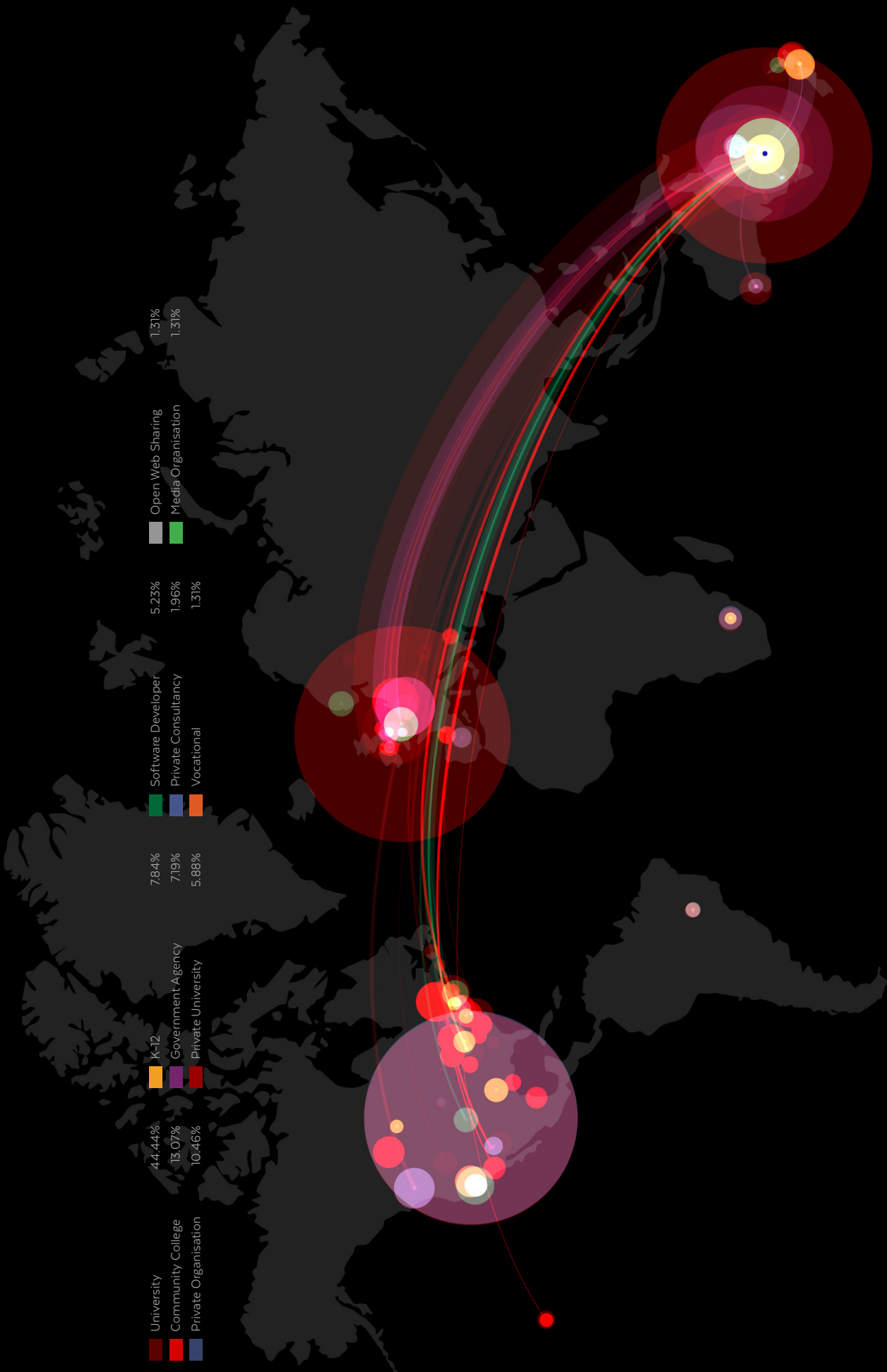


Figure 38. Geographic locations of institutions who have embedded LTTTO video artefacts or links to the LTTTO website in their websites (based upon education sector). Node size represents the number of embedded YouTube video plays. Edge thickness represents the number of referrals from the program to the LTTTO website (represented by the dark blue dot at Sydney Australia).

Visualisation 8 – All Twitter activity

Figure 39 shows the geographic location of the 514 Twitter users who referred to LTTO over the duration of the data collection period. As might be expected given that English was the language used within LTTO, the majority of activity in Twitter occurred in countries that spoke English as a first language. Twitter users most often follow others who post in the same language (Takhteyev, Gruzd, & Wellman, 2012), although there were a large number of Twitter users in Europe particularly also engaged, perhaps suggesting that English is commonly used in these networks. The size of the node is proportional to the number of tweets from that person about the project, the highest being 13 and the lowest being one. The edges between nodes represent retweets (when a Twitter user re-broadcasts a post from another user to their own network of followers). Twitter works on the principal of users ‘following’ other users. This means that if a user ‘follows’ a second user, the followed user’s tweets will appear in the Twitter feed of the first user. Therefore Twitter contains a large array of existing networks of people following others with similar interests.

Twitter relationships have been described as inherently asymmetric (users don’t always follow each other back) and weak, with short, often easily ignored messages that are often low on emotional intensity and intimacy because of their public nature (Takhteyev et al., 2012). However, as Takhteyev et al. explain, “The combination of weak, low-cost ties and global popularity creates an opportunity for people to make links that transcend distances and national borders” (p. 74). In addition, these ‘*weak ties*’ (Granovetter, 1973) between different social networks, increase the prospect of a tweet being seen by people in very disparate communities (geographic or professional), and retweeted to their own networks. This, in turn, increases the diversity of the points of distribution of the information, and the diversity of the people it reaches.

Observations

The visualisation clearly shows that Twitter was a powerful tool for spreading knowledge about the LTTO project to different countries. This is based upon the existing networks amongst Twitter users. While the majority of users tweeted about LTTO once, there were several who tweeted about the project several times to their network of followers. One example, highlighted by the largest node size in the visualisation, is a Twitter account related to the EdMediaShare website in the UK. This site is dedicated to sharing videos that support the professional development of educators, and is run by JISC Digital Media, whose high number of YouTube plays of LTTO episodes (36,258 times during the period of data collection compared to 40,899 video views on the LTTO website during the same period) also featured prominently in the institutional links visualisation (Figure 35). EdMediaShare tweeted about LTTO videos embedded within its website 13 times.



Figure 39. Geographic locations of Twitter users who tweeted about LTT0. Node size represents the number of tweets about LTT0 from that Twitter user. Edge thickness represents the number of retweets between users.

When the edges are examined, it is clearly evident that a few influential Twitter users generated a large number of retweets into different countries. Of particular note is the large number of retweets generated from a user in New Zealand, and one in the USA. I will examine this phenomenon in more detail in Figure 44 below.

Visualisation 9 – All Twitter activity based upon education sector

I then examined the Twitter activity in terms of education sector, and used Gephi to provide a percentage breakdown of the distribution of activity across sectors (Figure 40, Figure 41 and Figure 42). As I segregated nodes by sector, this image does not show edges that travel between different sectors. If this image is compared to the previous Twitter visualisation, far fewer edges can be seen.

Observations

The visualisations shows a much closer distribution of activity across sectors, with a more even distribution of colours represented. This is supported by the accompanying percentage breakdown of activity distribution. There are two clear instances of Twitter users being retweeted significantly within their own professional discipline. The first of these influential nodes represents K-12 Twitter user 'kylepace' from the USA who caused 20 retweets. The second represents university Twitter user 'mbrownz' from New Zealand with 14 retweets. However, if compared to the original Twitter visualisation (Figure 39) it is evident that more retweets occurred outside of the original sector. This invited further investigation.

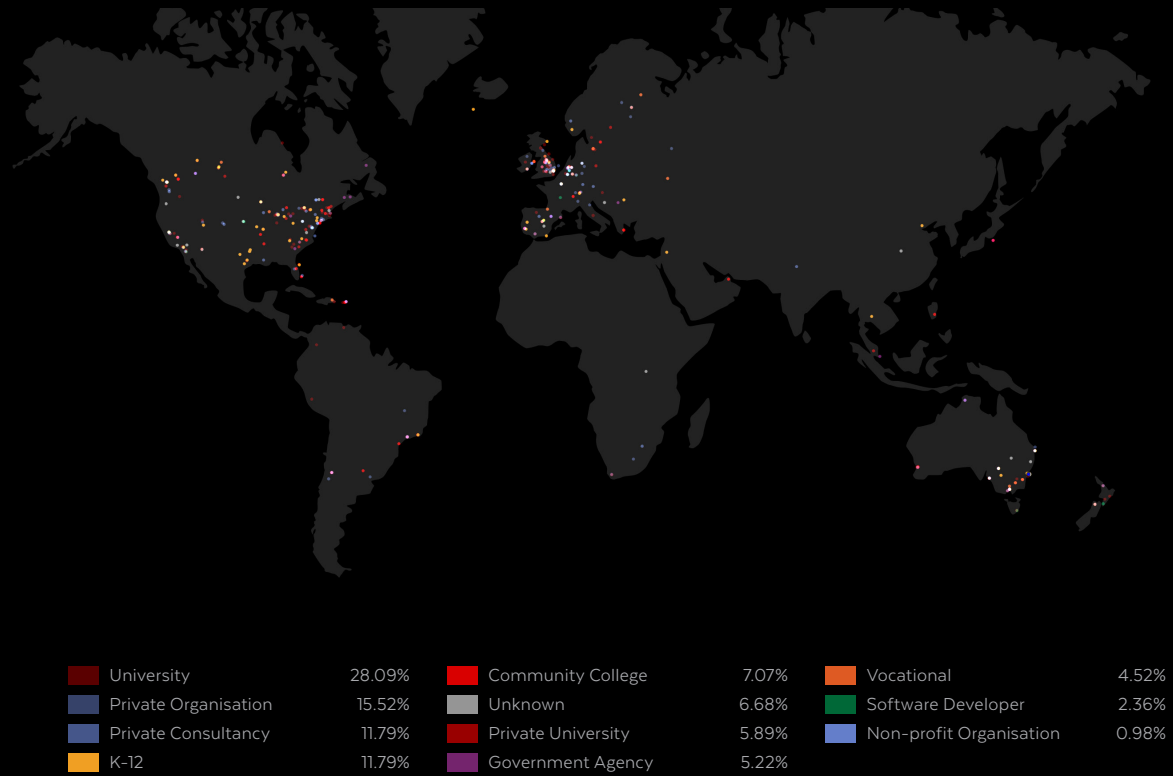


Figure 40. Geographic locations of Twitter users who tweeted about LTTO (based upon education sector).

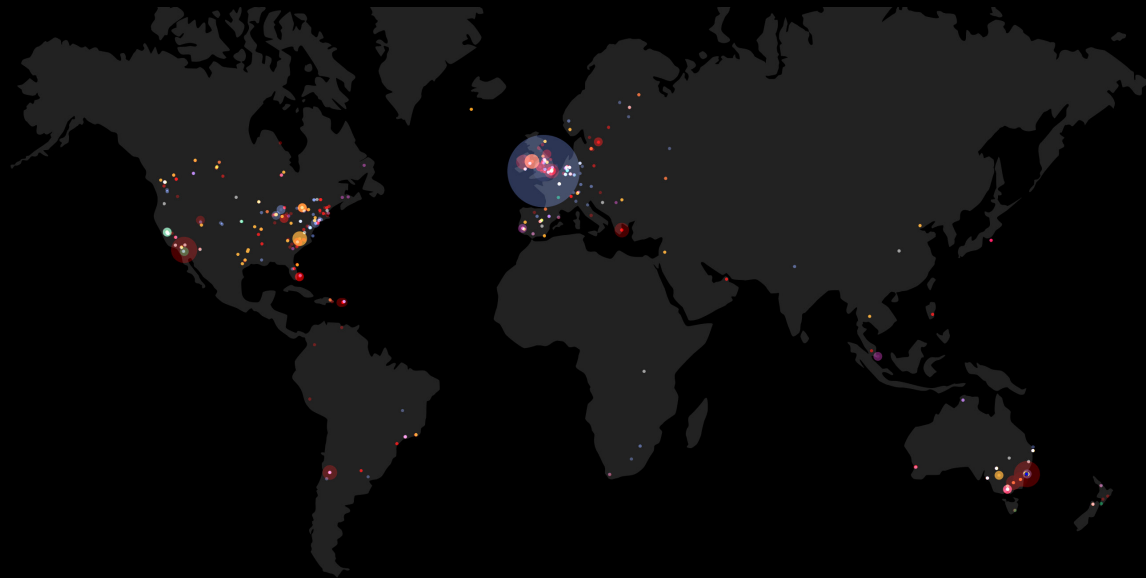


Figure 41. Geographic locations of Twitter users who tweeted about LTTO (based upon education sector). Node size represents the number of tweets about LTTO from that Twitter user.

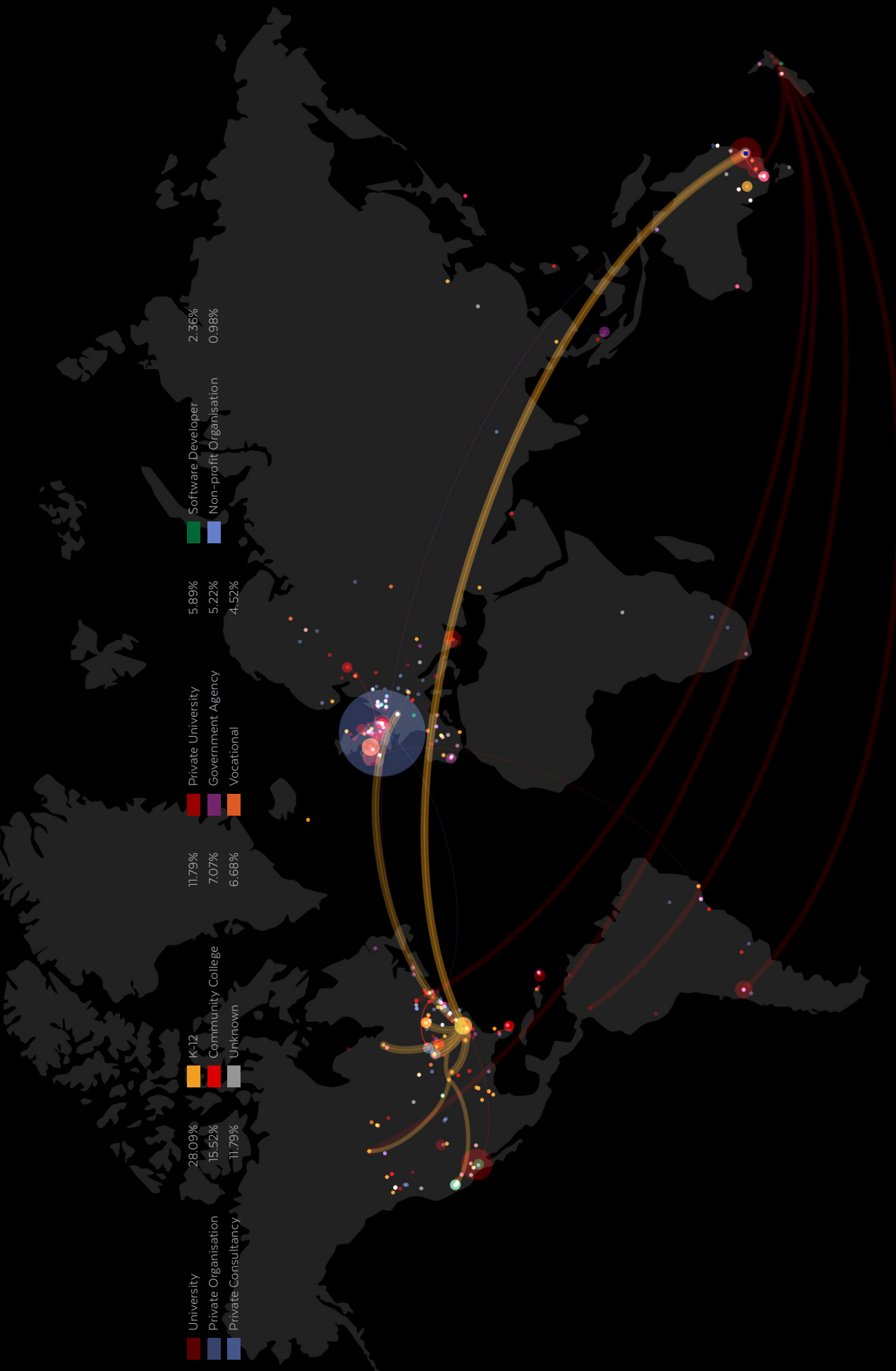


Figure 42. Geographic locations of Twitter users who tweeted about LTTTO (based upon education sector). Node size represents the number of tweets about LTTTO from that Twitter user. Edge thickness represents the number of retweets between users.

Visualisation 10 – All Twitter networks based upon education sector

One of the most notable achievements of the LTTO project was its use by a wide range of different educational sectors and fields in many different countries. The visualisations thus far show how Web 2.0 was used to facilitate sharing around the globe. However, in order to investigate one aspect of how knowledge of the project spread so diversely across sectors, I used Gephi to remove the geographic data from the visualisation, arranging nodes by order of number of tweets about LTTO, and the number of edges in different networks (Figure 43). The more influential nodes are on the outside of the arrangement, and the least on the inside. Edges within the networks clearly show retweets between education sectors, as indicated by nodes of different colour.

Observations

By removing the geographic element of the visualisation, the relationships between nodes become clear (ie who has retweeted whom). There are 15 distinct networks of more than one retweet created between Twitter users. Of these 15, the largest degree (or depth) of the network is three connections, meaning the same tweet was retweeted by a chain of three people. At a glance, the colour differentiation in these 15 networks shows that, within each, tweets reached people within different educational sectors. This suggests that educators are already engaging with each other in cross-sector professional digital networks in some way. This is a perfect example of how weak ties between individuals can facilitate greater diffusion of information between existing networks.

The two most complex networks were generated by initial tweets from Twitter users 'kylepace' in the K-12 sector, and 'mbrownz' in the university sector. It is interesting to note that both 'kylepace' and 'mbrownz' only tweeted about LTTO once, yet this act generated subsequent activity around the world. Also of note is 'edmediashare' with a total of 13 tweets but no retweets.

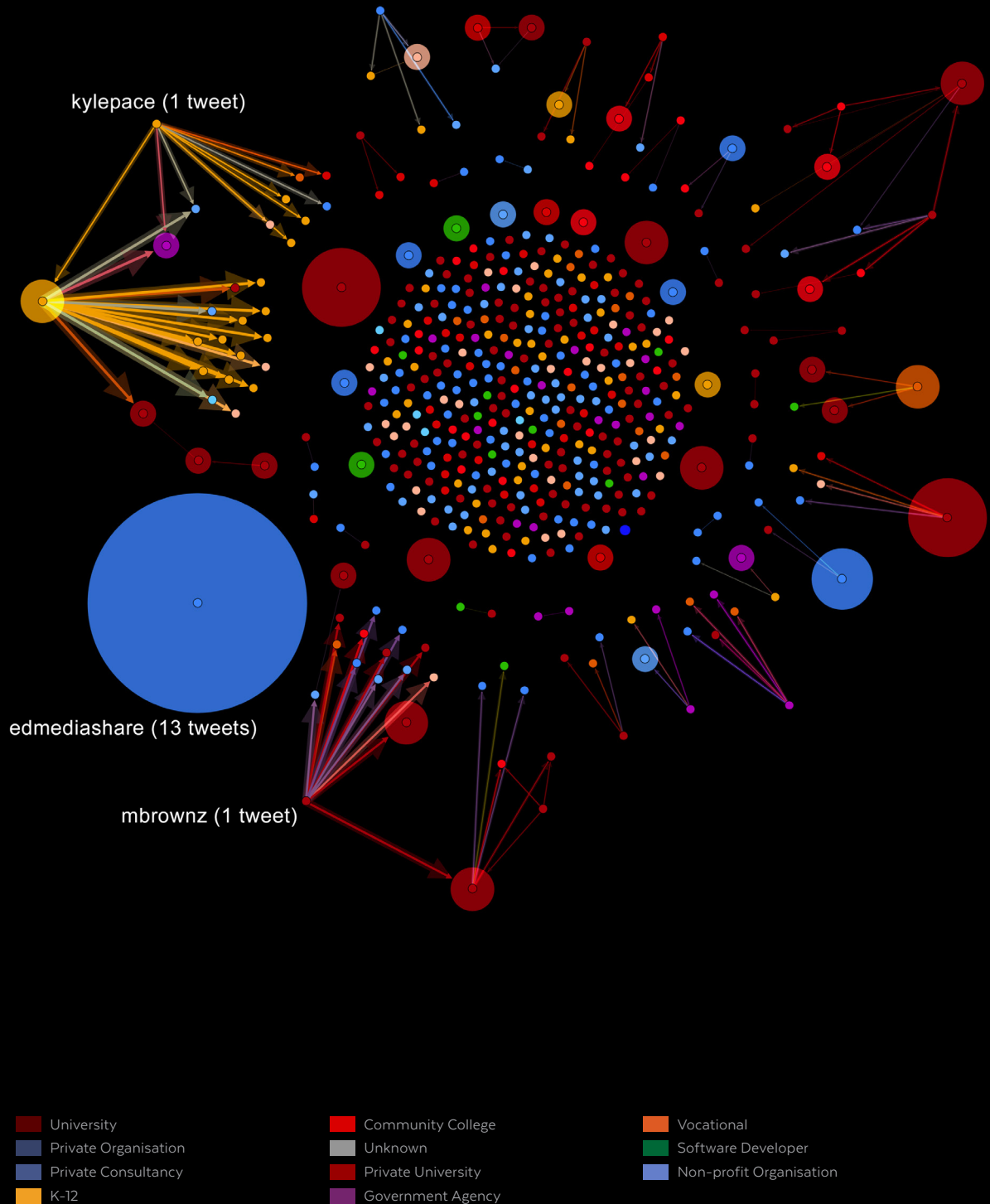


Figure 43. Non-geographic network diagram of Twitter users who tweeted about LTTO (based upon education sector). The least influential tweets are in the centre of the diagram, while the outside of the diagram shows more influential twitter users based upon the number of tweets about LTTO (node size), or the depth of networks created when one of their tweets was retweeted by others (edges).

Visualisation 11 – ‘mbrownz’ Twitter network based upon geographic location and number of Twitter followers

I wanted to investigate the phenomenon of sharing information via Twitter across sectors and countries in more detail. Having established ‘mbrownz’ and ‘kylepace’ as influential nodes in previous visualisations, I chose to examine the ‘mbrownz’ network more closely, as it contained the highest number of different geographic locations (as illustrated in the above visualisation). I used Gephi’s filtering mechanisms to isolate and display the data within the ‘mbrownz’ network within my dataset (Figure 44). There were 22 different Twitter users who retweeted the ‘mbrownz’ tweet about LTTO. Not all of these people necessarily follow ‘mbrownz’ (who had 191 followers), as they could have come across his tweet by several means, such as someone they follow retweeting the source tweet, or searching Twitter for key terms of interest for example (another instance of weak ties increasing the diversity and reach of the information being shared). In Figure 44, I retained the colour coding of the nodes based upon educational sector, but changed the node size to represent the number of followers of each Twitter user. I wanted to see how much potential for influence each Twitter user in the network had. The more followers a Twitter user has, the higher the probability that more people, or ‘followers’ would have seen their tweet pertaining to LTTO.

Visualisation 12 – mbrownz Twitter network based upon sector and number of Twitter followers

I then once again removed the geographic data from the visualisation parameters, and re-imaged the network in order to more clearly examine the cross-sector relationships (Figure 45). The largest node in the visualisation represents a Twitter user with 57,591 followers – far above the average number of followers (3,736) for those Twitter users within the ‘mbrownz’. The smallest node in the visualisation represents a Twitter user with 48 followers. The second highest number of followers for a user in the above network was 8,647. In order to produce a visualisation where the largest node fit into the picture, I used a spline within Gephi, which means I can adjust the relative scale of the nodes exponentially. This means that the further away (higher) the number representing the node size is, relative to the mean node size, the smaller the difference in diameter. This preserves information on the relative sizes of the nodes, while making it possible to represent them all on the same image.



Figure 44. Geographic locations of Twitter users who retweeted the 'mbrownz' tweet about LTO (based upon education sector). Node size represents the number of followers of each Twitter user in the network.

Observations

This visualisation indicates that the theories of weak tie relationships explored by Granovetter (1973) and Takhteyev et al. (2012) did indeed facilitate the sharing of the LTTO amongst a more diverse series of networks via Twitter. Of particular interest, is that the tweet from 'mbrownz' was retweeted across several countries, and traveled between seven different education sectors (one user's sector could not be determined). Of the 22 Twitter users who retweeted 'mbrownz' (who belonged to the university sector):

- nine belong to the university sector (41%);
- five to a private organisation (23%);
- three were in private consultancies (13.5%);
- two belonged to the private university sector (9%);
- one belonged to the vocational education sector (4.5%);
- one was involved with software development (4.5%); and
- one was unknown (4.5%).

This indicates that 50% of those retweeting were in the same sector as 'mbrownz' (higher education), yet there was also notable diversification during the process. Interestingly, this is representative of the proportion of different education sectors that LTTO was used or discussed in across all datasets. Compared to all other retweeters in this network who had an average of 3,736 followers, one user in this network, 'thatblokesean' (with 57,591 followers) in the sector of 'private consultancy' (also an academic), had a high potential for influence when they retweeted 'mbrownz'. As this user's network was so large, there was a much higher chance of his followers seeing his tweet about LTTO, meaning the message was diffused to a much greater extent. While the chance of 'thatblokesean's' retweet being seen by many diverse people was comparatively high, it is interesting to note that none of 'thatblokesean's' followers continued the retweet to others in their own networks.

Despite this however, on 19 April 2011 – the day that 'thatblokesean' retweeted 'mbrownz', the unique visits to the LTTO website jumped from an average of around 25 per day to 123 per day, with the hourly breakdown of visits showing an immediate spike that increased the average number of visitors for two days (Figure 46). There was also a dramatic increase in referrals to the LTTO website from Twitter on 19 April (Figure 47).

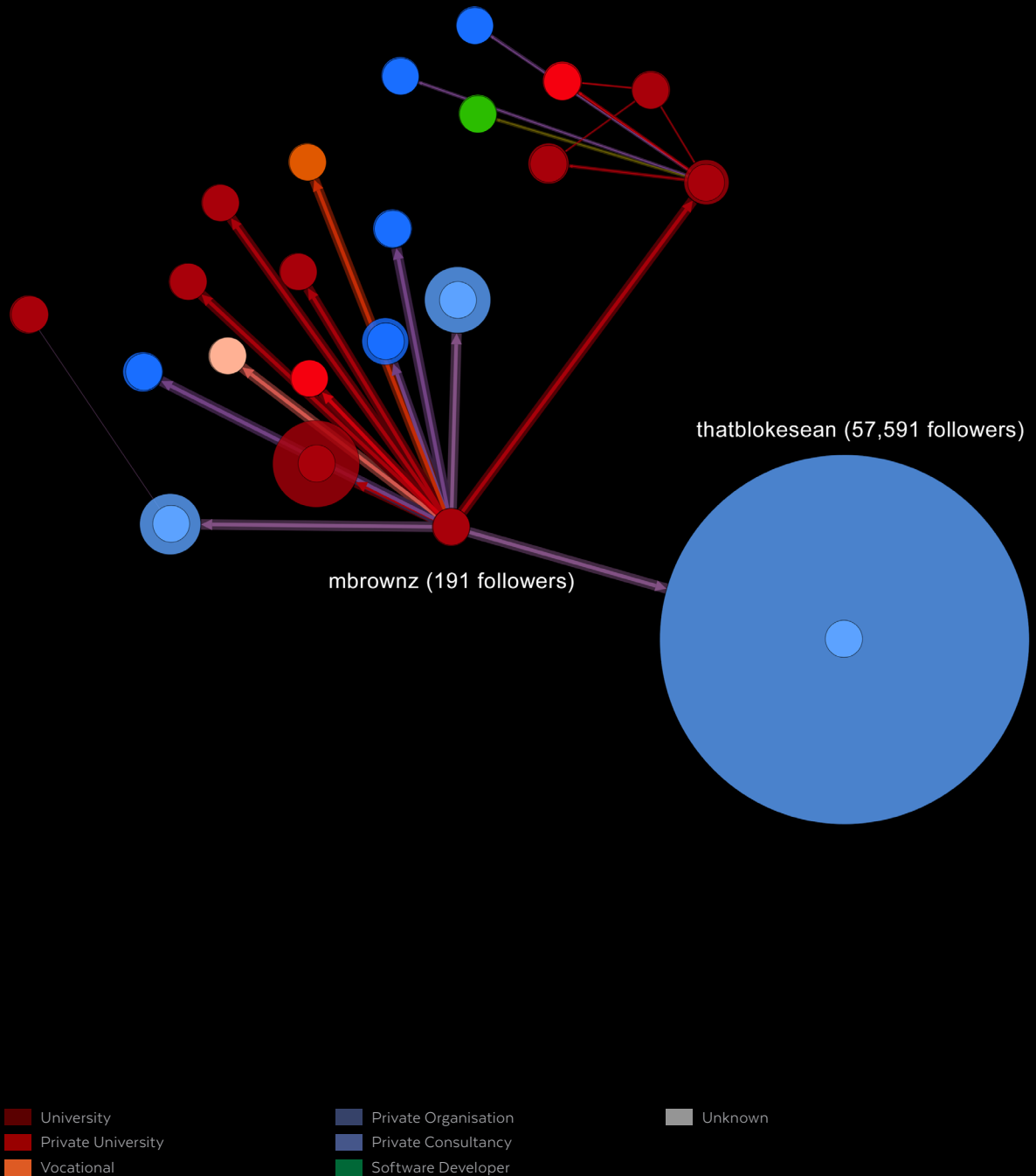


Figure 45. Non-geographic network diagram of Twitter users who retweeted the 'mbrownz' tweet about LTTO (based upon education sector). Node size represents the number of followers of each Twitter user in the network. Edges represent the network created from retweets of 'mbrownz'. Thicker edges indicate a first level network, thinner edges represent a second or third level network.

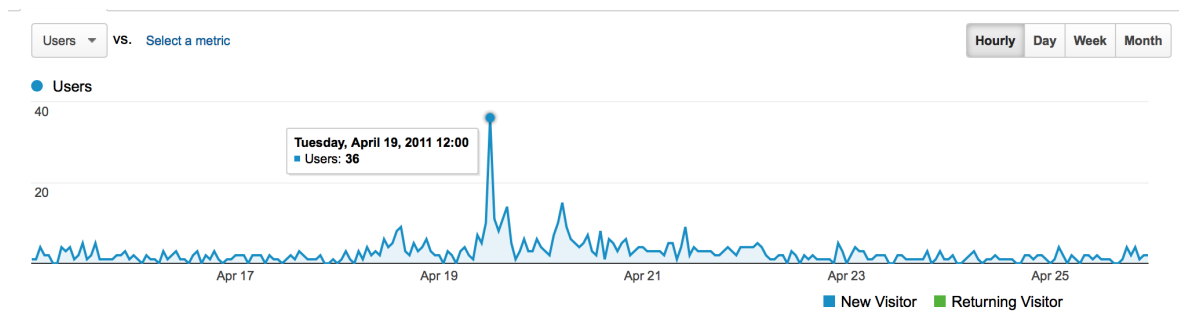


Figure 46. Hourly unique visitors to the LTTO website. Spike in numbers was most likely due to ‘thatblokesear’s retweet of ‘mbrownz’. Data from Google Analytics.

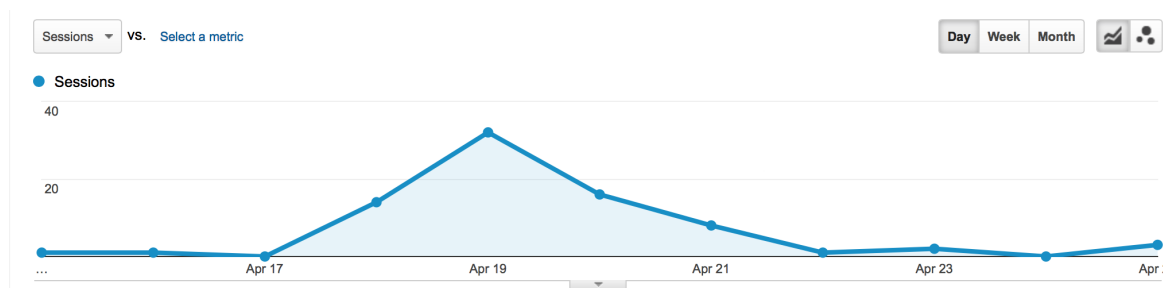


Figure 47. Referrals to the LTTO website via Twitter on the days preceding and post April 19. Data from Google Analytics.

This particular example clearly illustrates how existing diverse networks in Twitter were instrumental in sharing knowledge about LTTO to such a wide range of different educational sectors and contexts.

Visualisation 13 – mbrownz Twitter network based upon discipline and number of followers

The previous visualisations explored educational sector, but I was equally interested in the role that Twitter user disciplines may have played in the sharing of information between different educational sectors via this network. Within Gephi, I used the data about the discipline of each Twitter user to re-colour the nodes of the ‘mbrownz’ Twitter network, so that the discipline represented by each node could be compared with its sector (Figure 48).

Observations

It is immediately apparent that most of the Twitter users in the network shared the same discipline, represented in Figure 48 as purple. In this case, ‘mbrownz’ was involved in educational development and IT (including professional development, learning and teaching, and technology supporting teaching), and so were most of the users who retweeted his post about LTTO – even though they were in different educational sectors.

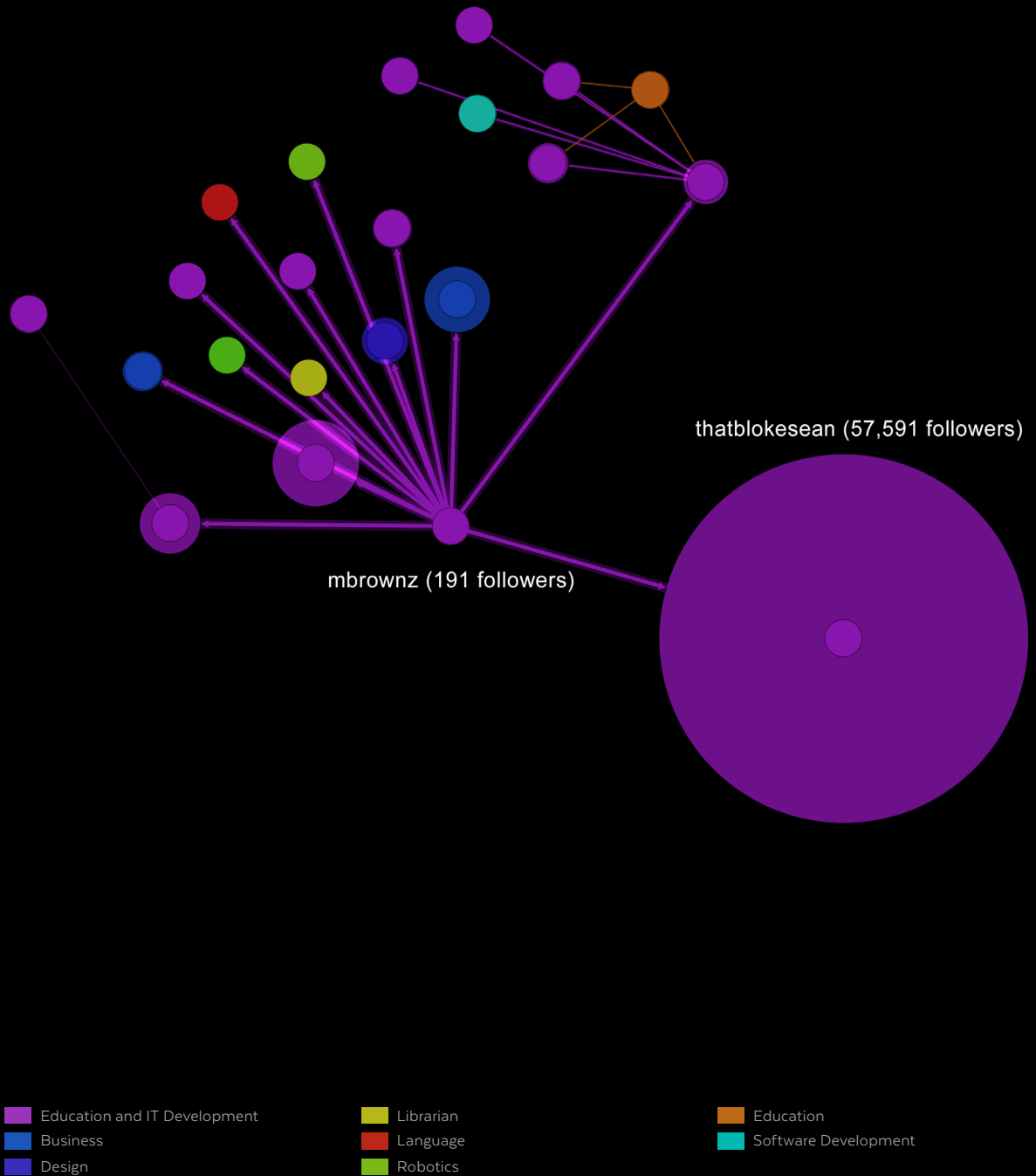


Figure 48. Non-geographic network diagram of Twitter users who retweeted the 'mbrownz' tweet about LTTO (based upon discipline). Node size represents the number of followers of each Twitter user in the network. Edges represents the network created from retweets of 'mbrownz'. Thicker edges indicates a first level network, thinner edges represent a second level network.

Specifically, when the previous visualisation is compared with the one above, it can be seen that those members of the network who were within the discipline of educational development and IT, worked across the sectors of university, private university, private organisations, and private consultancy. This suggested that the majority of people from different sectors were using Twitter to connect with others of similar professional interest, despite being in different education sectors.

Interestingly, within the ‘mbrownz’ network, the majority of retweets came from those involved in professional development and the integration of technology into learning and teaching practice. This is congruent with the fact the LTTO artefacts were designed as a professional development resource. It seems this common interest amongst the majority of people within this network, contained a series of distinct ‘*weak ties*’ that helped LTTO artefacts jump between countries and education sectors. Those within these different networks shared the resource because of a common interest, and may not have even been aware of one another apart from a shared connection to ‘mbrownz’.

Visualisation 14 – All Twitter activity based upon discipline

The discovery that the majority of people within the ‘mbrownz’ Twitter network shared the same disciplinary background, prompted me to return to a more macro visualisation, to see if this underlying disciplinary connection was also true in the majority of instances within the entire Twitter dataset. Within Gephi, I broadened the scope of data to include all Twitter users (Figure 49). I decided to keep the node size representative of the number of followers for each Twitter user, as I had in the previous examination of the ‘mbrownz’ network. In addition, I used Gephi to collate a percentage breakdown of the total spread of nodes across all disciplines present in the dataset.

Observations

The visualisation immediately revealed that the phenomenon of a common discipline underlying the re-broadcasting of LTTO tweets that I had discovered within the ‘mbrownz’ network, also applied across the entire Twitter dataset. When each of the other retweet networks was examined, the major field within each was what I have classified as education and IT development (represented as purple in Figure 49). In fact, the discipline I categorised as education and IT development represents 43% of the all Twitter users who Tweeted about LTTO during the data collection period. Significantly, it is also apparent from the visualisation from node size and position, that those within this discipline had the most potential for influence, given they on average had a larger number of followers than others who tweeted, and tended to retweet information more often to colleagues in the same field.

The extent of what happened in these networks, after the initial out of context transfer of information in social networks about LTTO, remains unclear from these data however. Were the artefacts used to help develop knowledge in these new contexts, or did those that encountered them fail to share them with others in their own local professional communities?

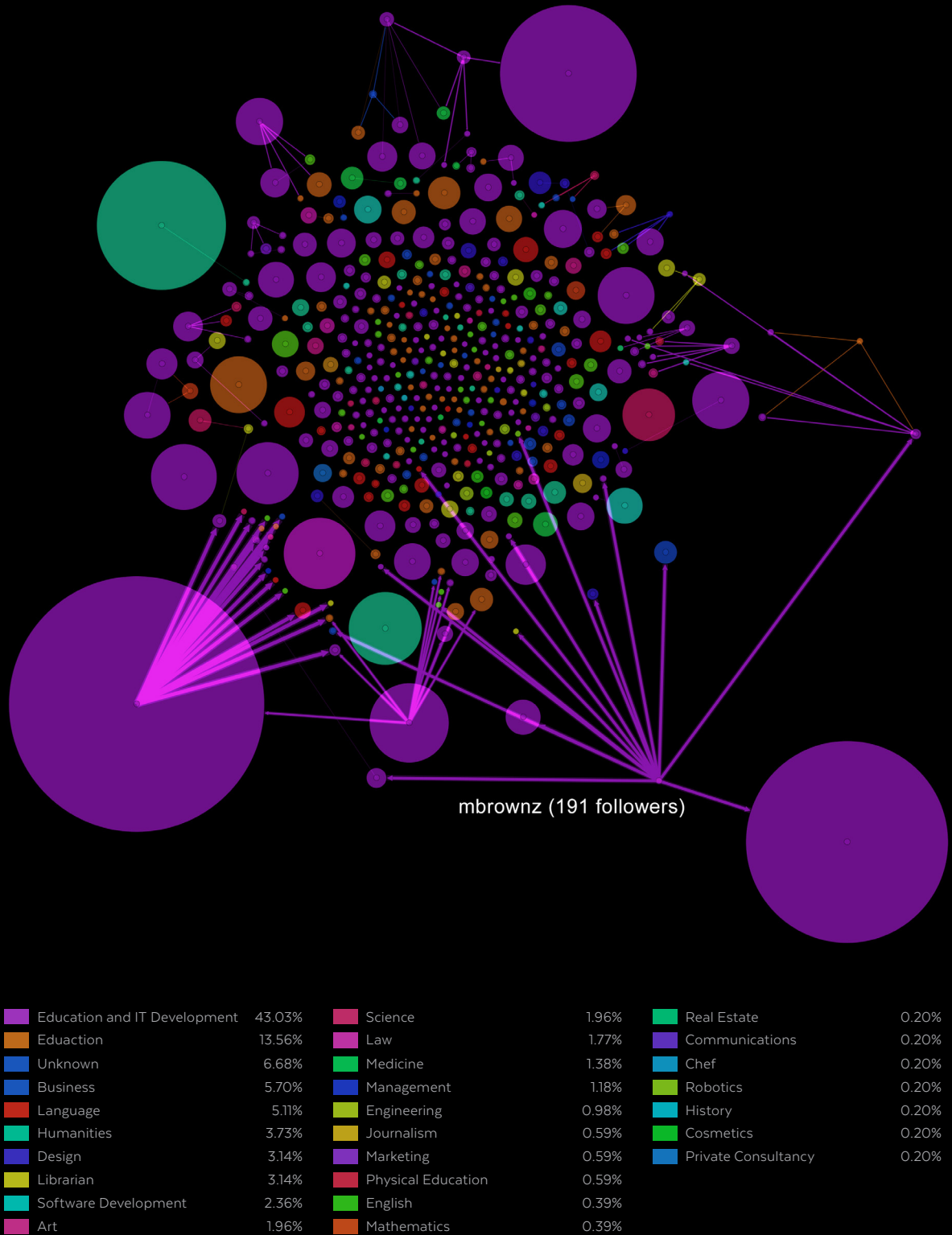


Figure 49. Non-geographic network diagram of Twitter users who tweeted about LTTO (based upon discipline). The least influential tweets are in the centre of the diagram, while the outside of the diagram shows more influential twitter users based upon their number of followers (node size), or the depth of networks created when one of their tweets was retweeted by others (edges).

Visualisation 15 – All use in educational or professional development programs

Following this line of thought, I wished to examine LTTO's use in professional development or educational programs. As discussed in Chapter 4, there was significant evidence to suggest that LTTO artefacts were in fact used in a range of different educational and professional development programs around the world. To better understand the extent and variation of this use, I isolated these nodes in Figure 50. Once again, the node size indicates the number of embedded YouTube views (0 to 200), and the size of the edges indicates the number of visits to the LTTO website generated from the program during the data collection period (0 to 272).

Observations

There were a significant number of programs in Australia, the UK, and the USA using LTTO resources. When compared to earlier visualisations, the graphic above reveals a similarity in visual density of nodes when compared to the visualisations showing the use of LTTO in blogs (Figure 30), links in institutional websites (Figure 35), and Twitter activity (Figure 39).

The majority of programs embedded YouTube videos of LTTO episodes into their own websites (represented by larger nodes). Also, there were fewer referrals to the LTTO websites from within the programs when compared to institutional links or blog posts, as indicated by the thinner weight of the edges. This suggests that the resources had been taken out of context of being associated with the LTTO website, and had been used almost exclusively in the new contexts of the programs. There were however, some notable exceptions that will be examined in more detail in Chapter 7.



Figure 50. Geographic locations of institutions where LTTQ video artefacts or links to the LTTQ website are embedded in professional development or educational program websites. Node size represents the number of embedded YouTube video plays. Edge thickness represents the number of referrals from the program to the LTTQ website (represented by the dark blue dot at Sydney Australia).

Visualisation 16 — All use in educational or professional development programs based upon education sector

To analyse the proportion of educational sectors using LTTO as a resource in their programs, I once again re-coloured the nodes according to sector within Gephi, and compiled a corresponding dispersion percentage table for all program use (Figure 51, Figure 52 and Figure 53). I also used filtering within Gephi to examine more precise percentage breakdowns for different countries where LTTO use featured heavily in programs. These percentages are not featured in the following visualisations, but are discussed below.

Observations

The visualisations shown the predominant use of LTTO artefacts was within university and private university programs (61.2%) across all countries.

Within Australia, programs using LTTO artefacts were primarily within four different educational sectors; university being the most prevalent (59.2%). The other sectors represented in Australia were private university (18.6%), vocational (14.8%), community college (3.7%), and government agency (3.7%). Within the UK, there were only three different sectors represented. The university sector dominated (61.5%), followed by private university (30.8%) and community college (7.7%). The USA once again showed the most diversification of educational sectors with eight different types being represented. They were university (33.9%), K-12 (19.6%), private university (16.1%), community college (10.7%), private consultancy (8.9%), private organisation (5.4%), government agency (3.6%), and non-profit organisation (1.8%).

Similar to the blog and institutional link visualisations, the observations from Figure 51, Figure 52 and Figure 53 again seem to support the notion that the further away in the network the node (or program) is from LTTO's origin in Sydney Australia, the more likely it was that the artefacts would be used in a more diversified range of different educational sectors. This is evident in the visualisation by noting the colour differentiation in the nodes, particularly in the USA and Europe. It is worth noting however, that a large country like the USA contains a diversified education system, which could also account for the variations in data.

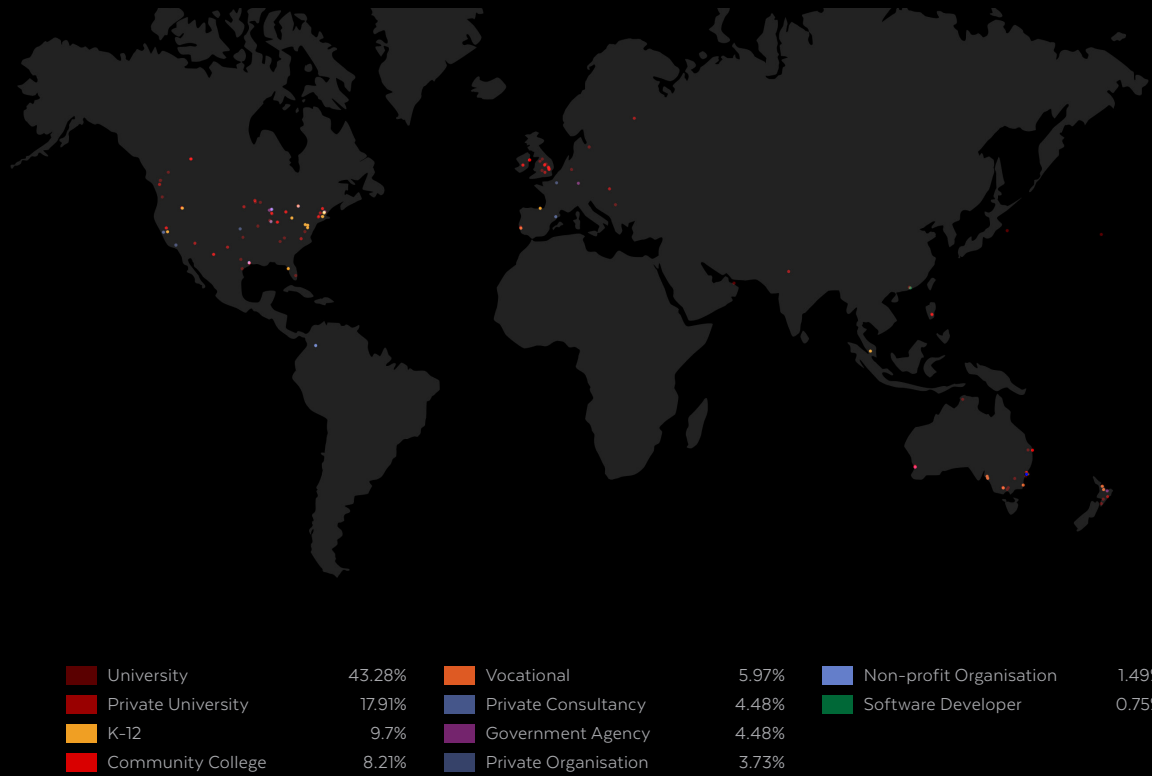


Figure 51. Geographic locations of institutions where LTTO video artefacts or links to the LTTO website are embedded in professional development or educational program websites (based upon education sector).

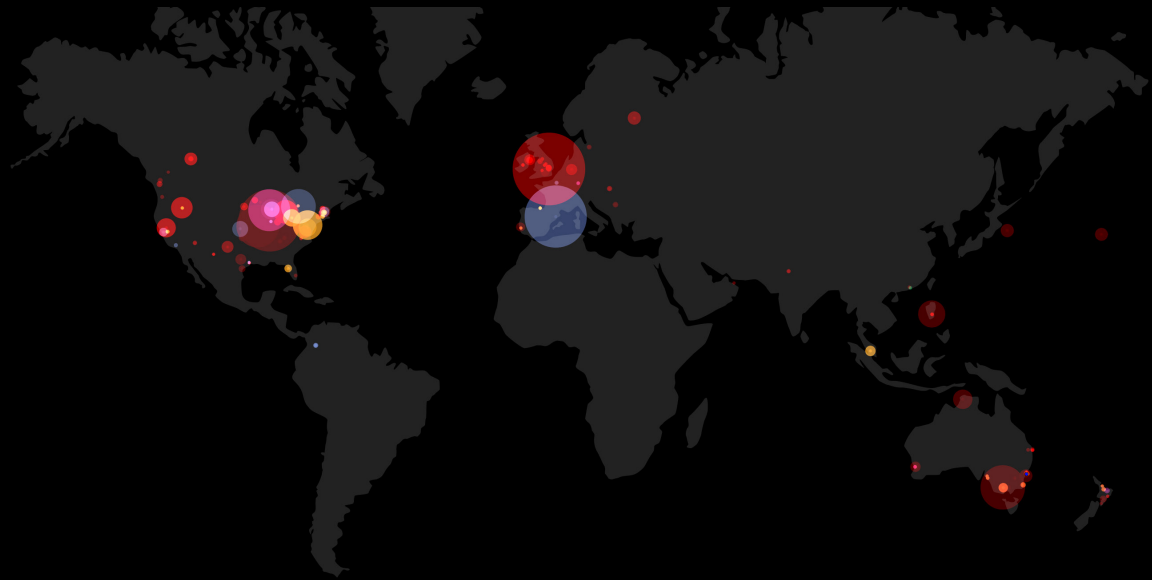


Figure 52. Geographic locations of institutions where LTTO video artefacts or links to the LTTO website are embedded in professional development or educational program websites (based upon education sector). Node size represents the number of embedded YouTube video plays.



Figure 53. Geographic locations of institutions where LTTTO video artifacts or links to the LTTTO website are embedded in professional development or educational program websites (based upon education sector). Node size represents the number of embedded YouTube video plays. Edge thickness represents the number of referrals from the program to the LTTTO website (represented by the dark blue dot at Sydney Australia).

5.6 Chapter 5 summary

Visualisation of the quantitative data I had collected proved to be an effective means of exploring, interrogating and illustrating the extent and reach of LTTO. More importantly, it also revealed several interesting insights into how educators used and shared the resource on both macro and micro levels:

- The fact that LTTO was shared within a variety of existing networks was a very significant factor in the extent of its diversification within disciplines, education sectors and geographic locations. The existence and use of these existing networks explains how the failure of the LTTO online community seemed to have little impact upon the success of the project.
- It was evident that educators within similar disciplines were using networks they already belonged to, to communicate and share information with others — despite being in different educational sectors and countries. In other words, the weak ties within disciplinary networks seemed to transcend boundaries of sector and geographic location.
- The spread of LTTO seemed to be rhizomic in nature (much like the growth of an untended lawn — see the example in Chapter 1). However, educational development and IT (including professional development, learning and teaching, and technology supporting teaching), was the predominant field that seemed to connect people across a range of disparate networks. This is indicative of LTTO's design being appropriate and effective for use as a professional development resource. Furthermore, the fact that those within the field of professional development used the resource in their own programs substantially increased the reach (to people outside of the initial digital networks) of and sustained duration of engagement with the resource.
- The further away LTTO travelled from its network of origin via Web 2.0 technologies, the more diversified those who were using or discussing the resource became. LTTO was intended for use in higher education, but as more academics around the world shared the project within networks of increasingly large degrees, the greater the chance of diversification within the types of networks they appeared in.
- Despite the differences in field and educational sector, it was apparent that members of these different networks were sharing, critiquing, and utilising LTTO artefacts in similar ways. There was also evidence of LTTO gradually penetrating existing networks, to the point that it was synthesised into existing contextually specific instances of knowledge construction within smaller, more specific educational and professional development programs.

These patterns between the demographics and patterns of usage, revealed by the exploratory visual analysis of the different datasets, show that there is an underlying and unifying connectivity between different networks. This intertwines existing yet disparate educational networks together through weak ties. This realisation highlighted the importance of understanding which aspects of LTTO's design facilitated the universal appeal, penetration into existing and diverse networks, and integration into existing practices of knowledge construction within educational and professional development programs.

The exact contribution of LTTO to the construction of knowledge within individuals, or groups participating in the programs previously identified, is still not apparent from analysis of the quantitative data I have explored within this chapter, or the qualitative data examined previously. I felt that closer examination of the processes of selection, critique and synthesis, undertaken by the educators who ran the programs that used LTTO, was a logical step in the continuing investigation. Such information assisted in developing an accurate understanding of the significance and effectiveness of different elements of the design of the resource. By speaking directly to those educators who developed educational and professional development programs represented by the identified nodes of influence, I was able to cross-reference and reflect upon the insights revealed from their individual stories, and weave them into the larger narrative of my investigation. But before I could do any of this, I needed to understand exactly what to look for. I needed to reflect in more detail upon the way in which knowledge contained in LTTO was shared between educators residing within disparate existing networks, and how the construction of knowledge within these specific networks was affected.

The data visualisations examined in this chapter illustrated the importance of a balance between homogeneity and diversity of relationships within the various networks in which LTTO was shared, and how this may relate to the rate and reach of dissemination. When an LTTO artefact is shared within a network of people with a common interest in online learning, for example, if they find the message relevant and interesting, they may forward it on to colleagues in their loose networks. In a network comprised of people with very diverse interests, the message might not have enough context or familiarity to enable people to relate to it in a meaningful way, resulting in it not being shared further. The data suggests that there needs to be a conduit between these two extremes to enable the passage of information from homogenous networks to more diverse ones.

However, it is the underlying shared professional activity of people in the education and IT development field within these diverse networks — and the acts of these people passing on things of interest in their work domain — that seemed to play a very important role in helping the artefacts to be used in new contexts, once they had been shared (such as professional development and educational programs). The fact that these people followed each other in Twitter meant no more than that they were weakly tied, but they existed within diverse disciplines and education sectors. In addition, most people in the networks explored in this chapter were in education of some kind. All educators engage in the act of teaching. LTTO focused upon discussing the principles of online teaching, something that all educators were able to relate to, no matter what discipline or educational sector they practiced within. It seems that the design of LTTO was able to utilise this common language about the principles of teaching as a means to describe unfamiliar practice, penetrate disparate educational networks, and affect the process of knowledge construction within them.

Many people's different social and professional networks overlap. These people, or agents, are critical in facilitating the successful transmission of information from one network to the next. Where they have

a commonality between different networks, there is an opportunity to be able to make meaning of an original message, to re-contextualise it for re-dissemination within another network they belong to — thereby reinvigorating the message with a new sense of context and meaning for those they pass it on to.

Undertaking the visual exploration of the data representing the digital activity surrounding LTTO, enabled a greater understanding of how disparate were the people in the network. It was here in my research process that the concept of the rhizome first revealed itself. As described by Deleuze and Guattari, the concept of the rhizome is a mechanism that, “...ceaselessly establishes connections between semiotic chains, organizations of power, and circumstances relative to the arts, sciences, and social struggles” (Deleuze & Guattari, 1987, p. 7). In other words, in this instance the rhizome was a concept that described the potential for elements of observed homogeneity, however small, to connect and change practice within a myriad of diverse networks. In order to use this revelation to clarify my research process, I needed to step back from the data and examine the theory behind the rhizome and its relation to LTTO in more detail.

CHAPTER 6.

THE RHIZOME UNDERNEATH

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Synopsis

In the previous chapter, my visual exploration of data revealed an underlying connectivity amongst those sharing LTTO artefacts. Within this chapter I highlight the difference between mapping the act of sharing LTTO using a physical infrastructure like Web 2.0 tools, and understanding how knowledge may have been transferred between networks because of the artefacts being shared. I parallel this with the systematised physical infrastructure of the Internet, and the apparent unsystematic or unpredictable (rhizomic) digital connection and exchange of disparate ideas that can occur because of it. This leads me to explore the idea of the rhizome from a more philosophically inspired perspective – as conceptualised by Deleuze and Guattari (1987). This offers a way of contextualising the theory behind how we perceive, categorise, share, and reproduce knowledge in and between different networks. Relating this to Steinberg’s (2008) Rhizomic Network Analysis (RNA) and Model of Knowledge Dynamics, I examine different types of rhizomic encounters between networks that can introduce new and disruptive ideas into existing methods of knowledge construction. Finally, I connect this theory back to events surrounding the sharing and use of LTTO artefacts. I identify circumstances where academics, discovering artefacts via Web 2.0 technologies and using them within their own networks, become ‘rhizomic agents’ – people who contextualise and give relevance to new knowledge brought by LTTO into their own professional networks, creating potential for the innovation of existing practice.

6.1 The physical Internet

The Internet is a global, interconnected system of computer networks. As of May 2015, these networks hosted over 857 million web sites (Netcraft, 2015), each with a multitude of connections (or hyperlinks) to other webpages within the global network. Today, almost anyone can create a webpage and link it to other pages – further expanding the network. Web 2.0 technologies have vastly simplified the technical knowledge required to make such contributions, making the network more accessible and useable by an increasing number of people. They have enabled people around the world to contribute, criticise, debate and synthesise knowledge, ideas, opinions, and content via the physical infrastructure of the Internet in ways that were previously impossible. This could be considered a repository of distributed collective human experience. One person sharing their ideas or experience can contribute to another person's knowledge (as is the intent with LTTO).

When one imagines the Internet, one usually pictures a variety of websites that are published upon it (such as newspapers, online stores, or social media), or activities that are undertaken within it (such as communications, business, entertainment or research). However, these are merely visible manifestations upon the surface of the seemingly intangible, and often-invisible multiples of complex, interconnected layers of digital and physical networks, standards and protocols that support and enable them.

There have been several efforts to map the Internet's servers, connections and traffic patterns over recent years [netcraft.com, root-servers.org, vox.com/a/internet-maps] (Cheswick, Burch, Branigan, & Wojcik, 2000; Enikeev, 2013; Kardes, Gunes, & Oz, 2012; Lyon, 2010; Shavitt & Shir, 2005; Yan, Massey, McCracken, & Wang, 2009). One particularly interesting example is an interactive map of the Internet as of 2011, created by Ruslan Enikeev [internet-map.net]. This visualisation, while a few years old, is worthy of note as it examines the most prominent websites on the Internet, and attempts to decipher the nature of the connections between them by using graphic elements such as scale, relative positioning and colour to denote different informational hierarchies. While complex, this is by no means a complete visualisation of the full extent of the websites residing within the Internet. Whereas Enikeev has examined Internet content, other visualisations clearly demonstrate the structure and growth of the Internet in non-geographic terms, such as those generated as part of The OPTE Project by Barret Lyon [opte.org] (Figure 54).

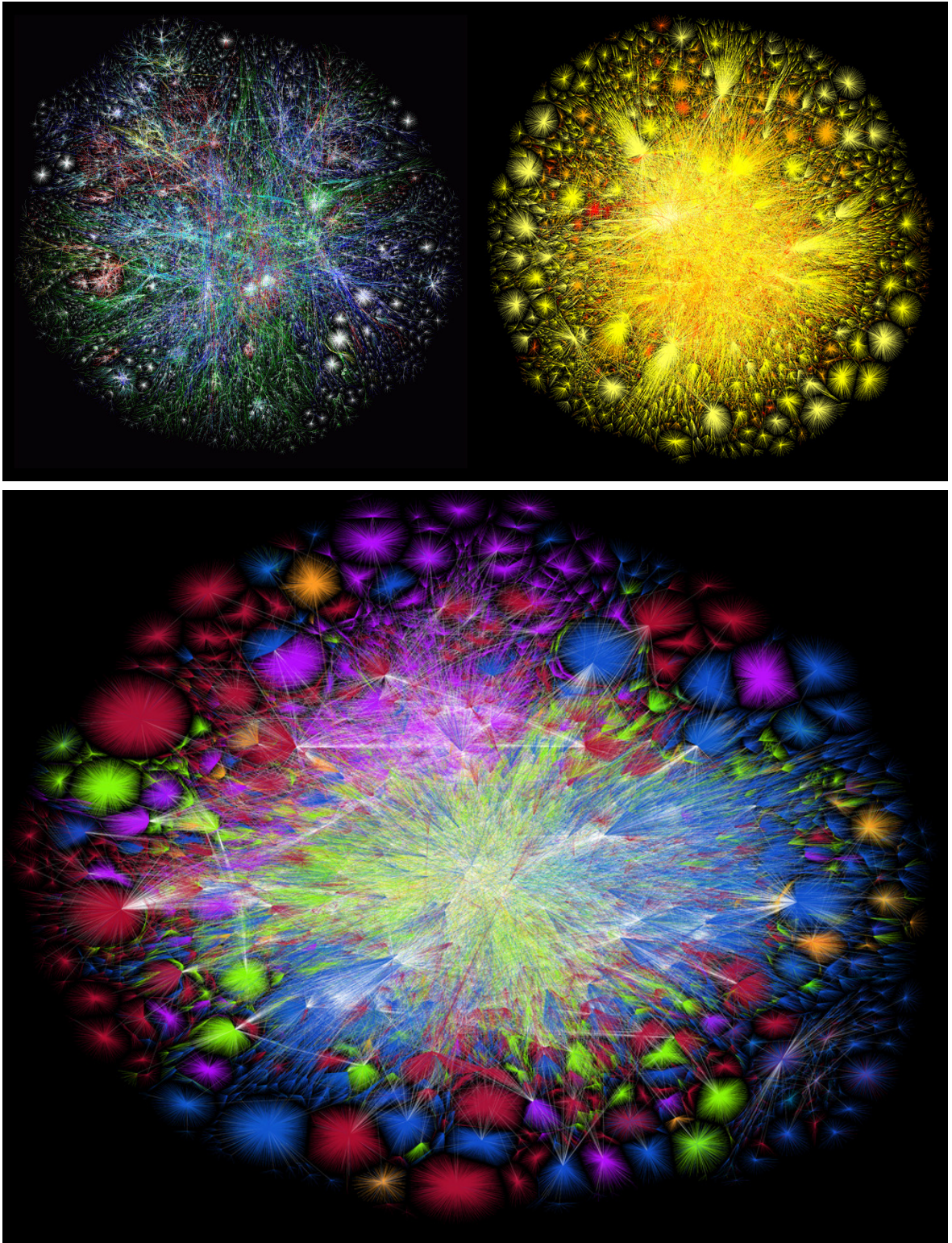


Figure 54. Visualisation of the IP network connections that comprise the Internet. Top left : Lyon, B. (2003). *The Internet 2003* [image]. Retrieved from <http://www.opte.org/the-internet>. Top right: Top: Lyon, B. (2010). *The Internet 2010* [image]. Retrieved from <http://www.opte.org/the-internet>. Bottom: Top: Lyon, B. (2015). *The Internet 2015* [image]. Retrieved from <http://www.opte.org/the-internet>.

Lyon's images visualise the interconnectivity between different IP addresses within the myriad of existent digital networks around the globe. Comparison between the 2003, 2010 and 2015 maps shows that infrastructure continues to grow as more servers and IP addresses are created, and as more people create new websites that link to others.

Researcher Chris Harrison [chrisharrison.net] has used data gathered via The Dimes Project [netdimes.org] to produce a sequence of visualisations showing various characteristics of the physical networks (technical infrastructure upon which data travels) that comprise the Internet [chrisharrison.net/index.php/Visualizations/InternetMap]. The example below is one such visualisation that represents physical network connections between different cities around the world (Figure 55).

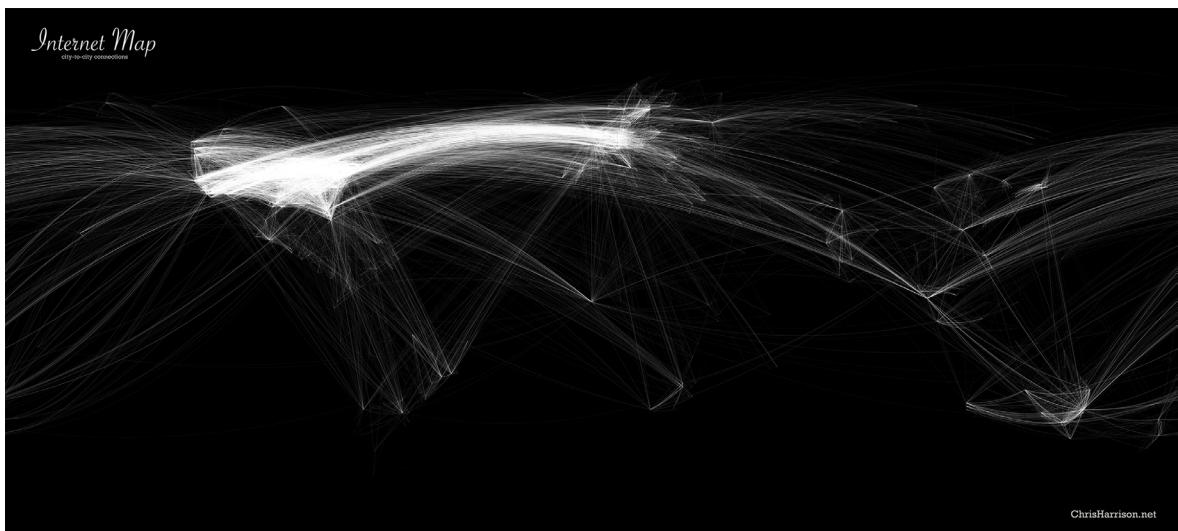


Figure 55. A geographically-based visualisation of physical network connections between cities. This visualisation does not indicate websites, traffic or Internet activity. Rather it maps physical network connections that exist between centres of human population around the globe. Harrison, C. (2011). *World City-to-City Connections* [image]. Retrieved from <http://www.chrisharrison.net/index.php/Visualizations/InternetMap>.

The visualisations that describe the physical infrastructure comprising the Internet, clearly illustrate the relationship between the existence of digital information pathways, and the activity surrounding LTTO that occurred within them.

6.2 The emergent rhizome of connected ideas

When comparing my own visualisations in Chapter 5 with those I have referred to above, the similarities in structure are immediately obvious. The geographic representation of physical network connections that comprise the Internet that are evident in the image above, echo the amount and location of digital activity surrounding the LTTO project – predominantly in the US and Northern Europe. There are similarities in terms of the multitude of nodes and connective edges. However, there is an important

distinction to be drawn between the Internet's physical infrastructure, and the activities that this structure enables.

A rhizomic plant does not share the same structure as the roots of a tree, which have a singular origin. A rhizome has no identifiable origin, no beginning or end. It is an extensive system of connective stems joining root nodes that form a larger cohesive plant system. To explain further, contrast the vast lawns in your favourite park with one of the trees that also grows there. The roots of the tree will bring nourishment back to the central trunk and will help the tree to grow. However the tree will always be a singular entity, confined to predetermined limits of its form and dimension, and is in essence living as an individual plant within a local ecology. The rhizomic grasses that form the lawn in this same park however, have no identifiable single point of origin. The entire lawn is connected, with nutrients being distributed throughout localised areas of the network of stems to help establish new root centres, rather than being drawn to one central point. The system of stems and roots is not only a mechanism of sustenance, but also a means of travel. If it is not kept in check, the grass will continue to spread and cover more land, forming new connective stems joining an increasing number of nodes as it does so. A rhizome is a collective, growing entity.

The physical Internet, with its servers and conduits, and the experiential Internet, with its hyperlinked pages of information, can be likened to the structures of a tree and semi lattice, in which many small systems go together to make one larger system (Alexander, 1966). Each physical connection of servers and wires branches into many others, suggesting a structure (albeit a complex one) based upon bifurcation (the tree). However, the intellectual activity that can occur within this structure is not bound by this system of bifurcated linear travel, and can intersect and overlap — information can be linked to from many different connection points (the semi-lattice). While websites exist within the Internet's physical infrastructure, the ability to hyperlink from one point on the web to any other point enables the sharing of information by people to appear unlimited by any linear physical structure.

The notion of the tree and semi-lattice can also be thought of in terms of geographical space and educational space. Without the ability to share ideas via the Internet, innovations, ideas, tools etc. that are developed within an educational institution diffuse in patterns that are strongly influenced by nearness or distance. That is, if two educators are within institutions separated by vast geographic distance, it's less likely that ideas will travel directly between them because their chances of communicating with each other are greatly reduced. When digital networks intersect these singular, tree-like structures, ideas can move directly between connected nodes (or semi-lattice of multiple connection points between members of a digital network), almost irrespective of the geographical (or other) distance between them. If someone shares a link via Twitter for example, when someone clicks this link, the information hosted on this website has to physically pass down a long series of linear, bifurcated pathways of physical cables between servers, yet to the viewer this process is invisible and instantaneous — essentially enabling the unfettered linking of any idea to any other idea without requiring system or process. Essentially, the tree-

like structure of the physical Internet enables a rhizome of intellectual connections to grow within a larger interconnected semi-lattice of intersected networks.

LTTO was not consciously designed with the idea of these rhizomic types of connections in mind, yet when data related to the spread of the project were examined, the pathways of discovery, sharing and networking facilitated by various digital networks bore remarkable similarity to the concept. The connections appeared, “...dynamic and unresolved, growing and anarchic, in the manner of a rich and open-ended conversation” (Coyne, 2008, p. 553). What the LTTO data visualisations are not able to illustrate however, is the type, extent and significance of the knowledge that has been shared in this manner.

Rhizomes and trees (and semi-lattices) are all useful and needed. The rhizome and tree root system are not mutually exclusive; rather they interconnect and intersect in different ways, each contributing to the larger complex system of human communication and the sharing of ideas. This chapter examines how the two intersect in the context of LTTO.

Human existence is a complex integration of social, cultural, historical, situational and political elements. Every aspect of our knowledge and identity is inherently and inextricably intertwined with these aspects of our existence. We create identities, knowledge and meaning by continually making a complex series of cognitive connections between our existing experiences, historical and social conventions, and the situational demands of the contexts we find ourselves within. New technologies have not changed the principles of this fundamental process, but they have offered an increased diversity of influences and inspirations from which we may define ourselves, and a wider frame of reference within which we can expand the context of our learning. I do not believe however that the creation of new knowledge within these contexts is completely reliant upon the advent of digital innovation, “To ascribe to digital technologies some determining role in this rhizome condition is to subscribe to an ‘arboreal’ theory of causation, that in the end privileges a hierarchical, technological, instrumental and metaphysical account of the world” (Coyne, 2008, p. 559). The Internet does not shape our thought processes — rather, the structure of the Internet is a manifestation of them — an emergent, almost organic semi-lattice of interconnected systems, ideas, and relationships (as also discussed in Chapter 2).

The botanical rhizome provides a tangible metaphor that enables sense to be made of the patterns of human connectivity and sharing of information within the digital networks revealed by LTTO data visualisations. However, the existence of these connections is not the end of the story, nor is it the most meaningful part. Coyne states that, “Networks can be thought of as projections, visualisations and images rather than windows into some deeper core of reality that otherwise defies representation” (Coyne, 2008, p. 559). In the context of this research, the deeper core of reality Coyne refers to includes the reasons behind people sharing LTTO artefacts. My visualisations can show where the artefacts travelled, but not why they were shared or what affect they may have had upon those encountering them in each instance. These visualisations are represented as an Internet-like, linear connection between nodes, the true rhizomic nature of the activity surrounding LTTO is in the dissimilarity of the nodes — the

wide and seeming disparity of the different networks, contexts and people these nodes represent. While all those represented in the visualisations were involved in some kind of education, the type and context varied enormously, comprising an expanding heterogeneous network. The LTTO visualisations show intellectual edges (or connections) between these nodes – they show the essence of the rhizome of intellectual connectedness between individuals that otherwise may have little if anything to do with one another – not a literal and linear physical structure of existing relationships.

The LTTO visualisations give a clear indication of physical and quantifiable use and rhizomic sharing of the artefacts. However, the maps in Chapter 5 are unable to give any indication of impact that this sharing may have had, upon the construction of new knowledge related to online teaching in the networks that they infiltrated. In order to understand how (or if) the different aspects of the design of LTTO were able to make meaningful change in the new contexts into which it was introduced, I need to understand more about ‘the deeper core of reality’ behind the visualisations.

The act of passing on information to others within a network is of limited value unless that information is considered, understood and put to some use; or failing that, the information is passed on to others until this occurs (retweeting is a good example of this). Shared ideas only have value to those who encounter them, if they are seen as worthy of passing on or exchanging with others; or these ideas are accepted, and if this acceptance positively changes behaviour and enables innovation. Therefore the concept of a rhizome in the context of this research is about more than mapping abstract pathways along which knowledge is passed from one node to another. The extent and reach of the nodes and edges within the LTTO visualisations show how digital technologies afford greater opportunity for the diversification of knowledge between previously distinct networks, and how this in turn increases potential for the introduction of disparate points of view to inform the evolution of new ideas within them.

The fact that LTTO artefacts eventually became integrated within a diverse range of educational and professional development programs (as well as being used by many individuals in different contexts), is a clear indication that they did in some way manage to influence the construction of knowledge within these networks to some degree. Evidence examined thus far suggests that the rhizomic nature of its introduction to, and sharing within, these networks was a key factor in its ability to do so. Many individuals also used the resource, but the impacts upon their practice are more difficult to determine than use in organised programs. In order to better understand how LTTO was able to penetrate and influence change within many disparate networks so effectively, it is necessary to expand the context of the examination of the rhizome, to explore the notion of knowledge construction within homogeneous networks, and to examine how rhizomic infiltration of knowledge between networks can bring disruption and innovation to this process.

6.3 The rhizome in philosophy

The best-known philosophical text exploring the concept of the rhizome is the 1987 work, *'A thousand plateaus. Capitalism and schizophrenia'*, from French philosophers Gilles Deleuze and Félix Guattari. Through their work, Deleuze and Guattari explore the notion of knowledge construction, interconnectivity and the human condition. They refute the efficacy of traditional human constructs that have dominated until recently the passage and evolution of knowledge, "...Deleuze and Guattari's agenda is against idealism, empirical representationalism, political and social control, rampant bureaucracy, hierarchical political structures" (Coyne, 2008, p. 556). In order to draw connections between this work and the underlying argument of this thesis, I will endeavor to summarise the main points of the theory most relevant to my research.

Books, taproots and bifurcation of ideas

Deleuze and Guattari begin the explanation of their theory with the premise that thought lags behind nature; that we as humans have traditionally limited ourselves into a singular approach to knowledge, to regurgitation of established recordings of thought in the form of books. The book is a form of knowledge that is, "...the most classical and well reflected, oldest, and weariest kind of thought" (Deleuze & Guattari, 1987, p. 5). They liken the reproduction of knowledge in the pages of a book to the root of a tree, or a taproot (the central root of a plant that grows straight down from which other roots grow). This entity is singular in origin, emanating from a well-established biological form. The taproot is singular and unchangeable in its nature, described by Lima (2011) as possessing, "...inert branches, which never shift or react... an authoritarian, unidirectional, and stagnant model" (p. 44). We have a history of testing and expanding the knowledge recorded within books through a process of bifurcation of ideas — of postulating this or that. Through this process, the root divides, and divides again, but can always be traced back to the original taproot. These dichotomies are in a sense reproductions of 'weary knowledge', and do not challenge existing ideas or practices enough to be able to free an existing concept from the well-worn pathways of the root system in which it resides. Knowledge bifurcates at certain junctures, but it is predictive and restricted because of the very nature of bifurcation. Deleuze and Guattari explain that there is a binary logic to this process of knowledge building, which encapsulates this division and subdivision of thought along a predetermined line. Humans have in the past held up the book as the image of the world; singular, rooted in historical precedence, complete and self contained between a front and back cover — a unit of knowing in a neat package, with a definitive beginning, middle and end.

Books that explore different topics can in essence form distinct individual taproots of knowledge — neat, distinct packages about different ideas. Even while shattering the singular linear nature of evolving knowledge by offering different conceptual 'starting points', they can limit its possibilities, "Most modern methods for making series proliferate or a multiplicity grow are perfectly valid one direction, for example, a linear direction, whereas a unity of totalization asserts itself even more firmly in another, circular or

cyclic, dimension. Whenever a multiplicity is taken up in a structure, its growth is offset by a reduction in its laws of combination” (Deleuze & Guattari, 1987, p. 6). Deleuze and Guattari define books as human constructs, as, “little machines” and, “bodies without organs” (Deleuze & Guattari, 1987, p. 4) – hollow, abstracted physical representations of actual knowledge or experience, created and defined through bifurcation of a limited number of original taproots.

Traditional concepts of knowledge construction (particularly within academic writing and publication), dictate that the only way to legitimately connect ideas to others is to use these sanitised representational constructs, these prefabricated building blocks; “But when one writes, the only question is which other machine the literary machine can be plugged into, must be plugged into in order to work” (Deleuze & Guattari, 1987, p. 4). However, this concept of interlocking machines, of evolution of bifurcated logic, is not complex enough to truly describe how all things interconnect in nature, and how we ourselves connect the multitude of diverse ideas within our own minds to make sense of the world.

Principles of a rhizome

According to Deleuze and Guattari, a rhizome is a structure not defined by what it connects, but rather by the act of connection itself. This is reflected in my explanation of the LTTO data visualisations in Chapter 5, actually representing the way connections were formed between people, fields, networks or institutions – rather than how the totality of these connections looked (the rhizome of ideas growing from the tree of physical infrastructure).

A rhizome is a more natural representation of the connection between things. Unlike the taproot system of books and codified knowledge that must interface with instances of similar construction, the rhizome is more chaotic, and can connect things of disparate composition. Deleuze and Guattari identify the key ideas related to a rhizome as:

- connection and heterogeneity;
- multiplicity;
- asignifying rupture; and
- cartography and decalcomania.

Connection and heterogeneity

Deleuze and Guattari state that, “...any point of a rhizome can be connected to anything other, and must be. This is very different from the tree or root, which plots a point, fixes an order” (Deleuze & Guattari, 1987, p. 7). It does not necessarily join like things together, but establishes links between diverse groups of things; as I have previously discussed in relation to the LTTO visualisations. Whereas more linear systems of epistemological thought enable the establishment of conceptual relationships between more progressive, adjacent, logical elements within topics – the rhizome can make diverse

connections outside of its own immediate context because of the inter-relationship between elements of any multitude of ideas or concepts, no matter how far removed they may seem from the central theme, “A rhizome ceaselessly establishes connections between semiotic chains, organizations of power, and circumstances relative to the arts, sciences, and social struggles. A semiotic chain is like a tuber agglomerating very diverse acts, not only linguistic, but also perceptive, mimetic, gestural, and cognitive: there is no language in itself, nor are there any linguistic universals, only a throng of dialects, patois, slangs, and specialized languages” (Deleuze & Guattari, 1987, p. 7).

Multiplicity

The binary logic of bifurcation within the taproot dictates a linear and causal relationship that creates a sense of unity within the knowledge created. However, a rhizome is comprised of multiplicities — a number of seemingly disparate things between which connections form. Botanically speaking, one rhizome-based plant will not make symbiotic connections with a different type of rhizomic plant. Yet Deleuze and Guattari explore this concept beyond this one basic example, and envision connections between all living things and concepts, no matter how different they may appear to be upon first inspection. In other words, rather than originating from a singularity, a rhizome is comprised of connections between disparate things, each with their own inner complexities — exemplified by LTTO artefacts being discovered in different places (not just the original dissemination points), and shared between diverse disciplinary and professional networks; each with their own specific practices, processes and traditions. As more connections form, the more diverse in nature the multiplicities that are connected, and the more possibilities are created for even more connections in more diverse contexts, “A multiplicity has neither subject nor object, only determinations, magnitudes, and dimensions that cannot increase in number without the multiplicity changing in nature (the laws of combination therefore increase in number as the multiplicity grows)” (Deleuze & Guattari, 1987, p. 8). This idea aligns with the observations made via the visualisations about how LTTO was used in many different contexts, institutions and disciplines; and with Granovetter’s notion ‘*weak ties*’ in social networks promoting wider dissemination of knowledge as discussed in Chapter 5.

A multiplicity is the entirety of something, all of the complexities that amalgamate to form a classification or identity. The evolution of a multiplicity can only go so far within itself. Deleuze and Guattari refer to multiplicities existing with ‘a plane of consistency’. This refers to multiplicities existing wholly within their own bounds of definition, within their expected dimensions. For example, this may be considered as the definition of the professional behaviours one would expect of someone who works within the field of chemistry. If they follow a set scientific process of investigation and experimentation, then they are acting within a plane of consistency for that discipline. When it occupies all of the dimensions that it possibly can, at some point the only way for a multiplicity to continue to grow or develop is to break out of itself and connect to another.

Deleuze and Guattari refer to the act of connection between one multiplicity and another outside of the homogenous network as a 'line of flight'. In the act of connection an aspect of a multiplicity is relatable to another multiplicity in some way, "The line of flight marks: the reality of a finite number of dimensions that the multiplicity effectively fills; the impossibility of a supplementary dimension, unless the multiplicity is transformed by the line of flight; the possibility and necessity of flattening all of the multiplicities on a single plane of consistency or exteriority, regardless of their number of dimensions" (Deleuze & Guattari, 1987, p. 7). Some inherent aspect of the first multiplicity is removed from its original context, becoming the essence of a concept — removed from specificity, its complexity is reduced and its relatability to other essences increased (this describes the intent of the design of the LTTO artefacts). It then travels, or is related to a similar aspect of another multiplicity in concept, literality or abstraction. Deleuze and Guattari refer to this process as *detritorialisation* and *reterritorialisation*. Within this act, the original meaning of the aspect of the multiplicity that travels to connect with the other can be changed, or its arrival within the new multiplicity can elicit a change in meaning there (such as LTTO artefacts being re-contextualised into new contexts of specific educational and professional development programs). It is a process of mutual influence, of relating similar basal or component elements of larger more complex entities, to partially redefine both.

If we return to the example of the chemist, a line of flight may manifest itself in the case where the chemist has exhausted all known scientific procedures in the search for an answer to a particular problem. In order to solve the problem, the chemist deterritorialises the characteristics of the problem at hand from the scientific context, and reterritorialises it into an artistic process that enables it to be visualised in a way where a solution becomes apparent (much like the process of data visualisation used in Chapter 5). A line of flight has occurred from science to art, and the connection has changed (even in subtle ways) the meaning, purpose and outcome of practices in each discipline, because they are now used in combination for different intents. Deleuze and Guattari also speak of the plateau, "We call a 'plateau' any multiplicity connected to other multiplicities by superficial underground stems in such a way as to form or extend a rhizome" (Deleuze & Guattari, 1987, p. 22). Their reference to 'superficial underground stems' refers to subtle connections or lines of flight between distinct and defined groups of things (as in the chemistry and art example above). In this example, a chemist who draws upon artistic processes to visualise ideas does not fundamentally change what science 'is' (nor what art 'is') — yet the connection between the two disciplines broadens the possibilities of both disciplines. Groups of multiplicities, potentially similar in nature can reside connected with each other within a plateau, content with its subsistence until a line of flight erupts, to connect the concepts within, to another plateau of similarly connected multiplicities.

Throughout the remainder of this thesis, I sometimes refer to a 'multiplicity' in the context of education. I do so because the term is a useful abstraction, related to Deleuze and Guattari's concept of the rhizome, that allows me to refer in the singular to institutions and organisations, communities and networks, and fields and disciplines (in all of which, distinct education practices may exist).

Asignifying rupture

A rhizome is a means of connectivity that can cross boundaries, and disrupt existing structures. Lines of flight enable concepts etc. to jump outside of the homogenous networks of their origin to new locations to begin a process of change anew. The rupturing of an established network, and its connection to another is an essential part of the growth of a rhizome. This process enables the transmission of information or concepts from one place to another — concepts that change what they come in contact with, strengthening both multiplicities.

The term ‘asignifying rupture’ is the act of disturbance, of disruption, that is necessary in order to make the recipient multiplicity receptive to the incoming line of flight. The existing patterns of behaviours, conceptual constructs or expectations need to be broken to some degree — a crack forced open in the shell — to permit the penetration and assimilation of the new, brought by the line of flight from external multiplicities. To return to the previous example of the chemist, the fact that they felt they had exhausted all possibilities within their own discipline of solving their problem, made them receptive to exploring processes in other disciplines. When they brought the ideas from art into their own practice, it disrupted the usual scientific practice and enabled the new ideas to be recontextualised and take root.

In the context of LTTO, asignifying rupture was evidenced in the reviews, tweets, blog posts, and discussions about the ideas within the artefacts in a variety of existing professional networks and contexts.

Cartography and decalomania

Deleuze and Guattari discuss the importance of *visualising* the rhizome as a means of developing an understanding of its extent and significance. Within this context, they use the familiar terms ‘cartography’ meaning, “...the drawing of charts or maps” (“Cartography,” 2015) to describe the concept of mapping, which is an exploratory process of the unknown; and ‘decalomania’ meaning, “...a process or art of transferring pictures from a specially prepared paper to surfaces of glass, porcelain, etc.” (“Decalomania,” 2015), to describe the concept of tracing, which is a process of exact reproduction of the known.

They discuss development of knowledge or concepts from the tree model as being akin to tracing — the reproducing of information being limited to the systemised binary logic that originally created it, bound by the extent of the dimension of the multiplicity in which it originated. The rhizome however is a map and not a tracing. The map does not predetermine or limit the outcome as does a tracing, but is an abstract representation of the reality of a process or landscape, “What distinguishes the map from the tracing is that it is entirely oriented toward an experimentation in contact with the real. The map does not reproduce an unconscious closed in upon itself; it constructs the unconscious. It fosters connections between fields, the removal of blockages on bodies without organs, the maximum opening of bodies without organs onto a plane of consistency. It is itself a part of the rhizome” (Deleuze & Guattari, 1987, p. 12). Through this process of mapping, it is possible to determine where a rhizome connects with more traditional root based systems of thought or being, as the root and rhizome are not mutually exclusive, as

is the case in nature, “The important point is that the root-tree and canal-rhizome are not two opposed models” (Deleuze & Guattari, 1987, p. 20).

I postulate that root based systems of knowledge play an important role in the formation of our identity and cognitive ability. Their limitations come from the inability to break away from the facsimile-style mode of thinking that they can instill within closed multiplicities — the tracing of knowledge from a pre-determined pattern. This process can become ingrained generation after generation, tracing after tracing, until the multiplicity becomes hardened and tougher to rupture (as discussed in the education context in Chapter 2). The rhizome has the ability to disrupt the tree root, to break the continual repetition of thought inherent within isolated multiplicities, to take it somewhere unexpected and give it new dimension, new cartography, a new place to exist, innovate and evolve. It may connect one type of root system to another, but it is indirect — a roundabout connection; a joining of two roots to a complex and winding rhizome that is embracing of a range of different multiplicities and the practices, knowledge, patterns and processes within them. This is demonstrated in the way that the rhizome of hyperlinked connections between websites emerges from the tree root physical infrastructure of the Internet as previously discussed.

The rhizome rupturing the root, creates disruption resulting in small changes within elements of each that enable a line of flight between them — creating opportunity for change and advancement of thought in the act doing so. In this way a taproot can become a part of a larger rhizome, and the rhizome can offer the root system the opportunity to break from its ‘plane of consistency’ to some degree, “Deleuze and Guattari’s rhizome is parasitic on established structures. It grows from within to subvert the edifice. The trappings of bureaucracy and the keeping of accounts draw on the operations of a tree-like tracing, but creative subversion ‘can begin to burgeon nonetheless, throwing out rhizome stems...’ [Deleuze and Guattari, 1987, p. 15]” (Coyne, 2008, p. 558). As discussed in Chapter 2, many institutions find it difficult to adapt to emerging digital technologies, and to help educators integrate them into their teaching practices. They are limited in their ability to adapt by the tree root infrastructures and processes that they have developed over generations — yet these same tree root systems are necessary to a large degree, for the effective operation of the institution. However, institutions are prone to disturbances to their own operations and authority from instances of disruptive innovation, sparked by the introduction of new ideas via lines of flight from other multiplicities, “... the concept of the rhizome presents as an attempt to undermine the authority of the network, from within” (Coyne, 2008, p. 553).

6.4 Knowledge construction in traditional multiplicities

Coyne’s words are a perfect line of flight leading to a further exploration of the influence LTTO was able to bring to existing knowledge construction processes within the multiplicities that are educational institutions. The different theories and concepts discussed below are all interlinked in the larger conceptual

rhizome underlying the LTTO project. As discussed in Chapter 2, society and education are entwined. Ideally, this arrangement could be thought of as a mutual influence between plateaus of society and education, with the educational institution forming the lines of flight between them. It is a symbiotic concept, but one that depends upon educational practice, and individual networks within the multiplicity, being open to influence from outside their own boundaries so as to remain current and relevant.

Educators belong to different institutional and disciplinary communities within which established epistemologies form the basis of how knowledge is constructed and passed on from one generation of educators to another. Such knowledge develops in relative isolation. When considered in light of concepts explored in this chapter, this type of social reproduction, this continued bifurcation of knowledge perpetuated by, "...historically-inherited collective circumstances in the course and outcome of social conduct" (Cohen, 1987, p. 273), is representative of the previously discussed tree root like structures and relations (Gingrich, 1999). This, as discussed in Chapter 2, can lead to the stifling of innovation and broadening of the digital literacy divide, affecting the institution or disciplinary network's ability to effectively adapt to technology's entanglement in educational practice.

Knowledge construction in the work place

It is useful to briefly discuss classifications of knowledge and knowledge construction when examining education as an integrated aspect of a larger multiplicity and social system. Codified public knowledge has been defined as public or propositional knowledge ratified by peer review, or given status by being taught in institutions. It is usually explicit (that which can be accurately and unmistakably defined), and easily shared with others, and used outside of the original communities where it originated (Bierema & Eraut, 2004; Eraut, 2000; Markauskaite & Goodyear, 2014). It is the knowledge of 'facts'; an example of which would be the contents of an encyclopaedia (Eraut, 2000).

Non-codified public knowledge is embedded in cultural practices rather than being recorded and easily accessible (Markauskaite & Goodyear, 2014). It is often integrally intertwined with professional communities, and is usually implicit (implied though not directly expressed), and tacit in nature (knowledge we understand without it being stated). It can sometimes be difficult to codify, because it may be a skill or behaviour that has to be learned for oneself by engaging in a social or professional practice within a particular community, rather than a fact that can be easily recorded and shared. This type of knowledge exists in Warschauer's notion of cultural artefacts. Such tacit knowledge is enacted upon, built upon and passed down from generation to generation (Warschauer, 2003, 2007). This type of knowledge also exists within cultures specific to educational organisations and particular sub-groups within them, where someone immersed in that culture passes down knowledge and behaviours about how teaching is done because the culture acknowledges that there is a 'right way' to do things, often based upon historical precedent.

Finally, heuristic knowledge is that which is gained from personal experience. It is the type of knowledge that is not reliant upon existing knowledge, but is constructed by doing, and is personal for each individual as it is based upon his or her own unique experiences and disposition (Eraut, 2000). Heuristic knowledge may overlap with tacit knowledge, particularly in instances where members of a network engage in tasks (such as teaching) guided by historical precedence (the way it has always been done).

Knowledge construction in the workplace is particularly relevant to LTTO – particularly in the cases where artefacts were embedded in professional development programs for educators. Eraut (2000) stresses the importance of being able to understand and make explicit our tacit knowledge in the context of workplace relations in order to improve communication, the collaborative development of new knowledge, and workplace relations. However, this actually proves to be a problem where educators find themselves in a situation where social reproduction has, over time, limited the multiplicity's ability to easily accept new practice or ideas, particularly in relation to teaching practice. The aim of LTTO is to make explicit the non-codified public knowledge from within institutions, by recording and contextualising the heuristic knowledge of individuals in ways that are relatable to members of different organisations – encouraging academics to try the ideas for themselves.

6.5 The importance of innovation within knowledge construction

The dangers of a closed system

All biological beings require genetic diversity in order to evolve and prosper; otherwise defects or traits not best suited for survival are magnified each time they are passed along to successive generations. Dogs for example, have their origin in the wolf (Coppinger & Coppinger, 2001; Leonard et al., 2002; Vilà et al., 1997). However generations of inbreeding have resulted in creatures far removed from their origin, often plagued with painful and degenerative genetic disorders (caused by humans wishing to divide the wolf into many distinct multiplicities of 'dog', each self contained and considered pure). The dimensions of the multiplicity that comprises the genetic history of the dog in this instance continue to become smaller and smaller, reducing its capability to evolve and adapt to external change. While this is an extreme example, it does illustrate the detrimental possibilities inherent with social reproduction of unsuitable or inflexible practice within operationally closed, *autopoietic* educational disciplines or institutions (Lenartowicz, 2015), compromising educators' capacity for adaptation to deal with changing environments.

In many contexts, educators within a faculty have developed and continue to use teaching practices, developed by their predecessors that were effective for the societal and technological contexts of the time in which they were originally devised. They may be deeply rooted in systems of specific codified knowledge, constructed through many generations of disciplinary teaching practice – and in many instances this has not considered online teaching nor society or the workplace's contemporary use of new technologies. Therefore effective online teaching practices are not codified within the knowledge

base of the multiplicity, and without some form of disruption (a line of flight) bringing new ideas about these issues into the multiplicity, it is difficult for practice to effectively adapt.

As successive generations of educators join a faculty where the organisational culture does not ultimately provide sustainable support for change, ingrained educational practices are often passed on to new academics with little chance of innovation (Zhu & Engels, 2014). In addition, there may be few within the multiplicity that possess heuristic knowledge of online teaching practices. Due to the various roadblocks preventing wider effective adoption of the practice (as discussed in Chapter 2), those who have such experience may have difficulty in making their tacit knowledge explicit to others in a way that is acceptable to the wider population of the multiplicity; or may fear challenging established ideas and risking their professional position (Walder, 2015). This results in many educators within the system not having sufficient opportunity to develop heuristic knowledge of the practice of online teaching, nor contact with others who have this experience. This ‘normalises’ certain behaviour, knowledge and practice, and can establish an inherent and universally expected basis for teaching within the discipline. Unfortunately, it can also unwittingly cause the discipline or faculty to become increasingly resistant to changes or advances occurring externally. Behaviours can become shaped by practices borne of historical and hierarchical practices, and like the roots of a tree all stemming from the central taproot – everything leads back to a central, ordered and established way of doing things (‘we have always done it this way’, or ‘this is the right way to do it’). This exemplifies the limitations of knowledge derived from the root system that is resistant to influence from external sources, as described by Deleuze and Guattari. It also highlights the dangers of educational multiplicities constructing knowledge and processes about teaching practice over successive generations without being responsive to, or cognisant of, the significance of external influences and societal changes.

Thinking about this notion with Deleuze and Guattari’s philosophy in mind, the multiplicity is self-defining with socially accepted traditional teaching practice occupying all possible dimensions within this definition. There is no room for the dimensions to expand further within the current structure. The concept of online teaching practices do not neatly plug into the ‘little machine’ that embodies familiar and trusted convention. This is the epitome of the notion of multiplicities existing within planes of consistency, where for example, any number of different faculties in one discipline will engage in teaching practices ‘traditionally’ expected of such a discipline by those within it. They occupy the known and expected dimensions of established teaching practice in such a context, but can in doing so, become entrenched in their own sense of identity and lose sight of the larger sociological context in which they exist. Such an approach can limit innovation and retard development or acceptance of new knowledge. It can also result in many educators fearing or resisting the introduction of online teaching, which can be seen as conflicting with established, trusted and ‘traditional’ teaching methods. Existing processes of knowledge construction need to be exposed to disruptive innovation in order to allow the integration of new knowledge into existing practices.

Rhizomic Network Analysis

As previously discussed, LTTO was designed as a means to expand the reach of the COFA Online Fellowship program community of practice, to include a wider range of geographically and disciplinary dispersed educators. While this was not achieved in the way it was originally anticipated, the evidence in Chapter 4 suggest that LTTO artefacts were able to contribute to the construction of knowledge within a diverse range of different educational multiplicities. How they contributed and to what extent are yet to be determined.

In this chapter I have discussed how the physical infrastructure of the Internet is a creation of ordered, systematised, proceduralised, and logical switches and pipelines. Whereas the Internet is a complex binary tree-root network, the way in which we have interconnected knowledge within this system is rhizomic. Hyperlinks enable us to either bifurcate knowledge like a root system through traditional citation, or link a thought to any type of abstract idea – essentially like a line of flight between concepts. In turn, the cognitive processes involved in the construction of knowledge amongst those with access to this information are increasingly becoming rhizomic. This potential connectivity between disciplinary and conceptual plateaus gives the opportunity to expand the potential for the creation of a greater number of lines of flight between disciplines and fields of knowledge; to enable greater opportunity for the sharing of new ideas that can then be synthesised and reapplied in specific contexts to advance and innovate thought. Digital network technologies offer opportunities to overcome isolation and entrenchment in multiplicities of bureaucracy – to sidestep the limitations of root-like linear networks and connect digitally to share knowledge in a direct and meaningful way.

Traditionally however, this has not proven to be particularly effective in the context of developing knowledge about online teaching practices. It is digital technology that offers the potential for facilitating greater sharing of knowledge between multiplicities to advance practice in this area. Ironically, it is also the same technology that forms a barrier to this knowledge for those with little understanding or confidence in its use. Therefore, how could LTTO reach the people in the core of these multiplicities, those who were most resistant to, or fearful of, adopting online teaching practices because of their lack of understanding about the technologies that facilitate it? My data visualisations in Chapter 5 clearly map activities where LTTO artefacts were shared between educators in different multiplicities via Web 2.0 technologies. However, it is important to note that the act of sharing information does not in itself constitute a meaningful transfer of information (or line of flight). In order for these acts of sharing to have any meaning for the multiplicities they touch, the line of flight has to cause disruption and change – to assimilate aspects of each multiplicity.

Rhizomic Network Analysis (RNA) is a concept discussed by Alexandra Steinberg (2008). She describes it as, "...an approach of analysing and diagnosing social networks for their type of knowledge dynamics of innovation" (Steinberg, 2008, p. 248). This is a theoretical framework that acknowledges the impact that online social networks have had upon the construction of knowledge within previously isolated

multiplicities (although she does not use these words). RNA has been devised to move analysis past simply describing relationship structures, to understanding their impact upon knowledge construction. Steinberg bases her theory primarily upon Deleuze and Guattari's rhizome, in particular the principle of asignifying rupture, and the network's influence upon the, "...dynamic interplay of meaning creation and meaning disruption" (Steinberg, 2008, p. 228). In other words, RNA examines how an online network's influence can incite innovation in the construction of knowledge in other existing networks.

Steinberg talks about social reference systems, which can be likened to the notion of a multiplicity or several multiplicities within a plateau, "...in which meaning is shared and continually re-created" (Steinberg, 2008, p. 230) — exactly as in my description of social reproduction of knowledge within these instances. The identity of these social reference systems is created from generations of knowledge creation within their specialised areas of expertise. The tree-root system of bifurcated knowledge developed within the multiplicity has ensured a depth and assuredness of knowledge. This knowledge has become specific to its social system over time. It has become codified and made explicit through many generations of peer review and the heuristic experience of the members of this community. Knowledge developed over generations in this way, possesses a high level of legitimacy. It is reasonable therefore that knowledge introduced from outside of this immediate context, could be regarded with some scepticism by those inside — especially if it challenges existing practice which has been perfected within the singular disciplinary context of the community. A brain surgeon for example, may consider advice or insight about how to conduct their medical practice from his peers more appropriate and valuable than from someone outside of their immediate social reference system — such as a motor mechanic (Carbone's (2006) article, '*What my mechanic taught me about being a doctor*', is one example of an exception to this assumption). While understandable and in many cases justifiable, such exclusion of abstract inspirations can contribute to the stifling of innovation or development of cognitive process within the multiplicity.

Deleuze and Guattari's concept of asignifying rupture expresses lines of flight from one multiplicity to another causing disruption — in a way, weakening an existing structure so that a new concept or idea can penetrate, take root and make change. This process is similar to the 'bottom' up disruptive innovation (Christensen, n.d.) discussed in Chapter 2, where small changes to process at the lower levels of an organisation can eventually change existing practices 'further up the chain'. But how can a line of flight bringing unfamiliar and untrusted ideas penetrate the boundaries of a well established educational multiplicities defined by historically legitimised, *autopoietic* social reference systems?

Steinberg speaks of the importance of novelty in changing social knowledge construction. An unfamiliar idea can be a novelty, something that arouses curiosity within an existing network, enough for members of the network to take time to examine the information. LTTO for example, was both familiar and novel at the same time. While the content (examples of online teaching practices in different disciplines) would have had familiar aspects to many, LTTO's novelty was in large part its episodic design, and its digital

dissemination. In a way, the novelty could be considered as a 'Trojan horse', something that appears acceptable enough to warrant some kind of examination, but with the potential for causing disruption if it can pass this examination, and penetrate the resistance created by established practices and perceptions of what constitutes 'legitimate knowledge'. This is not as sinister as it sounds however. Despite having novelty value, the knowledge within this 'Trojan horse' must also have a legitimate relation to an aspect of the practice within the multiplicity. The line of flight must have an anchorage within the multiplicity it penetrates, as much as it must have one within the multiplicity it originates from. Deleuze and Guattari (1987) speak of a parallel evolution, and exemplify the concept by describing how viruses can take genetic material from their hosts, and transmit them to a range of completely different species, no matter how disparate they may seem. All the species that can be affected possess a level of commonality deep within their DNA to enable such non-linear, non-arborescent development.

The LTTO artefacts embody this concept. They contained neither codified knowledge, nor mere personal anecdote. LTTO captures practical actionable knowledge in a hybrid form. Their roots tap into book-like structures of existing knowledge. This enables them to be seen as relevant to many different educational networks because their DNA is built upon known pedagogic principle – a common language amongst educators. In addition, the fact that they comprise people talking about these educational principles from the perspective of their own practical experiences adds authenticity, but also makes them novel or relatable enough to encourage rhizomic-like sharing between different networks.

Innovation within a multiplicity can be sparked by completely new inspirations or ideas, but significantly, innovation can also be a new way of understanding an existing phenomenon (Steinberg, 2008). In the context of this research, that existing phenomenon is teaching practice. For innovation to occur in the development of knowledge in this field, any new ideas must be synthesised with existing ideas for them to make sense. Online teaching practice is not distinct from traditional teaching practices, and cannot exist in isolation from them. Therefore the rhizome in itself is not able to revolutionise the construction of knowledge without a contextual reference within that multiplicity. In other words, any new information coming into a multiplicity must be able to relate in some way to existing processes or knowledge for it to make sense and be accepted by the larger population. In this process, experience and collaboration are essential for creating and understanding of new epistemic activity (Goodyear & Zenios, 2007).

New knowledge must be able to relate to, and be synthesised with the old, by more than one member of a community in order to be accepted. To revisit the earlier example of the brain surgery scenario, if a mechanic (using his own disciplinary language) tries to convince all brain surgeons that he has an idea that could improve one of their procedures, he is unlikely to get far. However if a surgeon ratifies the conceptual link between the mechanic's idea and existing medical knowledge, patronises the notion, and petitions his peers with a rational explanation of how the mechanic's input relates to, and can improve, their current medical knowledge, the concept is more likely to be taken seriously and reviewed by others

within the multiplicity. If however, members of an existing network see the introduced knowledge as irrelevant, it will most likely be rejected and not shared further – effectively killing the line of flight and potential for innovation, “If a novel phenomenon does not become socially accepted as an innovation, it remains unknown and unacknowledged” (Steinberg, 2008, p. 230).

This is one reason why the LTTO online community failed to gain momentum. Another significant reason was most likely the fact that many educators accessed the LTTO artefacts from other dissemination points such as YouTube and iTunes U, and they may have been unaware of the LTTO website and online community. Those that did find the community, however, were on the whole still not motivated to take part. In essence, the LTTO online community attempted to remove educators from their own social reference systems – their own multiplicities – and draw them to a new and unfamiliar one. Here, those who did attempt to participate were isolated from their existing networks of peers, familiar practices and disciplinary knowledge. They could not easily ratify the ideas of the resource as an expert within their own networks, but rather were reduced to novices in an entirety unfamiliar multiplicity. My realisation is supported by Steinberg’s own observations, “...a high degree of rhizomic dynamics without any presence of social construction would mean that even though there is a lot of movement and creation, there is no human reference system that this movement and creation can cut into; hence, novelty would not even enter the social realm of sense-making” (Steinberg, 2008, p. 235).

Steinberg’s RNA measures the relative potential of this process in a range of different encounters in her Model of Knowledge Dynamics (Steinberg, 2008). In this model, there are three types of encounters involving varying degrees of synthesis between existing methods of social knowledge construction within a network, and the introduction of disruptive rhizomic knowledge (Figure 56):

- **Type 1 encounters** are where established practices are dominant in knowledge construction. Existing knowledge is consistently reiterated, and novel concepts would usually be rejected in an environment of high resistance. This reflects the previously discussed *autopoietic* educational institutions in which many educators are fearful of, or resistant to, the introduction of online pedagogical practice.
- **Type 2 encounters** represent the opposite end of the spectrum, where no one belongs to a shared social system. New knowledge and multiple sources of inspiration are abundant, but there is no common social reference system within which to make meaning of the knowledge in the context of existing practice; in other words, there is nowhere to put the knowledge to the test. This type of situation is highly rhizomic, and is comprised entirely of lines of flight without anchors in multiplicities, of knowledge without context. This type of encounter epitomizes the failed LTTO online community, where participants did not share strong social or professional bonds.
- **Type 3 encounters** provide the greatest potential for innovation, because they are a balance between rhizomic disruption and existing socially constructed knowledge as I described above, “This means that there are central shared meanings that are continuously re-negotiated and

represented in a community, but they are flexible in that they are open to change and can adapt easily to novelty and challenge” (Steinberg, 2008, p. 237).

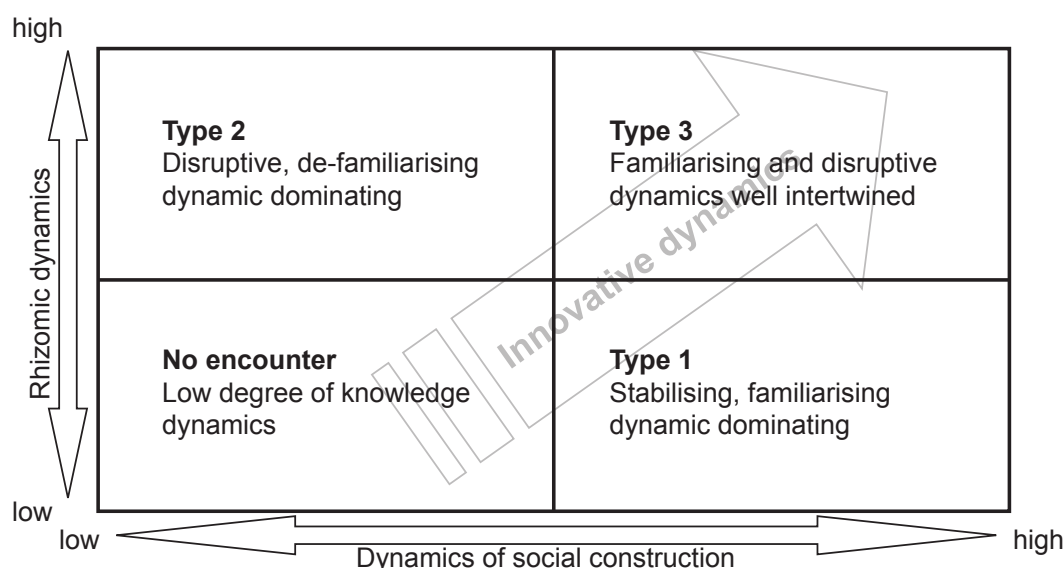


Figure 56. Steinberg’s model of knowledge dynamics. Steinberg, A. (2008). *Knowledge Dynamics: Types of Encounters* [figure]. From *Rhizomic Network Analysis: Toward a Better Understanding of Knowledge Dynamics of Innovation in Business Networks*. In F. Zhao (Ed.), *Information Technology Entrepreneurship and Innovation* (pp. 236). Hershey, PA: IGI Global.

One key aspect of this process that Steinberg does not discuss however, is how a Type 1 encounter, in which a multiplicity is resistant to new ideas, can be shifted to a Type 3 encounter, where members are open to new ideas and concepts from outside of their immediate spheres of experience. The reality is that it can be difficult to persuade many educators within institutional or disciplinary multiplicities to adopt online teaching practices — especially if they face barriers to effective adoption of online teaching practice such as not possessing the confidence, technical knowledge or skills required to engage with Web 2.0 technologies themselves to begin to break the cycle (as discussed in Chapter 2). If a multiplicity does not ‘want’ to be disrupted, it will not be easy to do so.

6.6 The influence of the LTTO rhizome

Where Steinberg examines how an online network can increase potential for innovation in established professional groups who are receptive to the concept, or equipped to initiate change; my research has led to an examination of how a digital network can break through a multiplicity’s socially reproduced, ingrained resistance to new and outside knowledge. The contribution my research can make to the field is an understanding of how an online professional development resource can be designed to effectively use rhizomic networks to penetrate a resistant multiplicity, and increase the potential for innovation in

the development of new knowledge about online teaching practices.

To do so, I firstly wish to clearly identify the rhizomic qualities of LTTO, as revealed by my observations thus far:

- The sharing and use of LTTO was unpredictable and uncontrollable.
- There were multiple ways in which some members of multiplicities could access and share the resource.
- LTTO artefacts propagated using a range of existing networks.
- Individual episodes were used in a variety of different ways, changing LTTO's meaning and context as it spread between multiplicities.
- There was an increase in the diversity of the multiplicities in which artefacts were used as the number of connections grew.

I have previously explored data that exemplifies each of these aspects of LTTO. These data showed instances of LTTO artefacts penetrating multiplicities in cases where educators reviewed, and recommended them to their own social and professional networks, giving them a specific meaning relevant to the contexts into which they were introduced. This included acts of sharing artefacts via Web 2.0 technologies, links or embedding on institutional websites, and use in educational and professional development programs. The fact that members of existing professional networks recommended or endorsed the ideas within LTTO, created an opportunity for evaluation and acceptance by other members. If even one person from within an institution or professional network engaged with LTTO and discussed it in the context of their own practice, the knowledge and ideas LTTO contains combined with the endorsement of this trusted person in that network have the potential to disrupt the social reproduction cycle; disrupt usual thinking and behaviour, and allow an opportunity for new ideas to take root (similar to what happened with the original COFA Online Fellowships). The disruption of the usual social reproduction allows opportunity for reassessment of existing knowledge, creating an opportunity for greater understanding and innovation. LTTO is in essence, a line of flight between a large number of diverse multiplicities, penetrating existing networks via members testing and ratifying the artefacts, therefore enabling new ideas and knowledge to be reterritorialised.

The importance of roles within the LTTO rhizome

When considering variations between the different types of people involved in the above activities — within a myriad of different networks — three distinct classifications emerge. Classifying types of users can be useful for considering how the design of LTTO enabled people to value it for different reasons — and how this relates to its continued propagation within the larger rhizome. When all of the data are considered, the following distinct groups of people who interacted with the artefacts are discernible:

- **Learners (primary group)** are individual educators using LTTO for their own purposes to help improve their teaching practice in Type 2 scenarios (finding artefacts within an out of context Web 2.0 network), or Type 3 scenarios (encountering LTTO artefacts re-contextualised as part of an organised professional development or educational program).
- **Intermediaries (secondary group)** are better known as rhizomic agents. These are people who find LTTO artefacts in Type 2 scenarios, and evaluate and recontextualise them into their own networks in professional development or educational programs.
- **Influencers (tertiary group)** are those who are held in high esteem in their own professional networks, who review, critique or recommend LTTO to others in their network.

I have discussed different interactions typical to each group previously in Chapter 4, and the concept of LTTO having a different value to different people has also been discussed – without necessarily being explicit about categorising the groups themselves. One example is the contrast between Bates’ criticism of LTTO (as someone highly skilled and knowledgeable in the field who might not directly benefit from the type or tone of information offered), and the more positive feedback from other, potentially less experienced users (respondents to the open online questionnaire for example who may appreciate the type of approach adopted). This is illustrative of how people with different experiences and motivations see LTTO differently because of their own skill levels, motivations, and professional standing. Tertiary influencers, such as Bates and Downes, or the external experts who reviewed LTTO as part of the independent project evaluation, offered critiques of LTTO from a much broader and inclusive viewpoint, drawing upon current literature, and their expertise of the professional development demands of the shifting educational landscape. Secondary intermediaries who tweeted or shared LTTO artefacts on the other hand, often did so without any such in depth commentary. This may have been because of their simple appreciation for the information being presented, or the lack of opportunity, inclination, or understanding for a more in depth review. Both interactions with LTTO exemplified above brought attention to the project in different ways, from both scholarly perspectives and more transient Web 2.0 networking. This suggests that the differences in user group perspectives could have actually benefited LTTO, as it was seen from both pragmatic and theoretical perspectives, giving it exposure to a wider audience, and creating more awareness in a larger number of loosely tied networks.

Joining rhizome and root

The ultimate exemplification of LTTO reterritorialising within a multiplicity, and thereby resulting in the greatest potential for bringing new ideas to existing practices of knowledge construction, is where it was included in institutional educational or professional development programs. I have previously discussed the importance of the traditional binary or root structures of knowledge within individual multiplicities. The objective of the rhizome in this instance is not to obliterate or overpower the identity and existing knowledge base within such structures, but to disrupt it enough such that new ideas within the rhizome can join with the root and facilitate a symbiotic evolution of knowledge (Figure 57). This is a typical

embodiment of Steinberg's Type 3 encounter. Deleuze and Guattari postulate that a rhizome can be part of a root system and vice versa. They are very different entities, but they can coexist, becoming intrinsically intertwined. LTTO may have begun from a singular point of origin (COFA Online), but it quickly became something else entirely as soon as it was published online and educators began to connect with it and recontextualise it. The act of sharing the artefacts via the use of Web 2.0 technologies became the digital rhizome that connected a large number of individuals and groups, that was ultimately able to join to the existing physical tree root structures of knowledge within a number of educational contexts through LTTO's use in existing programs.



Figure 57. Like grass penetrating the more rigid, inflexible structure of concrete, LTTO was able to infiltrate existing educational multiplicities, joining rhizome to root structure, creating a synthesis of outside knowledge within existing epistemological processes. This was ultimately evidenced by the inclusion of LTTO artefacts in a number of educational and professional development programs.

I believe that LTTO, bringing new ideas into existing structures of knowledge construction within these different educational contexts, can play a role in breaking the social reproduction of entrenched concepts. The rhizome can disrupt the nature of the roots system, such that the cycle of knowledge generation changes. Both root and rhizome remain so, but where they intersect, they form a more flexible, adaptable structure, more attuned to its larger context. Future generations in the system may be more open to influence from external sources; and subsequent reproduction of knowledge will benefit from the influx of fresh ideas and concepts, "Casual complexity arises as soon as we allow that an event influences not only another event, but an effect returns to the initial event. The nutrients in the soil enable a tree to grow, which in turn sheds leaves that restore nutrients to the ground to enable the tree to grow" (Coyné, 2008, p. 557). As such, it is the instances of synthesis between LTTO and existing programs that offer the greatest source of information about how the design of the artefacts was able to achieve this rhizomic deterritorialisation and reterritorialisation of knowledge between multiplicities.

Rhizomic agents

My interest therefore, now shifts to how LTTO was able to connect the digital rhizome to the physical root systems of knowledge within the institutions where it was synthesised into educational and professional development programs.

The data visualisations in Chapter 5 clearly show different stages of activity surrounding the LTTO artefacts; from Twitter, blog posts, institutional links, or use in programs. This exemplifies LTTO's ability to penetrate a range of different existing networks; from most transient and random (social media), to most specific and permanent (use in programs); from a situation with low probability of direct influence but highest probability of diversification (social media), to highest probability of direct influence and least probability of disciplinary or sector diversification (use in programs). These tiers of interaction with the resource exemplify the different types of Steinberg's model of knowledge dynamics, but also highlight the fact that an online resource can in fact indirectly benefit people without existing technological skills or inclination. The LTTO rhizome was able to reach to the core of these multiplicities to some degree – to those educators whom Steinberg would describe as existing within a Type 1 environment; entrenched in established socially centric patterns of knowledge construction, and less open to the introduction of new ways of doing things (Steinberg, 2008). It reached them through a process of moving from only being discoverable within the digital realm, to being recommended by peers to people studying within postgraduate education programs or undertaking professional development in traditional face-to-face scenarios.

In exploring this further, it is important to identify two distinct effects from using Web 2.0 technologies to disseminate LTTO. Considering that a component of the project's target audience are educators who may not be very familiar or skilled with using technology, or those resistant to the idea of online teaching, it may seem incongruent that such a strong emphasis was placed upon using social media and other electronic forms as the primary means of dissemination. However, as evidenced in the data examined thus far, the short term yet far reaching effects of using social media, can seed more long term, localised adoption, re-application and re-dissemination of information in individual multiplicities over longer periods of time.

1. Short-term impact – international spread

Using Web 2.0 technologies is a short term, high maintenance form of dissemination. Such forms of dissemination have the benefit of being able to share information extremely quickly to a large number of people around the world. Those receiving the message via these means are usually those with existing skills in using Web 2.0 technologies to access or share the information. However, they may not necessarily have the skill in applying the technologies in a teaching context, nor belong to a network where they can apply the knowledge about online teaching within the Web 2.0 artefacts in a relevant way to build their competence and confidence (a Type 2 encounter). While such people can benefit from pedagogically focused professional development resources, a large percentage of the target population, i.e. those with little skill or confidence

in using technology to teach, are not exposed to the information being broadcast (a Type 1 encounter). In addition, the effect of this rapid spread is relatively short lived. If a post is made about the project using social media, an influx of traffic to the website usually occurs, with the number of visits rapidly trailing off within a short amount of time. Social media is a high volume communication system, meaning the lifespan of a message posted is relatively short as new messages replace it very quickly.

2. Long-term impact – local embedding

Educators already conversant with Web 2.0 technologies helped to spread awareness of the LTTO project over long distances, and the artefacts are integrated to various degrees within many institutional websites and programs as previously discussed. Having the resources embedded in face-to-face programs and traditional educational contexts, enables them to reach those educators less familiar or confident with online technologies and online teaching practices. Episodes synthesised with existing face-to-face and online educational and professional development programs is a long term, low maintenance form of dissemination, that will greatly add to the longevity of the project due to the resources being used repeatedly from semester to semester, as long as they remain relevant and effective (a Type 3 encounter).

Critical to this transition between short-lived, technology driven, dissemination and more long-term, high impact, integration into educational curricula, are those educators who facilitated the deterritorialisation of the LTTO artefacts from their Web 2.0 context, and reterritorialised them into a new, educational program-based context. These people are the critical conduits who facilitate the more influential and longer lasting use of the LTTO artefacts to improve online teaching practices on a larger scale (they brought the 'Trojan horse' through the gates of their institutions or disciplines). As discussed in Chapter 2, not everyone within an educational institution has the same opinions, level of skill or knowledge when it comes to online teaching. The data surrounding the use of LTTO evidence that the artefacts managed to penetrate existing educational multiplicities, such as higher education, where there has been discussion in literature about the resistance of many within the sector to properly embrace online learning pedagogies. Given that LTTO was a fully online resource, the only way that this was possible was if people within the multiplicity who possessed knowledge and skills related to online technologies accessed the artefacts from somewhere in the Web 2.0 facilitated rhizome, evaluated the merit and relevance of the knowledge to their field, and actively recontextualised it into their own disciplinary or professional network; creating a disruption (a crack in the concrete if you will), where LTTO was able to take root.

These key people are agents of the rhizome. They become a part of the rhizome, a shoot in a new direction – deterritorialising information from the network and reterritorialising it within their own contexts, their own multiplicities. They are simultaneously part of the traditional root system of their profession, and part of the organic, digitally connected rhizome of knowledge. They become a conduit through which the information they endorse can reach those within their individual networks who are

more open to the influx of external ideas than some of their peers, but who also need someone they trust to guide or show them how to access the knowledge and how it relates to them, their disciplinary knowledge and their practice.

The more random rhizome pattern of knowledge sharing is able to intertwine with existing root structures of knowledge construction within a multiplicity through these agents. They are a member of a multiplicity with disciplinary knowledge and influence, who also possess high levels of digital literacy; links to Web 2.0 networks; and are open to the introduction of new ideas.

Mapping the agents' influence

Initially, LTTO artefacts are spread via Web 2.0 technologies between members of different multiplicities in a Type 2 encounter, where there are high amounts of new information being shared but with little sense of a common social fabric in which lasting change can ensue (such as Twitter posts about LTTO). Rhizomic agents are those within Type 2 encounters who test and ratify LTTO knowledge that they discovered in the digital space, and then recontextualise this knowledge in the context of their own discipline or institution by sharing with others and relating it to existing practice. This creates high potential for Type 3 encounters with other members of the discipline or institution who are more open to outside influences. There will remain a large proportion of members who are not immediately affected by these encounters (those more deeply embedded within in the institutions existing practices – Type 1 encounters), but the rhizome taking root within creates opportunity for successive degrees of change over subsequent generations of social reproduction, gradually building greater capacity for change (Figure 58).

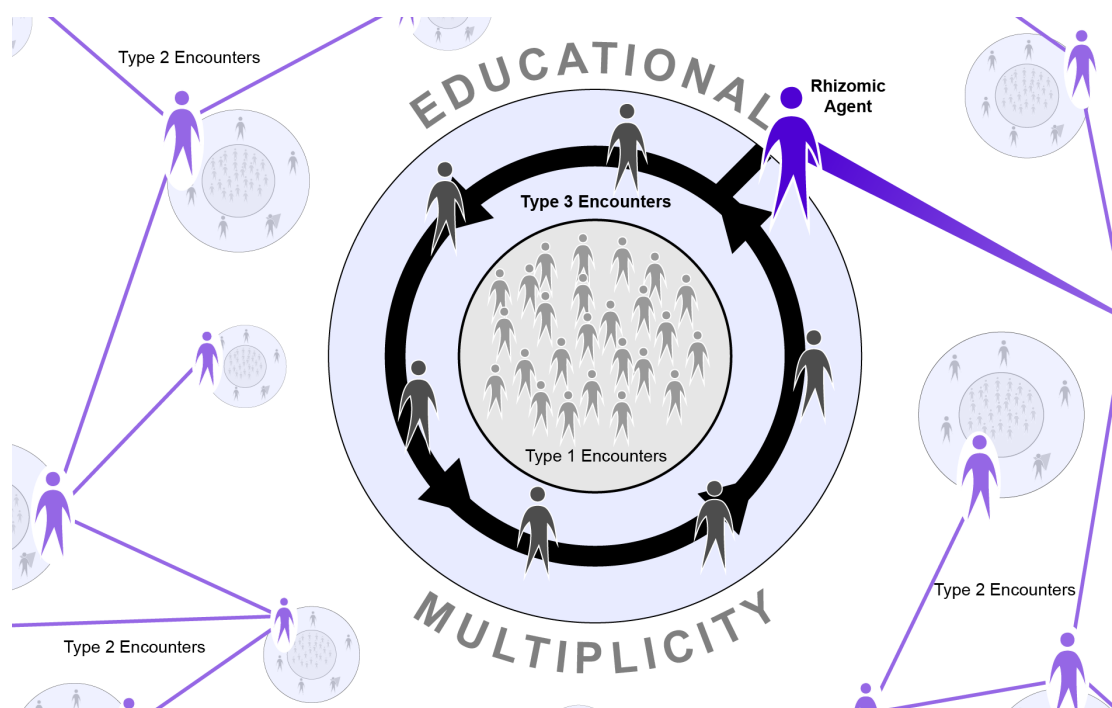


Figure 58. A diagrammatic representation of the LTTO rhizome's penetration into existing knowledge construction practices within educational multiplicities via rhizomic agents.

LTTO travelled from the digital realm into more tangible and lasting connection with multiplicities, disrupting to some extent the existing planes of consistency in terms of entrenched behaviours and practice related to knowledge construction around online teaching practices. Once rooted within the new multiplicity, LTTO becomes something different from what it was before, something more suited to its new context. The rhizome provides a temporal connection needed to inject original thought and disrupt the usual patterns of social knowledge construction, while the educator responsible for its introduction ensures that it is complementary to the identity and integrity of existing knowledge and practice. In some instances, this connection took the form of links to LTTO on institutional websites, or (in its most influential form), integration with existing professional development or educational curricula.

Once integrated within the existing knowledge construction practices of a multiplicity, LTTO will continue to influence future generations of educators within this context for as long as it is used, and should help to improve the perception of online teaching, so that change will continue even after it is no longer used. Those educators who can personally relate to the resource will, in turn, continue to influence the multiplicity's willingness to adopt new ideas from outside its own context — to continue to integrate further with the rhizome. The subsequent social reproduction of knowledge within this community can eventually help create a philosophical 'bridge' between what an educator's perception of online learning is if only exposed to Type 1 encounters, and where it possibly could be if they are exposed to the concept's full potential through Type 3 discourse, knowledge sharing and immersion within their community of peers.

Applying RNA to the LTTO rhizome

I have identified Steinberg's RNA as an integral theoretical component to my research — specifically describing the contribution of digital networks to the dynamics of innovation within social systems willing to engage with them. However, I now need to undertake this kind of analysis of the networks I have uncovered in my research to date. I will apply Steinberg's theory in my own analysis of the stories of individuals within the larger LTTO rhizome in the following chapter. Steinberg defines three key elements of the RNA methodology that are particularly relevant to my own study, therefore making RNA a useful addition to the methodological rhizome:

1. "RNA necessitates some form of thematic analysis of the content of people's discourse" (Steinberg, 2008, p. 238). In other words, RNA requires analysis of what people within the actual networks are talking about after the introduction of information from external digital networks, in order to assess any change in constructivist behaviour. This has also become necessary in my study of LTTO with the need to focus my research upon the rhizomic agents' experiences of their interaction with the resource and its application in their educational and professional development programs. I will undertake this analysis in Chapter 7.
2. "RNA requires explorative sampling of respondents; a pre-defined population with socio-demographic boundaries would contradict the aim of better understanding networks in its

character as social reference systems, which span across organisational or other community boundaries” (Steinberg, 2008, p. 238). My use of data visualisation to explore the networks sharing and using LTTO has provided a useful sampling method that I will utilise in the following chapter.

3. “The focus on RNA on rhizomic dynamics demands a novel approach to data analysis, one which integrates Deleuzo-Guattarian ideas into social psychological analysis” (Steinberg, 2008, p. 238). Here Steinberg advocates that in a research situation comprised of multiples of different elements and networks, it is not as crucial to strictly adhere to established methodologies. It is more appropriate to use methods or methodologies in ways that are most suited to their relationship to the understanding of the underlying theory, as is evident at different stages in this research.

RNA was conceived for the analysis of the social construction of knowledge facilitated by digital networks in cases where a social reference system, or multiplicity, has willingly engaged with them as a means of innovating and advancing knowledge. This would be ideal for analysing what occurred with individual users of the artefacts within digital networks. However, I believe at this stage of my research, more can be learned by focusing upon the agents. Where this differs from LTTO is that I am investigating how the digital rhizome extends into the more traditional, physical root structure of an educational multiplicity. Therefore while this methodology is important and relevant, it is not necessarily wholly capable in itself of providing a comprehensive framework to support the entirety of my investigation. However, as part of a larger methodological rhizome, its contributions are invaluable. The fact that RNA is built upon Deleuzo-Guattarian rhizomic principles illustrates a clear connection with the rhizome structure underlying the LTTO pervasion.

6.7 Chapter 6 summary

The concept of a rhizome has unified the different aspects of my study on a variety of levels:

- As an emergent model that contextualised the data visualisation of the multitude of human interactions surrounding LTTO across a wide range of different scenarios.
- As a philosophical basis for developing an understanding of how the LTTO artefacts were able to penetrate and affect processes of knowledge construction within different established professional networks.
- As a concept that enabled me to connect the range of related theories and methodologies I have explored in different chapters to explain this phenomenon.

The networking opportunities offered by the publication and hyperlinking of information on the Internet has allowed people to sidestep the sometimes restrictive organisational bureaucracies and hierarchies that facilitate the social reproduction of knowledge within educational organisations. The synthesis of

digital rhizome and physical root structures through the intervention of rhizomic agents has enabled LTTO to introduce new knowledge into multiplicities from outside of their immediate context. It is this resultant synthesis of root and rhizome via agents that I find most significant and meaningful. While the data and theory explored thus far substantiate the impact of the design on dissemination and penetration, they have not yet provided insight into the nature of LTTO's influence upon knowledge construction once it has been re-contextualised.

Both the quantitative data visualisation in Chapter 5 and its philosophical and theoretical relationship to the rhizome discussed in this chapter are integral to the larger LTTO story. They have contextualised the formally disparate elements of the larger narrative, and given a sense of order and logic to the different volumes of data about the spread and use of the resource. The process of deterritorialisation and reterritorialisation of knowledge, inspiration and ideas, is something that data visualisation (or maps) can indicate the existence of; but maps cannot describe what actually takes place in such exchanges. Yet the hidden complexities of this process are critical to developing an understanding of how best to facilitate meaningful exchanges of information through the design of professional development artefacts. This is a limitation of data visualisation that would render it inadequate for this study if it were being used as the only analytical methodology. The more qualitative elements of design research, DBR (design based research) and narrative inquiry can compensate for this limitation however, as the integration of visual, design and narrative analysis enables causal connections between intent, design, outcome and context to begin to be recognised and understood in some depth. The larger conceptual similarities connecting elements of these different methods can enable different elements of each to supplement the deficiencies of another.

Where previously I have identified DBR's small-scale focus as a disadvantage when considering the entire scope of the LTTO investigation, the specificity of a typical DBR approach can be beneficial to the exploration of the instances where a greater qualitative understanding of how the resource has impacted knowledge construction is required (such as the rhizomic agents' interaction with their institutional colleagues). As a good iterative design process will always return to reflect upon the impact of the design on real world application, it is fitting in the next chapter to extend the narrative inquiry using a synthesis of DBR and RNA, to explore the stories of some influential rhizomic agents identified through the data visualisation process. The rhizomic agents are detached from the LTTO project, and are objective in that they want to achieve their own goals within their own specific contexts. In other words they have no vested interest in LTTO at all, apart from what it offers their students from an educational perspective. This is why it is important to understand a selection of their stories in more detail. This will enable analysis of how LTTO extended beyond digital networks into the physical – and what influence it had in these institutions because of this.

CHAPTER 7.

STORIES FROM THE RHIZOME

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Synopsis

In this chapter I conclude my research from a practical perspective, by examining the stories of real educators who have used LTTO artefacts in their own educational or professional development programs. As in an iterative design process, in order to test my theoretical analysis and gain insight into the impact of the effectiveness of the design of the resource, I must examine instances of its practical application. Returning to the process of data visualisation, I identify 'nodes of influence'. These are instances where the LTTO rhizome joined with institutional root structures, resulting in artefacts being used in existing educational or professional development programs. I then extend the model of narrative inquiry to include interviews with the rhizomic agents who introduced LTTO to those within these nodes of influence, investigating how the artefacts were discovered, evaluated and used by these educators. Finally, I perform a cross-case analysis to determine if there are common experiences within the stories, based upon the design aspects of the LTTO artefacts, and how they may have contributed to the evolution of existing practices of knowledge construction in these instances.

7.1 Identifying nodes of influence

Previously, I have examined the influence of LTTO from a macro level, mapped its reach and pathways out of its original context as it traversed boundaries of institution, discipline, educational sector and country via Web 2.0 technologies. I have developed an understanding of how lines of flight between educators and institutions around the world were established, and how theoretically, these may have been able to disrupt and contribute to changing existing knowledge construction practices. Thus far however, exactly *how* or *if* this was actually achieved by LTTO within these different contexts remains conjecture. Therefore, I now need to leave the broader context of the entire rhizome, and take a micro view of the effects of LTTO as it has been used within specific instances at the point of disruption (where artefacts have been used in new contexts within existing networks). To do this I need to use principles of RNA to help shape my examination of what impact LTTO really had within some of the networks it was re-contextualised in, by speaking with real educators in practical teaching contexts.

The importance of the rhizomic agents

In this chapter I expand the narrative of this research to include several individual stories, from a range of different contexts where the artefacts were used as part of an educational or professional development program. The people who run these programs are the connectors between the digital networks where LTTO was shared and their existing face-to-face network's programs. As such, I believe that the stories these people can tell about this process are an extremely valuable contribution to my research. They provide insight into the aspects of LTTO's design that enabled these agents to trust the artefacts enough to reterritorialise them into a new context within their own social reference systems and educational programs.

Summary of the case studies examined in this chapter

The details of the interviewees and their institutions are explained in more detail below. However, to give an initial outline of the scope of investigation undertaken in this chapter, a total of five individuals from five institutions were identified by revisiting the previous data visualisation of those noted to have embedded LTTO artefacts in their educational or professional development programs. A number of filters were run in the visualisation software that enabled me to highlight institutions demonstrating high use of the artefacts (as detailed below). Institutions included two universities, a combined university/high school, a private consultancy, and a private higher and vocational education Institution. From this point I contacted the institutions that were identified and found the person in charge of running these programs, or who introduced LTTO to them. These people became the interviewees for this phase of the research.

Finding appropriate nodes of influence

I was able to discover appropriate stories to examine further by returning to the data visualisation related to LTTO use in programs (Figure 50 on page 165). Each node in this visualisation represents one education or professional development program that used LTTO in some way. To find relevant stories

to explore, I had to interrogate these data in different ways. I needed to identify ‘nodes of influence’ in the context of LTTO’s use in programs; instances that demonstrated significant opportunity for LTTO to influence the creation of new knowledge in the context in which the resource was being used.

Based upon the previously identified properties of each node in the dataset related to LTTO use in programs, I defined three such concepts through which to filter the visualisation to help identify a sample of instances of greatest potential influence:

- The number of references back to the LTTO website generated from the program (in context).
- The number of YouTube views of LTTO artefacts embedded in websites (out of context / deterritorialisation).
- The number of LTTO episodes used in the program (new context / reterritorialisation).

Returning to the data related to LTTO’s use in programs, I generated a series of visualisations within Gephi using its filtering capabilities. I identified ranges of values in each concept’s data set as being ‘influential’. These were chosen based upon identification of a figure in the data that marked the beginning of a higher than average rise in values. In the case of LTTO YouTube videos being embedded in program websites for example, this threshold figure was 50 views; the range being between 50 and the maximum figure of 200 plays from the data captured (Figure 59). The horizontal axis of the graph below represents the actual number of nodes in the visualisation. The columns in the graph indicate which nodes contained embedded YouTube plays, ranked in order of ascending number. The blank area on the left indicates that a majority of nodes did not contain embedded plays, and relatively few contained more than 50 plays. After 50 plays the number rises exponentially. This filtration tool in Gephi enabled identification of nodes with high values in each of the datasets mentioned above.

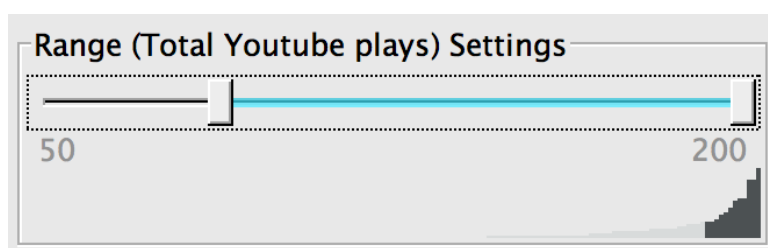


Figure 59. Data filtration tool in Gephi showing the range of total embedded YouTube views of each program node.

Visualisation of YouTube views within programs

Figure 60 highlights nodes representing programs where embedded LTTO videos were viewed more than 50 times. All programs with fewer than 50 YouTube views were hidden from the final visualisation using Gephi’s filtration function. The highest number of YouTube views from any single program in this instance was 200 during the period of data collection. The size of the node in the visualisation directly corresponds to the number of embedded YouTube views in each instance.



Figure 60. Embedded YouTube Views (50-200).

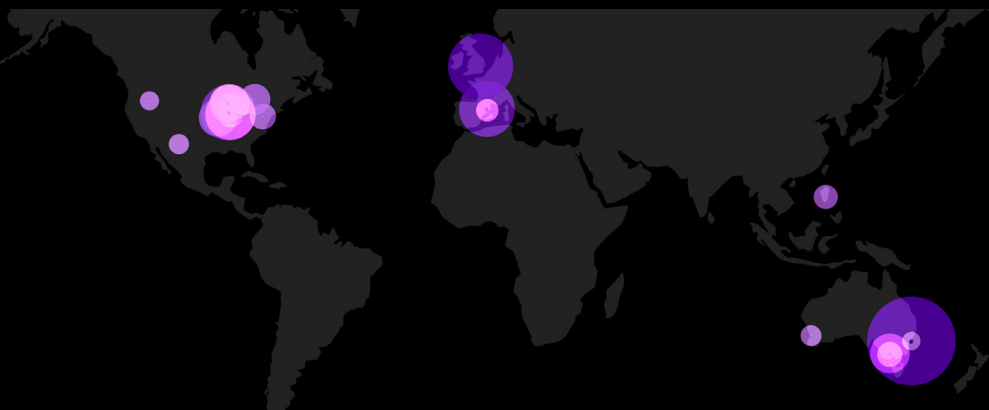


Figure 61. Embedded YouTube Views (50-200) + Referrals to LTTO Website (50-272).

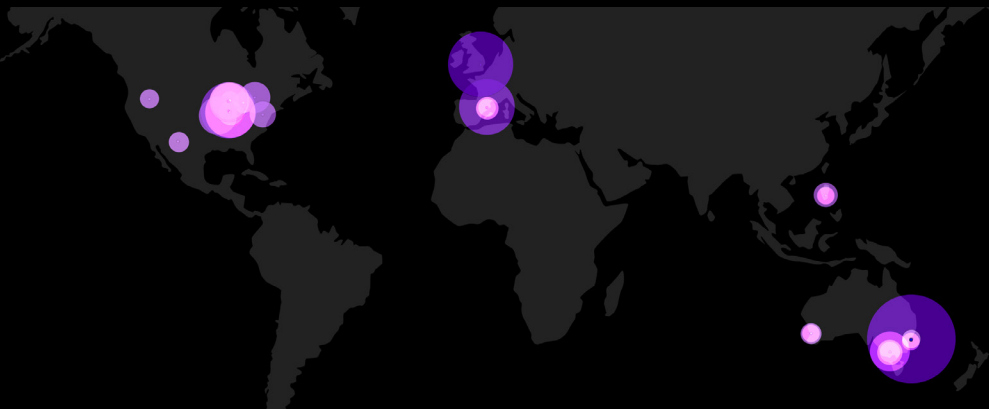


Figure 62. Embedded YouTube Views (50-200) + Referrals to LTTO Website (50-272) + Number of Episodes Used (5-10).

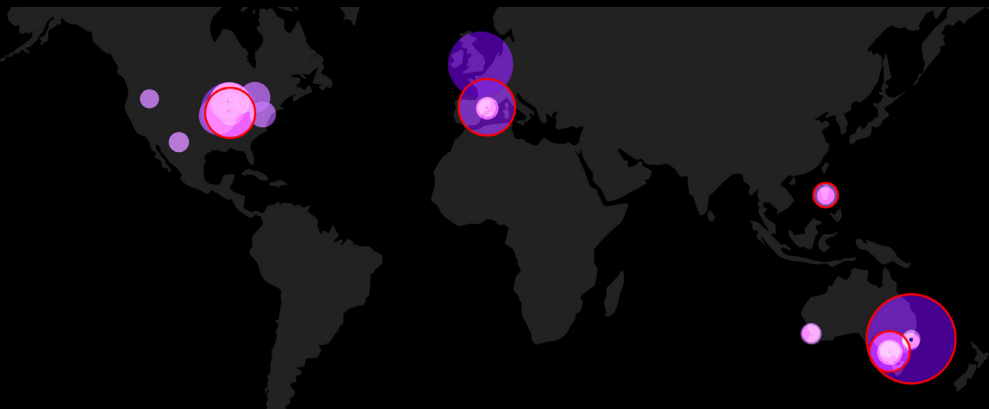


Figure 63. Nodes of influence within Programs.

Visualisation of Referrals to the LTTO website

I proceeded to change the parameters of the data filtration to display nodes representing programs that directly referred more than 50 people to the LTTO website (Figure 61). The largest number of referrals was 272. As with the previous example, nodes representing programs with fewer than 50 referrals were hidden, and the remaining nodes were scaled relative to the number of referrals generated. Importantly, in order to determine which nodes were beginning to display the most potential influence, I overlaid the visualisation of referrals directly over the previous visualisation of YouTube views. Overlapping nodes resulted in a greater intensity of colour, representing the fact that some nodes possessed evidence of 50 or more embedded YouTube views *and* 50 or more referrals to the LTTO website.

Visualisation of Number of episodes used

I then generated from Gephi represented programs in which five or more LTTO episodes were used as part of the program. The highest number of episodes used within a single program was 10 (Figure 62). Once again the size of each node was directly related to the number of episodes used within the program being represented. This third visualisation was again overlaid over the previous amalgam, such that nodes that exhibited elements of all three of these aspects became even more intensely coloured.

Selection of nodes of influence

The final visualisation in the sequence highlights using red, nodes that exhibited significant increased intensity of colour from the overlay of the different visualisations (Figure 63). These brighter or more intense nodes indicate instances that held the greatest potential for LTTO to have the largest influence on those engaging with the programs, based upon the cumulative indicators of the highest number of YouTube views, referrals to the LTTO website and number of episodes used.

Once the nodes of influence were identified, I was able to interrogate Gephi to extract specific metadata from each node as in Table 12 below.

Institution	Type of Program	Sector	Country	Views	Referrals	Episodes
University A	Masters & PhD	University	USA	170	35	10
University/High School B	Professional development	University	Philippines	69	0	5
University C	Graduate Certificate	University	Australia	119	72	6
Private Consultancy D	Professional development	Private Consultancy	Spain	170	63	5
Private Higher and Vocational Education Institution E	Professional development	Private University	Australia	0	272	0

Table 12. Nodes of influence within the LTTO network.

7.2 Interview methodology

Cross-sectional case studies

Having determined the nodes of influence, I was also able to identify the academics running the programs from the data. Given the diversity of educators and programs that were selected, the specific circumstances and context of each were likely to vary significantly. It was also unknown, when the data were collected, how long the LTTO artefacts would be used in the programs. I therefore decided to explore the nodes of influence as a series of cross-sectional case studies. This approach enabled me to gather the individual accounts of each educator involved (Trimble, 2008), and to examine the variation between their situations and experiences during the same time period (Bryman, 2012). Within each case study I examined the story of each educator's perception of the relationship with the LTTO rhizome, and of the artefacts' impact upon the creation of knowledge surrounding online teaching practice in their programs. Data were gathered for case studies within a period of one month — meaning that in each case, the LTTO artefacts had only been used in one instance of a course or program due to the length of time they had been available since release. This meant that the artefacts would be fresh in the mind of the educators who integrated them, and any changes in student learning would be easier to compare to previous iterations of the courses and programs.

This stage of my research focuses upon exploring the concept of the rhizomic agent, and their role in being a bridge between different types of professional networks (as discussed in Chapter 6). It was not my intent to conduct multiple interviews from inside each individual program. Rather, in order to effectively test the rhizomic agent concept (given the time and resources available to undertake this phase of the research), it was necessary to obtain information across a breadth of programs. Therefore I was most interested in identifying and interviewing the single agent in each institution identified above so that I could compare a number of diverse cases.

Semi-structured interviews

A synchronous, semi-structured interview was conducted with the identified agent in each case study. Because of the dispersed locations of each person, interviews were scheduled at a time of their choosing, and conducted and recorded online via Skype [[skype.com](https://www.skype.com)]. The interview instrument was designed in a semi-structured format (Merriam 2009; Silverman, 2009), to allow for a deeper level of personalised discussion with the individuals involved. This was particularly important in that the interviewees had used the LTTO artefacts in different ways, and were from different disciplines and institutions. The design of the interview instrument (see Appendix 5.1) drew heavily upon the categorical structure used within the online open questionnaire (discussed in Chapter 2) that individual users engaged with over the duration of the project (see Appendix 4). This was done so as to provide a basis for comparative analysis between individual and organisational use of the LTTO resource. The final categories the interview questions were grouped into were:

- **Overview / identity.** These questions were designed to determine specifics about the program in which the LTTO artefacts were being used, and relevant personal and professional details about the educator involved.
- **Discovery / dissemination.** These questions were concerned with understanding the educator's relationship to the LTTO rhizome, how they discovered the artefacts, and whether they shared them with others in turn.
- **Project practicalities.** Questions in this category related to design and editorial aspects of the LTTO artefacts.
- **Pedagogical merit.** These questions aimed to determine the perception of usefulness of the information presented within LTTO episodes, and the impact of this information upon those who engaged with them.
- **Perceived relevance and value.** These questions were concerned with the multi-disciplinary relevance of LTTO, and the relevance of the different disciplinary perspectives presented to the interviewee's own discipline.
- **Making meaning, adoption and contextualisation.** These questions specifically explored how LTTO artefacts related to notions of identity, trust and knowledge construction within the individual educational context.

7.3 Interview case studies

Below, I describe the context of each case study; how the LTTO artefacts were first discovered and then shared within the content of the educational or professional development program; how the agents perceived the practical design of the artefacts and dissemination systems; their perception of the value and relevance of the information presented; and how they used them within their own contexts to help program participants build new knowledge. In a narrative inquiry research approach, the most important aim is to capture the subject's own voice (Moen, 2008; Wolcott, 1990). These narratives paint a picture of the, "... knowledge, experiences, values and feelings of the persons who are telling them. At the same time, they are also collective stories that are shaped by the addressees and the cultural, historical and institutional settings in which they occur" (Moen, 2008, p. 61). I have therefore, used each interviewee's own words as much as possible when describing each case study by using direct quotes. I selected what I consider to be key quotes from each interview transcript, and ordered them according to common events as defined by the aforementioned interview and open online questionnaire categories. These common investigative connection points tie different narratives together, making comparative analysis more straightforward. Full transcripts of each interview are available for the reader to interpret in Appendix 4.

7.3.1 University A

Details of case study – University A	
Education sector	University
Location	Illinois, USA
Program type	Academic professional development program
Discipline of participants	All disciplines taught at the university
Episodes used (10)	Welcome to Learning to Teach Online Why is online teaching important? Managing your time when teaching online Learning management system or the open web? Integrating online resources into your teaching Planning your online class Considerations for choosing technology for your teaching Online teamwork and collaboration Engaging and motivating students Online discussions in maths teacher education
How episodes are used in the program	Required viewing within each unit of the program, with related discussion
Number of students	Between three to 25 academic staff (each iteration)
Iterations per year	The program is run 25 times a year to cater for a high volume of academics
Intended iterations of using LTTO	Indefinite

Table 13. Details of case study – University A.

Overview / identity

This node of influence represents a Masters of Education. It is used as an associate faculty-training program within a large university and several associated community colleges in the USA (over 20 thousand student enrolments). The lecturer has 10 years experience with online learning both as a student and instructor.

The course is designed to prepare large numbers of academics from the university, or one of several associated community colleges, to teach fully online courses for the first time. Some participants have a range of existing experience with online teaching, whilst others are novices with no experience.

Discovery / dissemination

The lecturer discovered LTTO through an organic online search (results that appear based upon their relevance to the search and not because they are advertising),

“...I’ve been using them, I think, pretty much since they started coming out on here. And I believe I just found them doing an Internet search for teaching online, and it happened to show up in an Internet search”.

The lecturer was aware of the full range of LTTO episodes available,

“Yes, I have them up right now. I’m looking at all of them. When are you going to make more?”.

Video components of the chosen episodes were embedded directly into their program website, in support of different modules,

“...using the embed code on your site, so I get them from video Learning to Teach Online website and I copy and paste the embed code into Blackboard to embed them in there”.

The lecturer decided to share the LTTO artefacts with colleagues within their own network because of their perception of the quality of the resource,

“...one of my colleagues, she and I have just started working at this new university... I showed her these videos and told her that we need to include these in our new training program. And the reason I like to pass these along is because of the quality of them – of not only the content, but the way they’re created”.

Project practicalities

When asked about the best aspect of the design of the resources, the lecturer cited the length, conciseness and clarity of the videos,

“I think the length of the videos are a perfect length; they’re not half hour things that you have to sit through... Sometimes you find videos that are an hour long lectures, and that’s not what these are. They move quickly and keep your attention, and they’re concise, and they bring across – they get their point across, without rambling. It makes it really easy to listen to”.

They expanded their reasoning by discussing the high definition and production quality of the video itself, along with the flow of information being presented. Significantly, they mentioned that the included LTTO artefacts improved the perception of quality of their own courses,

“...that is one of the main reasons, other than the content itself, why I do use these so frequently is because of the quality. You’ve got some really good – it appears to be HD video – video format. Everything’s really clear. Everything, it seems, to be well scripted out. The flow is good; it’s just an overall exceptional quality on these and that makes your – you know, the courses that we design, that makes them look high quality, as well, if we use high quality materials”.

While the videos were highly regarded, the lecturer seemed to not include the PDF file from each LTTO episode as resources in their course alongside the video components – despite knowing they were there and believing them to be of relevance and value,

“I like the format of the videos because they would give a variety of perspectives from different people, throughout all of the videos. The PDF format – I like the PDFs that go with them. I have not used them as much as I would like to... the PDFs are – I really like the quality, and they do contain a lot of good information on them, and every time I go to the site to look for it, it’s like,

oh yeah, I need to get that PDF in there, too, and then I kind of forget to do it and just kind of stay with the videos”.

When asked about what could be improved about the resource, the lecturer noted that the connection between the video and PDF components of each episode was tenuous, and needed to be improved,

“I really can’t think of anything to improve these other than we need more of them, and then finding some way to connect the supplemental materials, the PDFs, in a different way”.

Pedagogical merit

The lecturer could not document LTTO’s impact upon students, as they did not follow up on students’ teaching practices after the course due to the large number of graduates. However they perceived that the resource added value to their course and thereby improved their students’ learning experience,

“Well, of course, with the current content of these videos, they add another layer of expertise into the online teaching of theories and practice. And so I’m sure it does make a difference. Like I told – like I said before, I think it really supports the techniques that I have felt are important in online teaching and learning...”.

Perceived relevance and value

The cross-disciplinary nature of LTTO was thought to hold value for the students, and was useful as a means of demonstrating and validating good practice through different examples,

“Yeah, sure, it’s always good to hear different perspectives, and different points of view on how instructors from different disciplines may be using the same tools, and some of the strategies, and they can relate cross-discipline, too... getting different perspectives, and to hear these things validated, and other experiences as they relate to other disciplines is always a good resource to have”.

The lecturer believed that the artefacts held multi-disciplinary relevance,

“...they are relevant to any online instructor teaching in any discipline. Online teaching is, of course, overarching to all disciplines; all disciplines that are taught online which, I would say, the majority of them are now. So, of course, it would be relevant to anybody teaching an online course”.

However, they did state that the relevance of the episodes was dependent upon whether they referred to specific technology, or overarching pedagogic principles,

“I think the general online teaching content I would imagine being useful for quite a few years still. Some of the more focused videos on some of the specific technology applications, and what not, those may not be as relevant for as long because, of course, as we have emerging technologies, you’ll

need more videos, and those videos that you have, may need to be updated. And so I think, for the most part, the general ones will last quite a while because of the content and the focus of them”.

When asked how long the lecturer intended to use the LTTO artefacts, their response was,

“I will use these for quite some time, especially if we get more of them. But, yeah, I plan to continue to use these for as long as I am teaching online instructors, which hopefully will be quite some time still... there are just some really good resources, and I always go there first when I am creating some kind of a new workshop or training to see if there’s a relevant video in there”.

Making meaning, adoption and contextualisation

The lecturer stated that they trusted the information in the LTTO artefacts, because it aligned with their own experience. They also felt the information was accurately representing effective pedagogy and practice as discussed in the literature, and by more experienced colleagues,

“Yes, I do trust it. A lot of it I have practiced myself, have discovered the research, and again, the experience that these instructors are sharing supports that those things are true, and especially with the case studies and what not. They do support that what everyone says is right, and true, and they agree”.

The speakers in the videos were perceived as being experts in their fields, with legitimate practical experience. The lecturer also reported feeling a sense of collegiality with the speakers in the videos,

“...the comments that come from the individuals in the video are – it appears that they are professionals in the field, that they have experience with the tools and the techniques that they’re dispensing. And that’s what we like to portray is, you know, sharing of experiences with colleagues, and it just kind of feels – it just kind of has that feel in these videos”.

The real value in the LTTO artefacts was perceived to come from this sense of connection and knowledge sharing from the educators represented,

“...there’s a tremendous value in these videos because of the experience of the opinions that are being presented and the information that’s being transferred from these individuals in the videos”.

While not having a direct impact upon the lecturer’s own online teaching practice, it is significant that they did feel that being exposed to the variety of expertise and opinion in LTTO gave them a feeling of confidence that their own practice was congruent with what was being discussed,

“I don’t think it changed the way I teach; it just validated the way I teach”.

7.3.2 University/High School B

Details of case study – University/High School B	
Education sector	Combined University and High School
Location	South East Asia
Program type	Postgraduate face-to-face elective
Discipline of participants	Software design
Episodes used (5)	Why is online teaching important? Engaging and motivating students Teaching with web 2.0 technologies: Twitter, wikis & blogs Using Flickr as an online classroom Online discussions in maths teacher education
How episodes are used in the program	Optional resources, plus 'Online discussions in maths teacher education' integrated into an assignment
Number of students	19 students in total from a Master of Computer Science, Master of Information Technology, and Master of Education programs
Iterations per year	One
Intended iterations of using LTTO	Indefinite

Table 14. Details of case study – University/High School B.

Overview / identity

This node of influence represents an elective unit, within a Master of Information Technology, offered by a medium sized University/High School in South East Asia (over 13 thousand student enrolments). The lecturer for this course is experienced in online delivery both in educational and professional contexts. As well as teaching the university part time, they work as a Learning Technology Officer and eLearning Developer for an external company.

The course focuses on instructional design methodology, with students asked to produce a self-paced online learning module, both from learning design and technical implementation perspectives. Most students in the course reported that they were not familiar with online learning design, or experiencing online learning themselves. In addition, most of the students undertaking the course are not studying education.

Discovery / dissemination

The lecturer in this instance found the LTTO resource through an organic web search,

“Oh, I think, when I was building the course – the program outline, I was basically also researching what online resources I could possibly use to supplement the different discussions that I was planning to have. So I was, I think, mostly browsing both on YouTube and on the Internet. I think I found your website first”.

It was noted that a particular disadvantage to discovering a video on YouTube was that it was not

apparent that it was part of the larger LTTO collection. However, they were able to find the main LTTO website as reflected in the previous quote,

“...in YouTube, I guess it’s not that obvious because we just chanced upon the video there. It doesn’t necessarily immediately lead you to the rest of the 32”.

An interesting point to note, was that in this case, as well as using the artefacts within the university course, the lecturer also shared the resource with colleagues within her professional network outside of the university, thereby further extending the reach of the artefacts,

“...I’m already in my profession of a Learning Technology Officer in a local company here, so we’re actually thinking of creating our own internal e-learning program for instructional design, probably having resources in e-learning as well, so I did mention to my immediate superior before that I did find these interesting set videos that we could possibly use as part of the program...”.

Project practicalities

The lecturer indicated that production quality of the video components of the episodes was noticeably better than other online videos about online learning and teaching they had seen,

“For the video, I found it very well made. I mean, I wasn’t really expecting that the production quality would be that high given that these were mostly just reference videos. Because if you look at YouTube, not everything, or most of those kind of videos are not very well made, especially if they’re coming from very passionate teachers tackling elearning”.

This perceived difference in quality strongly influenced the decision to use the videos in the course, especially when compared to similar resources that were available,

“...when I started watching the videos, I saw that the quality was really – I mean high compared to the other resources that I was evaluating. So I definitely – that definitely helped my decision to use the videos into the program that I was teaching at that time”.

In addition, the length of the videos were seen as a positive attribute, and in line with the lecturer’s expectations of the duration of online learning videos,

“...the videos themselves were quite short, so it’s easy to watch and get all of the inputs immediately, as opposed to maybe a video that was longer. In my experience of taking online courses like this, it’s usually commonplace that the video resources that you put online shouldn’t be longer than maybe 10 minutes because you don’t want to bore or overexert... the learners...”.

When asked what the best aspect of the design of the LTTO artefacts was, the lecturer referred to the narrative within the videos, constructed by cutting between several speakers addressing the same topic

in one video,

“I guess I was not very sure if the way that it was produced – I mean, in the way that you were interviewing these people if they ever like planned out what they wanted to say first, or whether it was spontaneous. I didn’t really have a good sense of that, but I think I really appreciated the fact that when they start their discussions, they usually have a very, very coherent flow. I didn’t see, at any point, that they were sort of digressing from the topic that they needed to cover”.

Of note however, was the fact that in this instance, the PDF components of each episode were not used, reflecting the findings of the open online questionnaire discussed in Chapter 4. The lecturer rationalised their decision based upon the fact that they wanted the students to interact with the artefacts as an optional resource (with the exception of one video being used in a case study analysis activity). They did however see the PDFs as adding value to the videos if the episodes were more closely tied to assessment,

“Regarding the PDF, I found that quite comprehensive, but in my particular class, I decided not to use PDFs and just focus on the videos, so that the students would really have to go through the process of extracting the learning from what they were listening to. But I did find the PDF quite comprehensive. Maybe if the intent for using those videos was more to really pose them as a stand-alone resource and they would need to really study it and then go through an assessment afterwards, the combination of the two would be very, very helpful”.

Pedagogical merit

The lecturer reflected that the LTTO episodes did not directly inform how the course was structured. Rather, episodes were chosen because they aligned with the lecturer’s own curriculum design, and because the knowledge within them was tested and validated in the context of this curriculum and the lecturer’s existing knowledge,

“When I was reviewing my program outline, I already listed on key learning points that I wanted to emphasise on all of the program parts. What I did, when I found your website, I pretty much started looking at the titles first to see which ones, off the bat, would fit any of the objectives I listed down. When I shortlisted the ones that I was really interested in, I took time to watch them and validate if they really were appropriate for the purpose that I had in mind for them. So when I – they pretty much hit the mark, anyway, so the decision on whether to use them came very easy”.

The lecturer observed that the videos helped students to build awareness of, and confidence in, different online teaching practices,

“When I had them go through these videos I think, to some degree, it removed some of the doubts that they had about what it would really be like or would it be really easy implement

teaching online. So I guess I could also see in the comments that they left behind after watching the videos, that they could really see the potential of leveraging online technologies for teaching”.

In addition it was thought that the LTTO artefacts had a direct impact upon the quality of the student submissions for the online learning module design assignment,

“I think the videos helped because at least they were able to get a sense of what other possibilities they could use when they went on designing their e-learning courses. So I guess it would have been harder for them to come up with whatever projects they submitted had they not been able to get additional feedback from the resources that I used from you. Because I guess most of them, with not much experience, would just stick to whatever they already knew, as opposed to trying to look outside and get more ideas from other people”.

Perceived relevance and value

The lecturer believed that the LTTO episodes would be applicable to a variety of disciplines, particularly in their own context of working in both academic and industry sectors,

“Well, I think they would. Although I haven’t really watched all of the other videos that you have, I have the chance when we do more in depth review for the instructional design course that we plan to develop. I think – well, I noticed that most of the teachers were from the academia, but I think in terms of principle, how you teach in the academia is not much different from how you teach in the corporate setting. So I don’t think there would be a problem applying whatever things that these university teachers were sharing to the corporate setup”.

In terms of the lifecycle of the artefacts, the lecturer identified that episodes that focused on specific technologies would lose relevance over time and would need to be replaced, but those focusing on principles would have a longer useful lifecycle – reflecting the reasons that a modular design was adopted for LTTO,

“Maybe if there comes a time, let’s say, some of the social media sites that were mentioned like maybe Twitter, Facebook, or maybe even Flickr, if these sites sort of lose their popularity, then maybe the videos that were citing how to use these technologies in teaching might have to be updated. But for the others, like the ones citing maybe forums, chats, etc., all of these communication tools that have been on the web for a pretty long time, I don’t see how they would be obsolete fairly quickly”.

When asked how long the lecturer intended to use the LTTO artefacts, their response was,

“...if we also find other videos in your collection that would be good also integrating to our instructional design program. That one would pretty much be mainstay for our office training

curriculum, so I think I'll be using them for quite a while".

Making meaning, adoption and contextualisation

The lecturer indicated that the fact that many of the speakers in the episodes were from Australian universities, generated significant trust in the quality of the information being communicated,

"...I actually looked at who the speakers were, and when I saw that they were teachers from institutions, universities, schools in Australia, I was like okay, this should be pretty credible because Australia, as we know, is one of our first world countries and education there is very, very good. Even my sister left our country to take her masters in your country, so I guess I really have that high regard for education there. So when I saw that all of these teachers were coming from different schools there, I was quite confident that whatever things that they would share, would really be useful".

This trust was deepened by the fact the lecturer felt that the speakers in the videos were authentic, and shared information based upon personal experience,

"When I was listening to the speakers in the videos, it felt like having practitioners or trainers share their experience... it felt quite natural to be listening to them, and it also gives that sense of credibility in terms of whether the tips and the suggestions that they were giving were actually practical because you could really feel that they were talking from some point of experience".

This sense of trust and credibility generated by the artefacts seemed to have increased the impact of LTTO within this institution. The lecturer discussed that LTTO highlighted how limited online teaching practices were at the institution,

"Our teachers usually just use the learning management system to serve like a repository for all materials that they would use for the face-to-face sessions, but never really – it's very seldom for these teachers to use online in terms of being able to supplement what happens in the classroom or even extend the learning experience beyond the classroom".

The trust and empathy the lecturer shared with the speakers in the LTTO episodes, seemed to not only motivate them to integrate this new knowledge into the course curriculum, but to also re-assess their own teaching practice, and to implement some of the strategies discussed in the way that they taught the course,

"I could find myself relating to all of the things that they were sharing. When I was reviewing the videos at that point in time, I was also trying to think of how I could sort of use online to supplement our class discussion. So when some of the videos mentioned that you can hold online discussions, etc., etc., I tried to integrate those ideas into how my class would be delivered for that semester".

7.3.3 University C

Details of case study – University C	
Education sector	University / Learning and Teaching unit
Location	Regional Australia
Program type	Graduate Certificate in Tertiary Education
Discipline of participants	All disciplines taught at the university
Episodes used (6)	Welcome to Learning to Teach Online Why is online teaching important? Conducting effective online discussions Integrating online resources into your teaching Using audio feedback Recording audio in Audacity
How episodes are used in the program	Used as basis for discussions and activities
Number of participants	Approximately 180 participants in first 12 months of the program
Iterations per year	One
Intended iterations of using LTTO	Dependent upon their relevance

Table 15. Details of case study – University C.

Overview / identity

This node of influence represents a Graduate Certificate in Tertiary Education, offered by a learning and teaching unit at a large university in regional Australia (over 23 thousand student enrolments). The lecturer's background is in education, and they have had several years of experience running professional development programs at two different universities.

The program is designed to build capability in academic staff around learning and teaching practice, to help them develop curricula, and deal with contemporary issues in tertiary education. Participants comprise academic staff (often international) with relatively limited online teaching experience, from both the university and partner vocational education provider institutions across three different cities.

Discovery / dissemination

In this instance, the lecturer did not initially discover LTTO through an online dissemination channel. Rather, information about the project was passed on through an existing face-to-face professional network related to the project funding body, the ALTC. In addition, it was discovered at this point that the lecturer personally knew one of the LTTO interviewees who appears in several episodes. This is a significant example of knowledge of LTTO also travelling through lines of flight between existing non-digital networks, something the data visualisation in this thesis was unable to capture,

“I guess I heard about it because really of my role – I’m really active in learning and teaching circles. I attend the [...] meetings. [...] is the [...]. So that’s sort of a group of us that regularly meet, and because we have close links with the Australian Learning and Teaching Council... So I

became very aware of all of these wonderful resources that were being developed, and projects that were being undertaken, as a result of the Australian Learning and Teaching Council grants... Plus, I had a bit of exposure to [...] because he was also on some of the projects I was on. And I'm sure that – well, I can't remember a specific time, but I'm sure that through [...], I became aware of the project, as well".

While the lecturer did not specifically share the LTTO resource with others in their network, they did indicate that word of mouth amongst the participants undertaking the program could have had an impact upon whether knowledge of LTTO was shared amongst the participants' own networks,

"I haven't directly... I suppose if I stopped and thought about it, I would have realized this would have happened, but – and the ripple effect of the 100 or so people that are doing the graduate certificate, is quite impressive, really, because they ask staff that are working in schools and departments across the university and partner provider staff. And what I'm finding is that a number of them are going back and are saying, 'Oh, guess what I just learned in the grad cert,' or 'Guess what we just did'".

The lecturer seemed unable to recall the online dissemination point through which they accessed the LTTO artefacts. This is interesting because it demonstrates that the lecturer was aware that the resources were available from several different sources online (and were perhaps accessed from different places). This also could indicate that where artefacts were sourced was not of primary concern,

"I accessed it by going into the ALTC – no, I think I just typed in Learned – gee, I think Learning to Teach Online. Maybe I went through your university site... it probably varied depending on what mood I was in and where I was. But I think I just typed in Learn to Teach Online website, or something like that".

Project practicalities

The conversational, collegial tone of the videos was seen as a positive,

"I found it accessible and useful. I mean, I liked – let me say something about the videos that I liked were that they didn't look terribly scripted and that they were, what I would consider, sort of fairly conversational, and I liked that. And I think the participants liked that, too. They weren't highly structured – highly pretentious. They were just people chatting about their work and how they use these tools".

The videos were seen as the best feature of the design,

"Perhaps the videos – access to the videos".

When asked what could be improved about the project, the lecturer noted that there was potential to keep adding relevant content to keep the site up to date with emerging practice,

“...there’s a potential to keep updating it and keeping it a live site”.

Pedagogical merit

The presentation of different points of view around a range of topics in the videos, was seen as a valuable way to spark further discussion about key concepts amongst participants in the program,

“I think what attracted me was the breadth of information. The fact that you would look at the videos, and someone would give you that idea, and then someone would have – not necessarily contradictory ideas, but a different take on it. And I just found they were terrific as starting points for discussion. That’s how I used them and that’s what I found valuable”.

The lecturer perceived the artefacts as having a positive impact upon the participants’ learning,

“...in terms of an understanding about what it means to teach online, I think it’s widened their view and ideas on that, and then also given them lots of ideas of things to try”.

In addition, the video and PDF format of the episodes was seen as a positive means of offering participants options of engaging with the knowledge in ways that were meaningful to them. However, it was also noted that there was not a pedagogy inherent in the resources themselves, but in how they were used in their new context,

“...I think the fact that you presented in several formats did acknowledge that people have different learning styles. Some people work better by listening to a video and then responding; others like to read an opinion piece, or an article, or read about – they like the text idea and, I guess to some extent, the pedagogy came to it in terms of how I used it”.

Perceived relevance and value

When asked if they thought it was valuable to hear the opinions of LTTO speakers from outside of their immediate discipline, the lecturer responded positively,

“Yes, it always is... it’s interesting for the staff to actually hear people from other professions talking about how they might utilize, whether it is about online learning, or if it’s about assessment... whatever it might be, is always incredibly enlightening for people from other disciplines to hear the views and perspectives of people from another discipline. Knowing we often have quite heated debates when we get people who’ve got a little background talking to, say, the physicists, or the arts and the lawyers, etc. So I think that it really is valuable that we hear from the voices of a range of discipline areas”.

The lecturer thought that the LTTO project brought value to their program because it collated a range of different opinions and information in one easy to access website, along with the juxtaposition of opinion from perceived leaders in the field of online education,

“One of the key things, as it’s brought together a whole lot of information in a real accessible site, and compared to when I studied, you had to go to several reference books and journal articles, etc., to get all of your information. Now, with the busy staff – my way of thinking, it’s marvelous for them to be able to go to a particular site and get such a range of information, diverse ideas, strategies there on the site. To me, that’s one of the benefits. It’s also that it does cover a range of ideas and it has a lot of different people, who are the sort of leaders in this area, giving ideas, and giving their opinions, and challenging people to think how they might improve and be more effective in their online teachings. So I think that’s a great thing, as well”.

In terms of the lifecycle of the artefacts, the lecturer highlighted that this would be dependent upon whether the resource would be updated to be inclusive of emerging practice,

“I hope that it will be able to be maintained and be a living site that has a future, but it will depend, on some extent, on being able to keep up with the contemporary discussion around online teaching”.

Making meaning, adoption and contextualisation

One reason LTTO was chosen to be incorporated into the program, was because of the trust the lecturer had in the ALTC (with whom they had existing connections) and the quality of the projects it funds,

“Well, as I was designing these modules, as I said, usually going to the ALTC projects was my starting point. So I would look to see who has got a project that we can sort of draw upon that would help inform the discussion”.

In addition, they drew upon their existing experience as an online educator to assess and validate the information being conveyed in the episodes,

“I’m pretty experienced... but to be quite frank, it doesn’t take me long to just sort of look and say, ‘Nope, not relevant. Yes, that’s great. It will be terrific; I can work with that’”.

The LTTO episodes were a starting point for the design of several learning activities in the lecturer’s program, becoming central to the knowledge building process for participants,

“I looked through the site quite extensively, and then designed a series of probably about six or seven activities that had a lot of flexibility in them that encouraged them to go to that site and to browse it and to do specific tasks”.

However, the interviewee highlighted that the fact that the LTTO episodes were integrated into existing knowledge construction processes, adding a layer of discipline specific meaning to artefacts, for those encountering them in the context of the program,

“...I’m very grateful that we found this resource and that we’ve been able to, sort of, build a module around it or using the resource and the ideas from it. I think that one of the strengths of what we do is then how do – how we use that resource for further discussion, and activities, and okay, what does this mean for your practice? And so far, it seems to be working really well”.

Significantly, the lecturer indicated that exposure to the LTTO artefacts improved their own online teaching practice by validating effective strategies they were employing, challenging established beliefs, and offering them new ideas to try,

“I actually do, yes, it has impacted upon me, of course, because I’m learning all of the time. I’m – and I’m using this example with you a couple of times, but when I first went to the site, the thing that jumped out at me was the importance of maintaining an online presence when you’re teaching – teacher presence when you’re teaching online... And I thought yes, yes, that’s right, and yet I hadn’t really – if you’d have asked before, I don’t think I would have come up with that as a reason why, or as an important element in effective engagement... Every time I, sort of, look at things, it either confirms what I’d, sort of, been thinking, or it challenges what I was thinking, or it gives me some new ways and ideas of thinking. I’m sure that looking through the various materials and videos, etc., also helped inform the sort of questions that I actually wanted to ask”.

7.3.4 Private Consultants D

Details of case study – Private Consultants D	
Education sector	Private consultancy
Location	Spain
Program type	Training program
Discipline	English as a second language (ESL)
Episodes used (6)	Conducting effective online discussions Managing your time when teaching online Planning your online class Considerations for choosing technology for teaching Engaging and motivating students Teaching with Web 2.0 technologies: Twitter, wikis and blogs
How episodes are used in the program	As an optional resource to introduce different concepts
Number of students:	12-15 students per iteration
Iterations per year	Five per year
Intended iterations of using LTTO	As long as the program runs

Table 16. Details of case study – Private Consultants D.

Overview / identity

This node of influence represents a unit offered by a private educational consultancy in Spain.

The coordinator of this program has over 15 years of online teaching experience.

The program runs for four weeks, and aims to help participants, who are already skilled face-to-face teachers, become effective online teachers or facilitators. The content is specifically focused on the development of practical online teaching skills. Between 90-95% of participants have never taught online previously.

Discovery / dissemination

LTTO was in this instance discovered by the program coordinator through their participation in an existing online community of practice,

“I’m pretty sure it was by one of my online networks and the chances are that it was either through an online Yahoo group called [...]... The other possibility is that I read a tweet somewhere but I really can’t remember. It was definitely through either the Yahoo group or through Twitter”.

After this discovery, the coordinator continued to share the resource amongst others via different social media accounts,

“Yes. Yes, yes, I have. I mean — especially I think it’s a really nice resource, so I’ve done my own personal blog, but it’s not directly linked to our company... I’m pretty sure we’ve tweeted about it as well. Probably a couple of times, yeah, and I think probably on Facebook.”

In addition, they felt that participants who complete the training program would also be likely to share the LTTO artefacts in their own local teaching networks,

“I think some of the people who do courses with us, though, they’re practicing teachers. They then go on and set up teacher training programs in their institutions. And if they’re running online programs, it’s likely that they would have passed the word along because it is a nice resource”.

Despite sharing the LTTO websites that were encountered widely throughout different professional networks, the program coordinator was not confident that they were aware of the entire range of LTTO episodes available,

“I kind of was. I think the first time I found it I looked at the stuff that would be more connected to our programs...”.

Project practicalities

The production quality of the episodes, and the video format were perceived favourably by the program coordinator,

“I think they’re good; they’re good quality... I particularly like the fact that it’s a – the multi-media format, I think, is particularly effective – provides variety...”

This positive initial impression was a factor in the coordinator deciding to spend time investigating the resource further. The decision to use them came from the ability of the coordinator to analyse the relevance of the artefacts in relation to the structure and goals of the existing curriculum,

“I went along and had a look at them, and I immediately liked them. And I immediately thought how can we integrate this into the one course that this is specifically relevant to? So I just watched them. And I already know what our course looks like, what the syllabus looks like, and what we’re doing – all the tasks, and I just found somewhere to slot them into an already operational course”.

The coordinator specifically referred to the editorial style of the video components as being of benefit,

“I really like the way it’s filmed... because you have, whatever it is, your five or six academics talking about online learning. But rather than having them one after the other, you’ve got the cuts. You have sound bites from each and then again from each – it’s extremely engaging and nicely put together”.

When asked about the best design feature of the artefacts, the coordinator referred to the fact that the editing of the videos helped to present the information in a way that was engaging and more easily digested,

“...manageable chunks rather than long monologues, which is always a turnoff. The speakers themselves were quite engaging, I thought. They speak just face to camera, which I like as well, I think rather than zooming around the rooms and focusing on other stuff, which can be distracting...”

The episodic format, and the flexibility of educators being able to choose relevant content to embed into existing online curricula was viewed as positive,

“...I like the fact that people like myself, and other organisations who run online training, they can just pick and choose and put things in, if they want to, in their own way as we do in a very minor way”.

In addition, the coordinator felt that the collegial, pragmatic tone of the videos supported the ethos of their own program,

“...it’s a very informal tone and that certainly does fit in with the way we run our program... as I’ve said, its practice based”.

As found in some other case studies, the coordinator was not aware of the PDF components of the

episodes. When asked about the PDFs, they quickly turning the topic back to describing their impression of the video components,

“Well, I have to admit I didn’t even know about the PDF format. I didn’t notice it. I think the videos are great, yeah, they’re well put together; they’re professionally produced. Yes, I think that they’re good; they’re excellent”.

Pedagogical merit

The coordinator discussed how the practical information being shared, along with the authenticity and sense of collegiality of the speakers in the videos greatly enhanced the validity of the resource,

“It’s kind of a discussion-based group; a kind of flat hierarchy type thing. The teachers are all colleagues in there together. And it’s based on experience, and on practice, and you can tell that with the tone of the resource. I mean, you haven’t got actors doing this; you’ve got people who know about online learning and that also — the credibility is high”.

They thought that their participants could relate to the artefacts because the information within them was presented in a manner that was familiar to those within western education. However, the coordinator raised the point that other cultures where education is approached differently may have more difficulty relating,

“Yes, because it fits in with the kind of educational paradigm that we teach within western education, especially language education and, obviously, your style of education at the university. So for us it’s not a problem. I always try and think what would it be like for a lecturer in China to take onboard all of that? I don’t know the cultural — the educational culture is so different in some places that maybe it wouldn’t be”.

The coordinator was unsure of whether the artefacts did have a direct impact on the participants’ own practice given that they were not a central part of the program,

“I think they could do — I’m not sure whether our course makes the most of the resources, in a way. As I’ve told you, it’s only used as a kind of little icebreaker...”.

While not being able to measure any impact upon the participants’ teaching practices, the coordinator’s view was that the LTTO artefacts would be useful to inexperienced teachers,

“I think if I was completely new to online learning, yes, I think it would have helped a lot”.

The coordinator was careful to point out when asked about the pedagogical merit of the artefacts, that pedagogy is not inherent in the resources themselves but how they are put into practice. They inferred that the resources had to be adopted into the existing models of knowledge construction to make any change,

“...it’s a resource, and going to a resource doesn’t translate automatically into learning unless there’s some kind of application to practice, at some point, along the line”.

Perceived relevance and value

The coordinator found value in that LTTO represented opinion of a country that they perceive as having a good reputation in online learning. They felt that inclusion of the artefacts brought with it a sense of international validation of their own practice and approaches,

“Australia also has quite a good reputation in online learning and has had for decades... So although we’re based in Europe, and a lot of our teachers are based in Europe, we can point to other parts of the world where people know their stuff. So it’s brought that kind of international – what would I call it? What’s the word? Oh, I can’t think of the word in English. It’s like – validity is the word I’m thinking of. You know what I mean? Another perspective from another part of the world that backs up what we’re saying”.

The interviewee gave a positive response when asked whether hearing the opinion of others from different disciplines was relevant and valuable to their own discipline,

“Yep, yep, definitely. It’s reaffirming and it’s showing me that you’re on the right track and that these things are applicable across multiple context, so yes”.

The coordinator also felt that the content of the LTTO episodes was comprehensive enough to form the basis of a curriculum,

“We could – I think you could design a whole course around those videos easily”.

It was felt that the LTTO artefacts would have a long lifecycle, and would hold their relevance for some time,

“I think as long as formal online education is taking place in VLEs, in virtual learning environments, I think it has a place... I think they’re a good solid resource so, yeah, fairly long shelf life”.

Making meaning, adoption and contextualisation

LTTO artefacts were used as a way to introduce or support topics covered within the program curriculum, and were not used as part of any assessable tasks in the training program,

“...it’s used really as a lead-in. As kind of a thinking point, and then we move into something more practical; more based on reality. Not that yours are not based on reality but you know what I mean”.

The final comment in the above quote is interesting, as the coordinator refers to LTTO not being based in reality. The teachers participating in this program are working in English as a second language courses, and the examples shown in the LTTO are based in a wide range of disciplines within a university context. This comment may refer to the participants in this program watching LTTO artefacts to explore concepts, and then having to undertake more structured activities in order to relate the concepts to the type of teaching they actually do in their workplace, although I cannot be certain of this from what was said.

Despite this possible situation however, the coordinator indicated that they trusted the information being presented, because it aligned with their own extensive experience in the area,

“Yeah, I think because of the source, it comes from a university, and also the people talking in the video clearly know what they’re talking about. So for me, as the course director, or at least the course designer, as well, in this case, because I already have probably 15 years of online teaching experience. When I heard the videos, immediately there was a rapport. I knew that these people knew what they were talking about. So, yes, the two elements: the fact that they do know what they’re talking about and the fact it comes from a university, yeah”.

The coordinator was asked whether LTTO had impacted their practice in any way. While they said that the resource did not offer any new ideas to someone of their experience, it did validate that they were effective in their own online teaching,

“Not personally, although, I couldn’t speak for the students on our courses. As I said for me, it was more — because I’ve been teaching online for a long time, it was a matter of hearing stuff that I thought okay, great, other people think that. It was more of a — yeah, recognition of having done things — to best practice”.

7.3.5 Private Higher and Vocational Education Institution E

Details of case study — Private Higher and Vocational Education Institution E	
Education sector	Private higher education and vocational education
Location	Sydney, Australia
Program type	Professional development (three programs)
Discipline	All disciplines taught across the institution
Episodes used	Unknown — data indicates high number of references to LTTO website suggesting direct links to episodes
How episodes are used in the program	Optional resources plus as the basis of discussion and activities
Number of students	Undetermined
Iterations per year	Two to three per year for each program
Intended iterations of using LTTO	Three years

Table 17. Details of case study — Private Higher and Vocational Education Institution E.

Overview / identity

This node of influence represents a large private higher and vocational education institution, comprising many different colleges that focus on a range of professional and vocational disciplines. LTTO artefacts are primarily used within three online professional development programs. These comprise a 12-week blended program, providing professional development for online teaching to all teaching staff in all fully online courses offered by the company across a wide range of disciplines; an online academic orientation program for new teaching staff; and a six-week tertiary teaching professional development program, focusing on developing blended learning teaching skills for all teaching staff. The designer and lecturer for these programs is experienced in professional development of educators, having many years experience in both teaching and helping build technological capability in teaching staff.

Participants in these programs are all teaching staff for Private Higher and Vocational Education Institution E, teaching a wide range of different disciplinary based courses at higher education and vocational levels. Participants have a range of existing online teaching experience. LTTO artefacts were used as both central resources for discussions and exploration of key concepts, and as optional supporting resources.

Discovery / dissemination

In this instance, it was revealed that LTTO was not discovered online. The Chair of the working party developing the professional development programs for the institution, knew of LTTO from an existing professional connection to the ALTC. They recommended that it be embedded within programs being developed,

“Actually it was from Professor [...], who was the Chair of the Working Party...”

The head of the programs had not shared knowledge of LTTO with anyone outside of their immediate professional network, but had shared it within the organisation,

“I have, internally, put the staff through these programs, and they are aware of it, and I’ve also reported back to our academic board on the use of the success of the programs and the use of the videos as part of that...”

Project practicalities

It was indicated that production quality had a significant impact upon the choice to use episodes in the programs. Each episode was scrutinised carefully, even for the appearance and behaviour of the speakers,

“I would not put anything on the site that wasn’t good because I wanted to model for the staff the standard of resources that I wanted them to either use or create themselves. So I would not put anything up there, and I’ve reviewed other resources, as well, that I didn’t think was giving an appropriate message to the staff about the standards they should be using. So there was

one video I saw, I forget which one it was now, where I thought oh that staff member looks very flushed, and was talking very loudly, and I thought hmm. So I thought twice about that one because I wondered if that was sending a, you know, different message”.

It was felt that the tone of the artefacts was collegial and appropriate for the programs in which they were used. Interestingly, the program head mentioned that the effect of watching the videos was that it felt like being part of a community of practice, which was reflective of the initial design intent,

“I liked the conversational nature of the resources. The fact that you had practitioners, who were experts in their field, reflecting on what they’ve done, and why they’ve done it, and sharing good things and bad things; there could have been a few more bad things because people often learn from what goes wrong, as well as, what goes right. But no, the overall tone was being part of a community of practice, so that was very good”.

When considering the best aspects of the design of the resource, the program head responded,

“Timing was good. You weren’t excessively long; no one’s going to watch anything longer than eight minutes, so that was important. The fact that you always identified the person who was talking; where they came from; that was important. You gave credibility to what was being talked about. The fact that you grouped, obviously, the respondents together when you were talking about – so the other thing was good; the compilation of putting people together to answer the same question was good”.

Initially, the PDF files were not noticed on the LTTO website and so were overlooked. However, the program head mentioned that they were able to find the PDFs after revision to the website design. This revision was undertaken as part of the LTTO team’s iterative design process based upon user feedback,

“Initially, I couldn’t see the PDFs. I don’t know if I was missing something, but they weren’t as visible, possibly in some of the earlier videos and – but I think now that they’re – you know they’re there, just underneath the video screen. But that first screen there, they’re very easy to use so the relocation or the increased prominence, or whatever you’ve done to it, has been effective because I now use them a lot more”.

When asked what could be improved about the project, the program head answered,

“...additional topics rather than improvements, per se, was the – the quality of the audio was good, the visuals were good, the links were good, the Power – the PDFs were good, so just more...”.

Pedagogical merit

Given the dispersed nature of the program participants across many different colleges, the interviewee

could not be sure whether the LTTO artefacts contributed directly to an improvement in online teaching practice, but program evaluations showed a favourable response to the resource,

“I mentioned before that we do the post survey... Lots of student comments on “I love learning from the videos; more videos, please.” They were the exact words. And then in the survey at the end – the post survey – the response was very strongly in favor of all of the videos and the support that they gave. Whether that’s improved their teaching practice, I can only hope so. I haven’t got the evidence for that, and I’m not really in a position to get that because I’m not in the colleges. I have to leave that to the online managers as it were”.

It was also felt that the participants could relate to the information being presented,

“...from my own perspective, I understood that they felt that they weren’t alone in how they were thinking about things because some of them are new, and they wanted to learn how to do something, and ahh yes, this is a nice gentle way to learn from someone. And I’m not alone because I’m learning this and everyone else is learning this as well”.

Perceived relevance and value

While seeing value in the artefacts, the program head felt that vocational education was greatly under-represented in the LTTO project (as discussed in Chapter 3, the funding body restricted the content represented in the project to higher education),

“...you’ve covered most disciplines, I think, in the videos. There wasn’t much VET stuff. I’d like a bit because I’m half VET and I think you’ve got a growth area in VET if you do something there”.

This limitation within the scope of the project prevented some episodes being used for different cohorts within the programs,

“I did evaluate – I did evaluate them because I thought, okay, I’m going to make sure that these are going to hit the spot, and some, because we were Applied Education, some I didn’t use because they were too university centered and I thought no, that’s going to put the staff off. So they had to have core teaching elements in them”.

The multi-disciplinary composition of LTTO speakers was thought to be of benefit given that the programs catered to many different cohorts,

“...it doesn’t matter to me because I’m all disciplines. So for my students, yes, I thought it was relevant because they got to get a quick insight into current issues other people were talking about and learn from; so that was the most relevant thing”.

The program head valued hearing opinions from outside of their own discipline, and felt that this

expanded their community of practice in a way likened to intellectual exchange at a conference,

“It was valuable. Reason why, it makes you feel as if you’re not alone, alright, that there are other people out there looking at the same issues, and deciding to do something one way, and then have a reason for that way, and you think yeah, I can do that. Or hang on, what about this? So it’s presenting ideas to make you think and you don’t get that — you get that at conferences, but quite often you don’t get to conferences all of the time. So this is a nice way to, sort of, be in a virtual conference”.

The program head discussed that using LTTO artefacts in the programs added value to the learning experience,

“It added the depth to the pedagogy, and added credibility to the discussions around why we do things, and moved away from the how and to the why. So that was very important to me”.

Making meaning, adoption and contextualisation

The program head’s trust in the artefacts was based upon their scrutiny of the LTTO speakers,

“...yes because of the credentials of the presenters, and because I’ve read their research papers... So it’s important that when I’m selecting it, I actually know who the person is and the research that they’ve done — is one of my selection criteria”.

In addition to scholarly rigour, it was important that LTTO fit within the new context in which it was being used, in terms of supporting the curriculum and the needs of the participants. As with other case studies explored, the program head drew upon their own experience and knowledge of their own context to determine the artefacts’ use. Interestingly this person also discussed the importance of the videos supporting underpinning educational theory,

“I knew my program because I was intimately designing it as we were going through looking at the videos. I eliminated the ones that I thought would not fit with my content and my staff, so focusing, really, on the most relevant ones that fit in with the program... I put myself into either a new lecturer, online lecturer’s shoes, or a beginning teacher’s shoes, and I thought okay, that’s a message there that was important that I didn’t know. So I had to imagine myself in these roles and to see whether they linked. Plus, I was using underpinning pedagogy of constructive alignment, deep-surface learning in the programs, scaffolding, and all those sorts of key theories, and I wanted to make sure that the videos didn’t negate those theories”.

Significantly, the interviewee said that while artefacts did not teach them new knowledge about online teaching, it did inspire them to change their own practice by adopting a delivery approach based upon the LTTO model,

“I’ve now made my own videos. Well, one video, I shouldn’t say videos. It’s only been one. But in preparation for – because we encourage as a benchmark for our online lecturers to have a work video for their students that I’ve got through – and so I thought I have to do it as well. And I thought that, right, modeling on the COFA ones, that’s what we’ll do. It was a lot shorter and a lot simpler but, yes, so I’ve drawn on some ideas from that and adopted them into the program”.

7.4 Cross-case analysis

The process of cross-case analysis (Mathison, 2005; Merriam 2009) is defined as comparing results across different case studies in which the, “...individual cases share a common characteristic or condition” (Stake, 2006, p. 5). I use this method of analysis as a means of identifying commonalities among, and any interesting differences between, the interviewees’ stories, to help reveal any relationships between specific aspects of LTTO’s design, and its appeal, adoption, and use in each instance. This process will also be used to determine whether the artefacts were actually able to disrupt existing practices, and improve knowledge construction about online learning and teaching for educators in these different contexts. Table 18 below summarises and compares key responses about the categories that were examined in each instance.

Case Study	7.3.1	7.3.2	7.3.3	7.3.4	7.3.5
Discovery/dissemination					
Discovery	Organic web search	Organic web search	Existing face-to-face professional network	Existing online professional network or Twitter	Existing face-to-face professional network
Originally aware of the total number of episodes	Yes	No	No	No	Yes
Shared artefacts (other than with program participants)	Colleagues in immediate network	Colleagues outside of immediate network	No	Colleagues outside of immediate network	Colleagues in immediate network
Project Practicalities					
Best aspect of design	Length of videos	Flow of narrative in videos	The accessibility of the videos	Narrative of videos and ability to embed them in existing programs	Length of videos, flow of narrative in videos
Production quality influenced decision to use artefacts	Yes	Yes	Unknown	Yes	Yes
Other observations of video components	Good length, conciseness and clarity of content, variety of perspectives	Good length	Conversational tone, breadth of topics	Juxtaposition of opinion valuable and engaging, tone of resource relevant. May not be as relevant to non-western cultures	Conversational tone, felt like being part of a community of practice
Initially aware of PDFs	Yes	Yes	Unknown	No	No
Used PDFs in program	No	No	Unknown	No	Yes

Suggested improvements	More content, improve connection between videos and PDFs	None	Keep content updated	None	More content
Pedagogical merit					
Assessment of artefacts prior to inclusion	Yes, based upon own experience and curriculum	Yes, based upon own experience and curriculum	Yes, based upon own experience and curriculum	Yes, based upon own experience and curriculum	Yes, based upon own experience and curriculum, research of speaker publications, existing theory
Perception of added value to program	Yes, increased quality of program, supported important online teaching techniques	Yes	Yes, became centre for design of modules, brought variety of information together in one place	Yes	Yes, added depth to pedagogy, credibility to discussions, focused not on how to teach online but why
Perception of value to students	Added more expertise to support theory and practice	Removed doubt about online teaching, gave confidence to try something new, improved assignment outcomes	Widened perception of online teaching and gave them things to try	Helped those with little experience	Able to be related to content and provided confidence
Other comments about pedagogy			Pedagogy not in artefacts but in how they are used in context	Pedagogy not in artefacts but in how they are applied in practice	
Perceived relevance and value					
Different disciplinary views valued	Yes	Yes	Yes	Yes	Yes, but vocational education under-represented
Different disciplinary viewpoints relevant to own discipline	Yes	Yes	Yes	Yes	Yes
Perceived lifecycle	Long for principle related episodes / shorter for tech related episodes	Long for principle related episodes / shorter for tech related episodes	Depends upon how often content is updated	Long	Three years
Making meaning, adoption and contextualisation					
Artefacts trustworthy and credible	Yes, speakers are experts in their field, aligned with current literature, felt a sense of collegiality with speakers	Yes, speakers from university and authentic, Australia has good reputation in online learning	Yes, recommendation came from existing network	Yes, speakers from university and authentic, information accurate, Australia has good reputation in online learning	Yes, speakers from university and authentic, information accurate, aligned to current theory
Validated existing practice	Yes	Highlighted limited institutional practice	Yes	Yes	Yes
Positively changed teaching practice of rhizomic agent	No	Yes, developed online discussions	Yes, improved online presence and questioned existing practice	No	Yes, developed online videos to deliver information

Table 18. Cross-case analysis of interview data from case studies.

Findings summary

It is immediately apparent that, despite the differences between the case studies in terms of discipline, program type, LTTO artefacts used, and educational context, the replies from each interviewee were remarkably similar. There were no significant anomalies between the responses, and across all cases, the interviewees' answers for each category of the questions were, on the whole, variations on the same theme.

Discovery / dissemination

LTTO artefacts were discovered via organic web searches for online teaching strategies (in two cases); or via an introduction by a member of an existing online or face-to-face network (in three cases). This evidences that the LTTO rhizomic network was spreading artefacts in two distinct ways. This is significant in that introductions came both from online networks where no one belonged to a common network (Type 2 RNA encounters), and existing face-to-face networks outside of the interviewees' immediate institutional context (Type 1 RNA encounters). Refer to Chapter 6 to revisit RNA encounter definitions in Steinberg's (2008) model of knowledge dynamics. The fact that LTTO was shared within face-to-face networks shows that it had already begun to facilitate Type 3 RNA encounters, where 'rhizomically introduced' outside information was being discussed and renegotiated within existing contexts.

In most cases the people running the programs examined in this chapter were not aware of the full range of LTTO episodes available, perhaps because they found artefacts outside of the original context of the LTTO website. However, this did not seem to have an adverse affect upon their positive perception. In fact, this could be seen as a measure of LTTO's success. That those interviewed saw the artefacts as valuable and relevant to their own contexts, despite only seeing a small fraction of the full suite of episodes in most cases, suggests that the episodes could stand alone and still have a positive influence. This also speaks to the success of the modular, episodic design of LTTO that enabled people to share specific episodes of interest within a range of different networks to such a wide degree.

In all cases except one, the rhizomic agents shared LTTO with others inside their immediate professional networks, or people in other networks they were associated with (not counting students or participants in the programs themselves). This is evidence of the ongoing growth and influence of the rhizome — facilitating continued dissemination deeper into existing and related networks from the point of initial penetration.

Project practicalities

Interviewees felt that the best aspect of LTTO's design was the video components of the episodes. Opinion varied about the best feature of the videos, including appropriate length (two cases), the narrative constructed through juxtapositional editing of varying opinions (two cases), the easy accessibility of the videos (one case), and the ability to embed them into existing programs (one case). Interestingly, all educators at some time in their interview spoke positively about the length of the videos

in relation to their students' engagement with them. These sentiments directly align to the stories told by individual users of the artefacts as revealed by the qualitative data from the open online questionnaire as examined in Chapter 4. In addition, this also aligns to the opinion of those academics involved in the pilot testing of the episodes during the iterative design process as described in Chapter 3.

Of significance was that across all case studies, the production quality of the episodes (visual and editorial) was seen as being an important factor in the artefacts being chosen to represent the institutions in their programs.

Equally significant, was the fact that the PDF components of the episodes were often overlooked or became disconnected from the videos. Only in two of the five cases were academics initially aware of the documents existence. This could have been due to a design flaw and the inability to control the distribution of two components equally through social media. Only one case study used the PDF documents as part of their program, and ironically in this instance, they were initially unaware of their existence until the website design was revised – indicating they continually returned to the LTTO website. This reinforces the earlier identification of this weakness in LTTO's design as first hinted at in the analysis of data from Chapter 4.

Interestingly, in the two cases where academics were initially aware of the PDFs, both chose not to use them in their programs. In these cases (as in all cases), the academics spoke highly of the production quality of the videos, and how their content was relevant and added value to their own programs, and to the learning of their students. It could be surmised from this consensus that the video format was perceived as being a more significant contribution to the educators' curricula.

The most common suggestion for improvement to the resource was to expand the content and keep it up to date as time and online teaching practices moved on in the future. The original design adopted a modular format for this very reason, an appropriate decision based upon this user feedback.

Pedagogical merit

In all cases, the educator responsible for the educational or professional development program reviewed the LTTO artefacts they found before using them, using their own knowledge, experience, and understanding of their curriculum and the specific needs of their learners. This is a clear illustration of a Type 3 RNA encounter; in which there is novelty, disruption, and testing of legitimacy by renegotiation of meaning between rhizomic knowledge (new knowledge introduced rhizomic connections), and existing knowledge construction processes.

Educators in all cases believed that LTTO artefacts added value to their own program, citing improved quality, credibility, and depth of pedagogic knowledge. In all cases the authenticity or credibility of the speakers in the videos was mentioned as an important factor in achieving this; with one interviewee stating that the videos gave the impression of an extended community of practice as would be

experienced at a conference. This comment about an extended community of practice is worthy of note given that one of the initial aims of LTTO was to extend the concept and reach of the original fellowship community to other geographically dispersed educators. This sentiment from the educator supports the notion that the collegial, pragmatic and relatable tone adopted in the design was effective to some extent in communicating the ethos of an inclusive community of practice.

Importantly the perception was that LTTO also improved the learning experience of the rhizomic agents' students; providing relatable expertise, building confidence, and exposing them to new ideas they might try for themselves. As this was the driving aim of the LTTO project, it was gratifying to see it validated here. However it must also be noted that no data were collected on any aspect of change in student performance as part of this study, so these comments must not be regarded hard data.

One important point raised in two of the cases was that they felt there was no inherent pedagogy in the resources themselves – rather they felt the act of integrating the resources with their existing curriculum with the intent of achieving a certain aim. In essence these interviewees felt that the artefacts only took on a meaning when synthesised into existing knowledge construction practices in each context. This, once again, is a direct exemplification of Steinberg's Type 3 RNA encounter. Any change is sustainable because new knowledge has been adapted into existing professional development or educational contexts, and will be passed on to successive generations as an inherent part of normal knowledge practices within the network. This in essence disrupts normalised Type 1 RNA encounters between members of the network where established practices are dominant in knowledge construction, moving them to Type 3 encounters where ongoing practices of knowledge construction incorporating 'rhizomically introduced' new ideas continues to reinvigorate the social reproduction of knowledge within the ecosystem.

Perceived relevance and value

Across all cases, LTTO's representation of knowledge from multiple disciplines was seen as a positive and relevant aspect of the design, although in one case the interviewee felt that their own sector was vastly under-represented. Additionally, all cases felt that information from other disciplines was relevant and valuable to their own discipline. This evidence suggests that the multi-disciplinary approach taken in the generation of the content (based upon the composition of the original COFA Online Fellowship communities) was an effective design decision. This also speaks to the other benefit of adopting a multi-disciplinary design – that of broad appeal. LTTO was designed around core pedagogic principles rather than disciplinary or technological specifics, in order to be relatable to a range of different disciplines (as demonstrated in the data visualisations in Chapter 5). Apparently those interviewed did not perceive that this weakened the relevance or perceived value of the knowledge being conveyed.

In four out of five cases, the lifecycle of LTTO was thought to be long (although long is not a specific or particularly accurate measurement of time). However it was specified that the episodes dealing

with pedagogic principle had the longest potential useful lifespan, while those dealing with specific technologies had a much shorter useful life, given the rate of technological change in the field. This was also noted as a key design feature of LTTO in Chapter 3. It was always known that the technology focused episodes would be shorter lived, due to rapid changes in development. This is why the modular design was adopted in the first instance. Having these sentiments echoed by these educators reinforces that decision.

Making meaning, adoption and contextualisation

Significantly, all interviewees across all cases felt that the LTTO artefacts were trustworthy and credible. The reasons included the fact that the represented academics were from the university sector and the information and the way it was communicated sounded authentic (three cases); that Australia was perceived as having a good reputation in online learning (two cases); that the information being communicated was judged to be accurate based upon the interviewees' own experience (all cases); and because the recommendation to use LTTO came from a contact within an existing network (one case).

In four cases the agents felt that the knowledge in the LTTO artefacts validated their own knowledge and online teaching practice, with one case saying that it highlighted the limitations of their institution's existing practice.

Perhaps the most valuable insight gained from the case studies was the fact that in three out of five cases, rhizomic agents stated that they felt that LTTO positively impacted upon their own teaching practices. Even though each of these interviewees had many years' experience, and regarded themselves as experts in online learning and teaching practices, they felt that their own practice was improved by the knowledge they found in the artefacts. This is significant because it shows evidence of lasting change in knowledge construction practice within each of the networks examined. It must be noted however, that no measure of improvement in teaching practice was taken as part of this study apart from the interviewees' own self reflection about their practice. These people have indicated that they will continue to use LTTO artefacts in their program for some time, and that their own online teaching practice has been improved by the knowledge in LTTO in their role as professional development and educational program leaders. Therefore, even when they cease to use the LTTO artefacts, there is a high probability that will continue to pass any knowledge gained from LTTO onto several generations of educators in their network — who in turn have the potential to share the knowledge with others. This is another example of the how rhizomically discovered knowledge from outside a network, can have a lasting, positive, and evolutionary impact upon the social reproduction of knowledge inside that network.

7.5 Chapter 7 summary

Evidence of perceived sustainable change in knowledge construction processes within the cases examined, is perhaps the most significant finding of the stories from the rhizome. The stories of the rhizomic agents document the ultimate realisation of the LTTO artefacts' potential to disrupt established thinking within professional communities or networks, and bring fresh ideas or insights that can help to improve practice; which will then be passed on to successive generations.

Earlier in this chapter I mentioned that the rhizomic agents who were interviewed were already experienced online teachers and trainers. As such, it should be noted that while there was great positive sentiment about the influence and impact of LTTO artefacts on the agents' programs and teaching practice (and the agents' reflections of their learners' practice), it is not the intent of this study to investigate in depth the extent of potential disruption within each educational multiplicity examined. The conclusions drawn within this component of the study are based upon the interviewees' reflections on, and perceptions of, the effect of LTTO within their own institution.

The agents I interviewed were able to use the artefacts in ways that satisfied their individual requirements. It is apparent that LTTO was successful as a user centric resource, rather than a design that only suits one homogenous purpose or context. As was reported in two of the cases examined, some educators felt that the artefacts have no inherent pedagogy within them — meaning they felt that the artefacts were more collections of opinion and discussion rather than something that could actually 'teach' about the concepts. However, these people did feel that the artefacts took on more meaning when used in a certain way, when wrapped in an instructional context (different in each case). They disrupted existing practice but helped it become something more — able to take on new meaning according to the new context in which artefacts have been integrated. Interestingly, a small proportion of respondents to the open online questionnaire, discussed in Chapter 4, provided qualitative comments saying that they felt the artefacts focused more on discussing the concepts rather than actually 'teaching' about the topic. However, the quantitative and qualitative data from the open online questionnaire and external expert evaluation also indicated that many individuals found the LTTO artefacts to hold significant pedagogical merit (such that they felt they were learning something). The data explored in the thesis evidences opinion supporting both points of view, and it must be remembered that the interviewees were educators who were specifically using LTTO as a means of bringing new ideas into an existing instructional framework.

Carey (2015) talks about the difficulties of outside innovations in learning and teaching being adopted in a faculty because of the 'not invented here' syndrome — where there is a belief that any advancement in practice is better coming from the inside of an organisation, because they have a unique perspective on what the needs are. This illustrates the Type 1 RNA encounters described by Steinberg, in which established practices are constantly reiterated — not allowing room for innovation. Carey discusses how

the not invented here problem is driven by the idea of emotional ownership of ideas by a collectively defined 'us' (typically, immediate members of the existing institutional community). He suggests a positive strategy of making a more expansive sense of where 'here' is - by expanding networks to put people with similar disciplinary interests in touch with others in different professional contexts - effectively defining a much more diverse 'us'. LTTO echoes this paradigm. The educators interviewed in this chapter said that they felt a sense of connection and community with those academics appearing in the LTTO videos - to the point where they felt the artefacts were accurate representations of themselves and their own ideas that they were willing to share with their own colleagues and students. They wove the artefacts in with their own institutionally specific processes and curricula - making LTTO a part of their definition of 'here' and 'us'.

In such instances, where an educator chose to use an LTTO artefact within their own program, they were endorsing its value to their institution, staff, and students. They were integrating the new knowledge brought by LTTO into the knowledge construction processes inherent in their own discipline and education sector. Reproduction of 'rhizomically evolved' knowledge in this way would iteratively increase the frequency of Type 3 RNA encounters across a progressively larger portion of the network, resulting in genuine change in online teaching practice, which was the aim of LTTO. Such evidence shows the LTTO was able to successfully connect the rhizome of emergent ideas to the existent root system of established practice.

CHAPTER 8.

CONCLUSION

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Synopsis

Within this concluding chapter, I recap the initial aims of the research, briefly summarise the critical findings from the different stories that I explored, and reflect upon the significance and meaning of the larger LTTO narrative that has been revealed. By comparing my own observations about the LTTO design with reflections on the findings of this research, I present a summary of which design elements most impacted the sharing and use of the artefacts with the greatest potential for construction of new knowledge in different educational networks. The limitations of this study are discussed; I identify which aspects of this story warrant further investigation in the future; and I reflect upon how I am applying some of what I have learned about Type 3 encounters into my current work with MOOCs. Finally, I outline how my exploratory research has made original contributions to knowledge in the field, and what these might mean for the design of future online professional development resources with similar intent.

8.1 Recapping the aims of the research

In the opening paragraph of Chapter 1, I stated that, “This thesis examines one example of how the considered design of digital artefacts can facilitate increased sharing of knowledge between different professional cultures, resulting in the disruption and evolution of established ways of thinking”. This is a very broad statement. Yet, due to the unanticipated results that were being revealed in the initial data, this research was more iterative and exploratory in nature, and not suited to being restricted to the investigation of a singular pre-defined hypothesis. Ultimately the point of this research was to determine whether the widespread dissemination and impact of LTTO could be mapped, understood, broken down and communicated in a way that could help inform the design process of future online professional development resources — so that they may achieve similar or improved results.

To determine the questions I needed to ask, I first needed to develop a deeper understanding of the stories emerging from the larger LTTO rhizome. Through the investigation of several related narratives, I was able to gradually refine the broad questions that I needed to ask as part of the research process. For clarity, I presented these at the conclusion of the introduction, even though they did not crystallise until later in the research process. To reiterate from Chapter 1, I determined that the aims of this thesis were to investigate:

- how the design of LTTO facilitated its discovery, dissemination and integration in a range of educational contexts;
- the potential of this one resource to effectively share ideas, advance scholarship, and positively affect practice across a broad range of contexts and disciplines; and
- how what was learned from the above can inform the design of online professional development resources so that they can effectively use rhizomic networks to:
 - achieve global dissemination;
 - help individual users in a range of teaching situations; and
 - penetrate existing networks to increase the potential for innovation in established online learning and teaching practices.

The answers to these questions have been explored throughout the thesis (shaping the questions as part of the process). They proved themselves to be constantly evolving formative tools that facilitated an iterative understanding of the phenomenon at hand. In addition to understanding what happened within the confines of the LTTO narrative, my experience in undertaking the research has also shown me that there is much that has been learned that can have practical applications for others working on similar initiatives within the professional development field, and other broader contexts.

8.2 Reflection on the methodological approach

The theoretical exploration of the rhizome ties together the narratives of the different elements of my research, and brings them into the weave of the larger LTTO story; which is itself part of the same rhizome of multiple elements. In Chapter 1, I discussed how I used a range of different methodologies for different stages of my research, and how the connections between them became increasingly clear as the process progressed. My exploration of the concept of connectivity within a rhizome, enabled me to more easily see the lines of flight between related yet disparate investigative methods. I was able to use a range of investigative methods to explore different aspects of the data. None of the individual methodologies used in the study were applicable at all times in all situations; rather elements of each found their appropriate application during the course of the investigation. By developing an understanding of the characteristics of each method, I was also able to address any deficiencies in some approaches by drawing upon insights revealed by another (Figure 64).

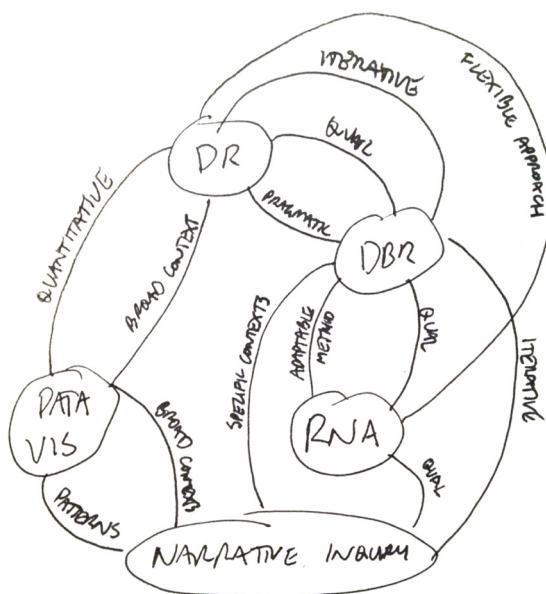


Figure 64. Initial mapping in sketch form of the connections between different methodologies used to facilitate this study; illustrating the lines of flight between commonalities of each.

For example, narrative inquiry is the central guiding methodology of my investigation — enabling the intertwining of different individual stories into a larger cohesive account. As well as highlighting the advantages of a narrative inquiry based approach to this research, I have also discussed its perceived weaknesses — one of the foremost being that larger theories or phenomena are often only investigated by examining artefacts and conducting interviews with a relatively small number of individuals in very specific contexts. As such, generalisations drawn from such an investigation, risk being very partial. In some ways, this same danger is also present in the context dependent DBR, where a singular point of view within the research can potentially skew the outcome. As previously discussed, this study is not

following the classic educational DBR approach. Rather, it mixes influences from both design research (as understood in the design disciplines) and narrative inquiry. Narrative inquiry is inclusive of the story of the researcher, as they possess a unique understanding of all facets of the investigation. However unlike DBR, the voice of the researcher within narrative inquiry is but one of many. I also previously spoke about how I felt it was important to add the LTTO quantitative story into the larger narrative to offset this limitation. My addition of data visualisation to the overall approach has strengthened the opportunities for extracting more general lessons, because I have reversed the method. Rather than starting with analysis of a small number of specific stories, I have based my analysis on a broad and inclusive quantitative study that reveals clear and significant touch points between all possible individual narratives within the larger LTTO story. My visualisations and RNA analysis of the quantitative data, in relation to their theoretical rhizomic context, tells a very detailed story – in much more detail than is possible through qualitative data analysis alone within standard narrative inquiry practice.

I have drawn upon the principles of design research, and taken an iterative approach to the analysis and development of the interconnecting research methods as the study has progressed. As I stated in Chapter 1, “A primary purpose of research from the design perspective is to help future designers improve the artefacts they develop, by improving their understanding of the processes that they employ in creating them, and by contributing to the advancement of the approaches they use to evaluate them”. I have applied these principles in iteratively developing my research approach, and continually refining the tools I have used to evaluate the data. Each of the methods I have used possess strengths and weaknesses in relation to the study of the larger LTTO story. However, elements of one inform those within another, counteracting deficiencies and creating a more flexible and adaptable framework to support the ever-changing investigative journey.

8.3 Summary and discussion of findings

In Chapter 1, I stated that one of the intents of this research was to, “...help improve the educational design and dissemination processes involved with creating similar professional development resources in the future”. This draws heavily upon the principles of design research to address one of the shortcomings of DBR that I discussed in Chapters 1 and 6 – namely, that knowledge gained through research is used to not only affect a single outcome, but also to contribute to the continual refinement of the design process used to create the type of artefacts being studied (Blessing & Chakrabarti, 2009; Manzini, 2010). Deleuze and Guattari themselves state, “To attain the multiple, one must have a method that effectively constructs it;” (Deleuze & Guattari, 1987, p. 22). I believe that key observations from my research can inform and improve the design method for other online professional development resources.

Sections 8.3 and 8.4 of this chapter discuss the findings of my research by systematically addressing each of the stated research aims of this thesis. In this way I am able to weave together the different

strands of narrative I have examined, culminating in the description of rhizomic design principles for online resources in section 8.4.

How the design of LTTO facilitated its discovery, dissemination and integration in a range of educational contexts

In Chapter 4, I presented a summary of the design features of LTTO artefacts that were revealed through my research to be effective in promoting their sharing and use. In order to begin to address the research aim of determining how the design of LTTO facilitated its discovery, dissemination and integration in a range of educational contexts, it is important to revisit this list here. I will subsequently discuss in more depth those I found to be key to the rhizomic spread and adoption of the artefacts.

Content designed in modular, episodic format:

- Real educators talking about their actual experiences in a collegial and pragmatic manner. Interviewees presented detailed examples from real teaching scenarios that were easy to relate to.
- Expertise and authenticity. Interviewees were trusted because they were from reputable universities, and demonstrated that their knowledge came from their own experiences in online teaching.
- Based upon pedagogic principles rather than specific technology — easily adapted to other contexts.
- Multi-disciplinary in nature — representing a broad range of teaching contexts.
- Categorised into ‘context, planning and teaching’ (juxtaposing multi-disciplinary viewpoints around central themes), ‘case studies’ (explaining a single application of online teaching practice from conception to completion), and ‘technical glossary’ (demonstrating how to use specific technology related to the case studies).
- Non-sequential ordering, stand-alone concepts but also able to be seen as a series.
- Enabling engagement at varying depths or around specific topics.
- Designed to emulate the interpersonal characteristics of a collegial community of practice.

Online video:

- Enabled information being presented by academics to be humanised through expression, tone of voice and body language.
- Short length suitable for online audiences (around 10 minutes for case studies and five minutes for other categories).
- High production quality (graphics, lighting, editing, consistency, etc.).

- Cohesive narrative.
- Actionable, experiential knowledge.

PDF documents to supplement video:

- More in depth information to supplement video content.
- High production quality in terms of graphics.

Dissemination strategy:

- Able to be shared using many existing Web 2.0 technologies.
- Multiple online dissemination points (project website, YouTube, iTunes U).
- Ability to take artefacts out of their original context and embed them in new contexts.
- Created engagement with interviewees and other stakeholders to facilitate sharing within existing networks.
- Targeted sharing of artefacts within existing online networks and OER databases.
- Artefacts contain references back to the LTTO website.

The potential of this one resource to effectively share ideas, advance scholarship, and positively affect practice across a broad range of contexts and disciplines

Eraut's (2000) description of the adaption of knowledge to individual circumstances is representative of what happened when LTTO was introduced to an institution (or multiplicity) via a rhizomic agent; particularly in the instances where it was embedded into existing curricula. There are both rhizomic and constructivist layers within LTTO. The episode artefacts feature discussions about, and examples of, good online teaching practice from educators in a range of different disciplines. In essence, if thought about in Deleuzian terms, these are in fact tracings (or exact copies) of online teaching practice from a variety of different tree root type contexts and scenarios. The effective part of LTTO's design however, was that it was able to translate these tracings into a format that enabled them to be disseminated rhizomically, to connect with other disparate root structures. In this way, LTTO works with both rhizome and tree root.

LTTO's video and PDF artefacts are a means of sharing knowledge that used to be tacit. By documenting the heuristic experiences of the educators who were interviewed, LTTO is making this knowledge explicit in a format that others can easily relate to and understand — regardless of the discipline in which they exist. This principle of capturing and sharing practice via video, is similar to that adopted in the SHARP project in the 1990s (Carvalho & Goodyear, 2014). In this project, an online environment was created to upload, share and annotate educators' own video clips exemplifying their practice. The difference with LTTO is that people engaging with the content do not have to come into a single online space to engage,

share and discuss the ideas presented. It is more adaptable and accessible in ways that integrate with existing networks and practices more widely. By using the commonality of pedagogic principle — not tied to disciplinary specifics — LTTO becomes, in essence, the line of flight between any number of multiplicities by establishing opportunities for individuals to relate to the content in their own way. Each of us constructs knowledge individually, even within a larger social system. Broad theory, curricula or policy take on a more specific meaning when they meet an individual whose personal understanding is shaped by who they are, their own experiences, their level of skill, and their situation or standing in their professional community. Often, policies or theories do not directly translate into the reality of teaching because of how individuals balance professional codes of practice and personal experiences in their own way within a larger social network. For any one situation, each person's reality is unique, and so LTTO was designed to approach knowledge construction from how things 'were really done' at the 'coalface' of teaching, so as to be relatable to those educators faced with developing online literacies and teaching practices (Figure 65).

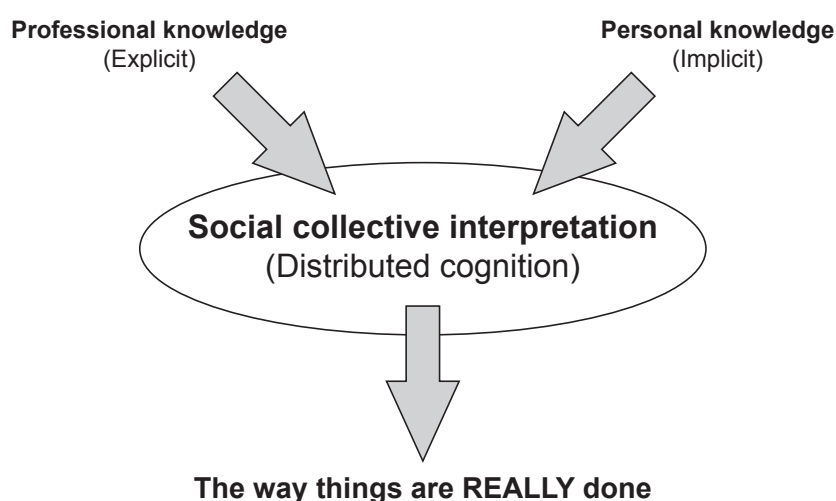


Figure 65. Individualised knowledge construction within educational multiplicities facilitated by LTTO.

LTTO was designed from this coalface perspective. Interviewees within the episodes were encouraged to speak about the realities of online teaching — including the frustrations and difficulties involved. This was another important aspect of the resource's broad appeal; that it was based upon real educators and their heuristic experiences from the front line of online teaching. In the context of developing online teaching skills and appropriate digital literacies, understanding of developmental processes and fundamental principles is as crucial as assessing acquired codified or factual knowledge. While LTTO did not contribute to the development of specific disciplinary knowledge or practice; its pedagogy-focused content, and the juxtaposition of interviewees in the final edits, were designed to explore and make explicit, the tacit knowledge of those interviewed; to encourage those who engage with and adapt this knowledge to embark upon their own heuristic learning experience.

Integration of Web 2.0 and traditional networks — the importance of the rhizomic agent

It is clear from my research that both digital and physical human networks played equally important roles in the success of LTTO. As previously discussed, Web 2.0 dissemination facilitated a greater number and more diverse lines of flight, but not always with the result of greater impact upon knowledge construction. In many cases, it required human rhizomic agents to reterritorialise the knowledge from LTTO into their own contexts to truly give it meaning and to instigate the greatest potential for lasting change.

People's different social and professional networks overlap. Where they have a commonality between different networks, there is an opportunity to be able to make meaning of an original message, to re-contextualise it for re-dissemination within another network they belong to — thereby reinvigorating the message with a new sense of context and meaning for those they pass it on to. The iterative design process adopted within the creation of LTTO, and in the approach to this research, is similar in concept to how the artefacts potentially contributed to the disruption of established knowledge construction processes in a plane of consistency. The design of the artefacts enabled agents to help people to look at problems from another angle, allowing them to invest themselves in the change, making it mean more, and allowing the chance for lasting iterative change to take root. The people who help to facilitate this, are also critical in facilitating the successful and meaningful transmission of information from one network to the next.

Strengthening the intersection between rhizome and tree root

Despite the fact that I am examining the phenomena surrounding an online professional development resource, the most influential aspects to this story turn out to be human connection, experience and learning. LTTO was designed to help improve individual online teaching practices. Those that use the artefacts do so in unique circumstances. LTTO draws upon the notion that individuals may learn better through engagement and knowledge sharing with others within a larger community. The project intends to extend the benefits of sharing ideas within a collegial community (that were seen within the COFA Online Fellowships), beyond the physical limitations of time and location — redefining what a community of practice can be. As I have discussed, the contrived online community aspect of LTTO failed. However, LTTO was found to influence existing online and face-to-face communities.

Analysis of the data in this thesis has illustrated how LTTO was widely shared and critically analysed by educators within and across a variety of existing professional multiplicities. My data visualisations exemplified how people who share a common discipline, actively share information with others of similar interests within these networks — irrespective of differences in education sector or geographic location. The visualisations also seem to suggest that the further removed LTTO was from the Australian context, the more diversified its context of use and distribution amongst a range of different educational sectors (possibly in part because of the large, diverse makeup of US users). These insights help to account for the rapid spread of the LTTO project across countries, educational sectors and disciplines. Therefore the notion of a face-to-face community of practice is outmoded in the context of how we use digital

networks today — but is relevant in the more localised adoption of the rhizome in resistant multiplicities, where trust and established social systems of knowledge construction and validation can inhibit innovation and the introduction of external influences.

Rhizomic agents do what LTTO alone cannot. They can help educators who may be experiencing a ‘dislocation’ from the importance of digital technologies in contemporary practice within their own teaching context, to develop a deeper understanding of the relationships between the codified knowledge that exists within their own disciplines, and the practical knowledge about online teaching made explicit by the LTTO artefacts. In essence, they induct the uninitiated into the larger LTTO community, which comprises academics who are video recorded, and those who are interacting, validating and sharing the artefacts. In many cases they may not be aware of each other, but each play their role in disseminating knowledge further within their own networks.

Educators who introduce LTTO to their own institutions (through links and inclusion in professional development programs), are greatly magnifying the potential of the artefacts to recurrently connect with a greater number of less experienced colleagues — improving the chances of it making relevant and meaningful change. The rhizomic agent forms a conceptual bridge between the existing internal ideas within a network (Type 1 RNA encounters), and the external disruption or change brought by the rhizome (Type 2 RNA encounters). To do this they must see the new knowledge that they encounter outside of their primary network as relevant in some way. Ideas introduced by the rhizome and validated through these people cannot completely revolutionise existing knowledge construction processes, but can help to evolve them by creating a conceptual ‘hook’ to which knowledge brought by new lines of flight from the larger LTTO community can connect (Type 3 RNA encounters).

This observation is very relevant to the criticism made by Bates as discussed in Chapter 4. He thought LTTO was ineffectual because the complexity and diversity of needs of educators within professional development in online teaching could not be solved by a simple ‘do it yourself’ approach as he perceived was offered by LTTO. However, the majority of respondents to the open online questionnaire discussed in Chapter 4 thought the artefacts were useful for improving their practice as stand alone resources. Several of the rhizomic agents interviewed in Chapter 7 also believed that the artefacts brought value and relevant knowledge to their students when they embedded them within a new context of a structured program (giving them pedagogic value through this recontextualisation). Even though LTTO was never intended as a complete professional development solution, this observation by the agents substantiates Bates’ view to a degree — in that for greater, lasting impact, LTTO needed to be part of a larger, more complex system. It also illustrates how individual artefacts encountered within the larger Web 2.0 rhizome may have had limited longevity, but where the rhizome takes root — such as in a program within a new network context — it can continue to grow, generation after generation, even after the artefacts are no longer used.

This research has shown the importance of designing online professional development resources with the rhizomic agent in mind. They are essential in enabling the knowledge rhizome to take root and propagate within more ideologically closed multiplicities. They give the rhizome longevity, and dynamically change its meaning to suit individual characteristics of a multiplicity and its culture. They give new knowledge within the rhizome specific meaning, enable a larger number of people to relate to it, and imbue a sense of trust in this knowledge within their network because of their own endorsement. Krippendorff effectively describes this critical, participatory relationship between agent and designed artefact thus,

“...a successful design affords the meanings of all those stakeholders who can move an artifact through its lifecycle, making it part of a social process... Unlike in highly structured situations, during the industrial era, for example, it is now less likely that projects succeed as intended. The need to enroll stakeholders into a project almost always amounts to delegating parts of a design to be filled in by its participants. In the end, what an artifact becomes is what its network of stakeholders makes it to be” (Krippendorff, 2005, p. 186).

It was only because of the agents that LTTO artefacts were able to achieve *sustainable* impact in different specific contexts (the Type 3 RNA encounters generated by embedding artefacts into existing educational and professional development programs) in order to influence the social reproduction of knowledge for subsequent generations.

The notion of using a change agent to multiply the effects of a professional development program in education is not a new one. However, the rhizomic agents are unique. They do not all use the same program or approach. They do not even necessarily have the same goals. They are not working to the same externally defined purpose, and they are in most cases completely unaware of the existence of the entirety of the LTTO material, and indeed other rhizomic agents. They are not always learning and teaching experts, but may be disciplinary experts or well regarded in their own institutions. They discover LTTO artefacts via recommendations from weak ties within their own digital networks, from their own web searches, or from recommendations from their own colleagues. They test the knowledge within the artefacts in relation to their own motivations, disciplinary expertise, and established conventions of practice in their institutions. By then ratifying and bringing LTTO into their own networks, the artefacts become ‘owned’ by that network because they were suggested by one of their own. When considered in light of Carey’s (2015) notion of the ‘not invented here syndrome’; the agents make LTTO a part of the larger ‘here’ for those within the network — the new knowledge has been suggested from someone they consider as one of ‘us’. In this way the agents facilitate the acceptance and use of LTTO into many more varied circumstances and contexts — giving it more legitimacy and relevance for those who subsequently encounter it.

8.4 Rhizomic strategies that can benefit the design, dissemination and management of similar online professional development initiatives

In Chapter 2, I outlined several design principles derived from an analysis of existing literature, that were relevant to the development of effective online professional development resources that used Web 2.0 networks to facilitate dissemination and wider adoption. In summary these were:

- Connect the professional development to the educator's own practice by using evidence-based, user-centered content.
- Encourage distributed social knowledge construction within groups by enabling opportunity for discourse.
- Encourage the creation of interconnections, content creation and remixing to change the way educators engage in scholarship.
- Online resources should be adaptable and changeable in order to meet the demands of a Web 2.0 driven learning network.
- Tailor content to the online format.
- Discuss how technology is used and not what technology is used.

The specific rhizomic design strategies presented below from my own research compliment and augment these principles. Many of the strategies presented here, contribute to addressing the gaps in effective online professional development design strategies and research methodologies for evaluating their impact identified by Dede et al. (2009) and Moon et al. (2013), as discussed in Chapter 2. My findings can add to existing educational Web 2.0 design principles to help to improve resources similar to LTTO in the future. In cases where there is overlap between my findings with one of the existing principles identified above, I will discuss how the two concepts relate below.

How what was learned from the above can inform the design of online professional development resources, so that they can effectively use rhizomic networks to achieve global dissemination; help individual users in a range of teaching situations; and penetrate existing networks to increase the potential for innovation in the ongoing development of new knowledge about online teaching practice

As I have iterated throughout this thesis, the concept of the rhizome has been critical is connecting the different narratives within LTTO together in a meaningful way. From the behaviour of people within the LTTO network, the way different research methods have allowed exploration of different datasets within the story, and a theoretical framework describing how the artefacts worked, the rhizome's lines of flight have united all elements of the larger narrative. Previously I have described how LTTO was initially designed based upon personal experience, research and observation. However the rhizome that enabled the scale of LTTO's success in terms of project practicalities, pedagogical merit and perceived relevance

and value, was not predicted in this design. The rhizome's entanglement with LTTO's design was only discovered through the process of this research.

LTTO is essentially a design-driven professional development resource for educators. The primary goal of any design or design research is to improve practical outcomes, but also as important, is improving the education of future designers and the improvement of design process and practice. This inherent pragmatism aligns with the driving philosophy that defined the initial COFA Online Fellowship programs, and subsequently informed the design of LTTO itself. It is appropriate therefore that the outcomes of this research bring the theoretical investigation full circle, to make the findings useful for educators who are attempting to develop their digital literacy skills and evolve their practice in real contexts.

In section 8.2 above, I have drawn conclusions about which design aspects of the artefacts I believe have proven to be most effective in promoting the propagation of the LTTO into a wide range of different educational contexts. Many of these design decisions would not be considered unique in terms of producing content for the web (such as video length, good production quality, use of Web 2.0 technologies, etc.) and do not need further in-depth explanation here. In this section, I wish to focus upon my contribution to knowledge in this area — namely, design strategies for online professional development resources to improve rhizomic dissemination, and to foster greater engagement with rhizomic agents. To do this, I will highlight specific aspects of LTTO's design that achieved this, and that could be adapted to other online resource designs in the future.

Design content to have value to educators in different roles

Within my analysis in Chapter 6, I identified three groups or classifications of people interacting with, and propagating, the larger LTTO rhizome. To recap these included:

- Learners (primary group).
- Intermediaries (secondary group).
- Influencers (tertiary group).

From my earlier analysis about perceived value of artefacts in Chapter 4, and the data visualisations in Chapter 5 showing how people of similar interest helped to share LTTO within their own networks of weak ties, some important observations about the value of LTTO to those playing different roles in the rhizome emerge.

LTTO was initially designed with the primary group of learners foremost in mind. These were the type of educators who wanted some easy to access ideas and strategies for improving their own practice. My research has shown that many within this group found LTTO valuable to them because it offered them practical insight into good online teaching practice, in a format that was easy to access and provided many different, relatable and trusted opinions. Interestingly, some within this group may have also been influenced to transition to the tertiary group of influencers, by sharing the resource with others because

they deemed it valuable and useful enough to do so. Amongst this group, the pedagogical merit of the content may be the most highly valued in helping people improve their own knowledge.

I have spoken at length about the critical role played by the secondary group of intermediaries within the observed LTTO rhizome – the rhizomic agents. For these people, one of the great values of LTTO artefacts was shown to be the fact that trustworthy, useful information was packaged in a video format that was easily synthesised into their own curricula. The design features specifically related to the format, Web 2.0 sharing and embedding (in addition to the pedagogical merit) seems to have played a significant role in helping this group adopt and recontextualise the artefacts in their own immediate networks.

The tertiary group of influencers is composed of people such as bloggers, learning and teaching professionals who link to LTTO on their institutional websites, people tweeting or sharing links and comments via social media, and even the primary and secondary groups discussed above. These people have also been shown to have significant input into the awareness, adoption and use of artefacts as discussed in Chapters 4 and 5. Some influencers may not have used LTTO themselves, but use their professional judgement and experience to determine the relevance and value of the artefacts to their own network (as in the case of Bates and Downes discussed in Chapter 4). For this group, factors such as the completeness of the information being presented, its currency, or relevance for others within their network may have been most valued.

The fact that LTTO appealed to all three groups to varying degrees shows that the design strategies adopted were such that they offered significant appeal for many different types of user groups to engage with the resources. This has significant implications for the design of future online learning resources, and should be considered in conjunction with the other specific design strategies presented below.

Design content in a modular format

The fact that LTTO was available in a range of different self-contained thematic episodes was one of the major contributors to its success. The data shows that no one referred to or embedded all of the 32 episodes that were available. In fact, it was rare for more than five episodes to be referred to in any one instance. My data shows that the highest number of episodes referred to in one program was 10; which formed the basis of a postgraduate course at the university in question. The episodic format of LTTO improved accessibility and the potential for many different educators in a range of multiplicities to access the knowledge that was relevant to them and their own personal situations, without having to engage or even be cognisant of the remaining content. The episodes worked in isolation, or as part of a larger cohesive collection. The rhizomic agents echoed this observation in the interviews from Chapter 7. Most did not know about the existence of the full range of episodes, but found value in the artefacts they did use nonetheless. This strategy augments the previously identified design principle from literature of ‘tailoring content to the online format’ (Chapter 2). It does however extend this concept beyond choosing an appropriate technical the format for a resource, to considering how the design of the presentation of information can facilitate consumption in a flexible, non-linear manner.

Focus upon pedagogic principles, not technological specificity

The focus on principles of good teaching practice in the episodes was another primary reason that they were used in such a wide diversity of circumstances. The LTTO technical glossary videos (that demonstrated how to use specific online technologies in relation to the case studies) were the least viewed or embedded of all artefacts — indicating that people were more interested in learning about pedagogy and not specific technology. In addition, the people interviewed in Chapter 7 stated that they believed the content related to specific technology has a short useful lifespan compared to content discussing pedagogic principle.

No matter the discipline, the institution, the educational sector or the country, each of the instances where LTTO was shared, discussed, used or synthesised with existing curricula, had the single commonality of the artefacts being accessed by teachers interested in improving their teaching practice. This was in effect, the ‘common DNA between different species’ that Deleuze and Guattari (1987) identify as the enabler of a parallel evolution. The focus on pedagogic principles in the artefact design enabled those with strong discipline specific beliefs or approaches to still relate to the important central themes of the episodes. This opened possibilities for the knowledge within to be easily adapted in different ways. Eraut explains this process of adapting central principles to individual contexts succinctly,

“While there will be some common features across a wide range of contexts of use and between knowers, there may also be considerable differences. Hence what may begin as publically available scientific knowledge, which people treat as having a universal meaning, may end up as a set of differentiated variations formed by the distinctly separate learning histories of a group of individuals. Adopting a socially situated perspective on knowledge may paradoxically lead to an even greater differentiation in the knowledge held by different knowers. It is also possible that the process of resituation will lead to something more than an expanded range of knowledge use: its integration with other knowledge may amount to an example of knowledge creation”

(Eraut, 2000, p. 133).

This rhizomic design strategy adds specific depth from a pedagogical perspective to the previously identified design principle from Chapter 2 of ‘discussing how technology is used and not what technology is used’.

Strive for authenticity in content

As outlined in Chapter 3, LTTO was conceived as a normative map of online teaching processes — a guide — a place for people to start. As with simplified (normative) descriptions of the design process, the artefacts could not hope to convey the complexity and variability of any given online teaching scenario. As such, the information presented had to be concise. However, rather than taking an approach where only the positives of online teaching were discussed, it was decided that those appearing in the videos should also speak of the pitfalls and challenges, in the spirit of open collegiality witnessed in the original

COFA Online Fellowships. Lawson characterises normative approaches in describing the design process as limiting because they are simplified, idealised and linearised, to make it easier to instruct someone about the design process works (Lawson, 2006). LTTO was in fact conceived based upon principles derived from observation of real interaction between academics in the original COFA Online Fellowships. This authenticity was something that was observed by those who used the artefacts, according to the open online questionnaire examined in Chapter 4 and the interviews with those who embedded LTTO within their own programs. These data showed that people felt that they were able to relate to the academics appearing in the LTTO videos, and that they could trust the knowledge being shared because it seemed authentic. This had a direct impact upon their decision to share it with others in their networks, and to embed it in their own contexts.

This rhizomic strategy is strongly related to the previously identified design principle of ‘connect the professional development to the educator’s own practice by using evidence-based, user-centered content’ (Chapter 2). However, the rhizomic strategy presented above emphasises the importance of considering issues of trust, pragmatism, and honesty in the presentation of information, in conjunction with adopting an evidence-based, user-centered perspective.

Create hooks for lines of flight to connect by taking a multi-disciplinary approach

At the core of teaching is pedagogical process, and LTTO demonstrated effective online pedagogies being used by academics in many different disciplines. In all cases examined in Chapter 7, the rhizomic agents agreed that information being conveyed in the artefacts from disciplines other than their own was valued, and seen as relevant to the construction of knowledge within their own discipline. Why or what these different educators taught varied enormously, but there were sufficient commonalities in how they taught for different multiplicities to be able to relate to the experiences depicted. This enabled the lines of flight between the ‘common DNA’ of pedagogic principle to bring new knowledge to challenge existing beliefs, practices and processes of knowledge construction within the connected multiplicities — creating potential for innovation.

Design for re-contextualisation and adaptability to a range of different contexts

The LTTO artefacts were not by any means a complete solution to professional development in the area of online teaching, and were never intended as such. They were designed as starting points, as fundamental building blocks to encourage confidence and experimentation. The data clearly shows that different episodes were used in different ways, by different groups of educators. This evidences the flexibility of the resource, but also of its ability to be taken out of its original context in the LTTO website or other dissemination points, and reterritorialised into new contexts in a meaningful way. By not attempting to preach a ‘one size fits all’ approach to online teaching, the resource was able to be synthesised with existing knowledge construction practices in different multiplicities — to fit in, be related to, and adapted to, a myriad of individual circumstances. LTTO in itself is not capable of completely

revolutionising a multiplicity's approach to online teaching; but it may be capable of initiating a gradual evolution. The message within the artefacts may become something other than what it was intended to be in different circumstances, but this is a part of the intention of the 'basic building block' design approach, and as long as an artefact can play a part in advancing knowledge wherever it finds itself, the design is fulfilling its role.

The design principle identified in Chapter 2 of 'encourage the creation of interconnections, content creation and remixing to change the way educators engage in scholarship' is loosely relevant to the strategy presented above — yet focuses on the act of locating, sharing, and modifying information via web 2.0 technologies. However, the rhizomic strategy I have described focuses more on the way that the information presented can change meaning because of the modular design of the resource.

Use Web 2.0 dissemination as a catalyst for rhizomic network development

Web 2.0 technologies facilitate connections between diverse groups of geographically dispersed people — which themselves are in many ways similar to the connections within a rhizome, in that they do not have to be contained within established hierarchical social structures or systems. In such situations, knowledge may evolve outside of the entrenched behaviours of isolated and familiar environs. A rhizomic connection between people in such instances may be a source of disruption; a bringer of the unfamiliar. It can cause us to question and to re-evaluate what we know or evolve existing knowledge by drawing together insights and inspirations from a host of different epistemological systems. A rhizome in this context is not knowledge itself, but the framework that enables it to travel and diversify. This was particularly evident when LTTO was fragmented during the process of Web 2.0 sharing. People shared episodes they found interesting or relevant, which removed them from their original context as part of a cohesive set — yet this increased the chances of more educators discovering the resource out of context via these recommendations.

By using a range of different online dissemination points, such as a project website, YouTube, and iTunes U, the chances for organic discovery of the artefacts was increased. In addition, by building Web 2.0 sharing technology into the LTTO website, more people were easily able to take the artefacts from their original context and share them out of context in a wide range of existing social networks such as Twitter, Facebook, Stumbleupon, LinkedIn, etc. The potential for fostering a wider rhizomic network was also increased, by embedding artefacts into popular online OER databases such as MERLOT or OER Commons. All of these strategies greatly increased the chances of wide digital dispersion of the content.

Undertaking the visual analysis of the data representing the digital activity surrounding LTTO in Chapter 5, made me understand how the previously separate concepts and theories I had examined were connected. The concept of the rhizome revealed itself in the way that people in seemingly unrelated networks connected and shared information. More than this however, the rhizome, as described by Deleuze and Guattari, was a mechanism that, "...ceaselessly establishes connections between semiotic

chains, organizations of power, and circumstances relative to the arts, sciences, and social struggles” (Deleuze & Guattari, 1987, p. 7). In other words, a rhizome was a concept that described the potential for people with similar beliefs or motivations, however tenuous, to connect and change practice within a myriad of diverse networks. Ensuring that LTTO was able to take advantage of being shared within existing digital networks increased the chances of these connections forming in the first place.

8.5 Limitations of the research

The rhizome is without beginning or end. This thesis is but a small snapshot of the evolving rhizome of intertwining conceptual connections between aspects of the design process; various research methodologies; the entanglement of technology in social and educational practice; behaviours within homogeneous and heterogeneous networks; and disruption and evolution of established patterns of knowledge construction processes. Each of these elements represents selective aspects of the larger LTTO narrative. Within the scope of this research, due to practical and time limitations, I had to choose which elements to investigate that would best tell the overall story, and inform the overarching research aims and objectives. With this in mind, the following limitations of this research should be acknowledged.

Difficulty in obtaining data on potential changes in individual or institutional teaching practices

Effective application of knowledge as a result of engagement with LTTO is something that is circumstantially supported by a volume of evidence, such as widespread peer review and recognition, artefact sharing, etc. In many different educational contexts, the artefacts were perceived as trusted, valuable and relevant for improving online teaching practice on both individual and institutional levels. However, my study did not define or measure exactly how individual educators’ knowledge or practice benefited from engagement with LTTO (apart from those agents interviewed who reported that it did so), nor the flow on effect to student learning in such cases. The open online questionnaire discussed in Chapter 4 offered insight into educators’ perceptions of the artefacts, and my interviews with rhizomic agents examined how LTTO was perceived at program level. However, obtaining data about individual or institutional changes in teaching practice is outside the scope of this study. Such change takes time – often months or years – to fully begin to take root in established professional practices. This is a similar challenge as that faced by Oliver and Harvey in their evaluation of the impact of the EFFECTS professional development program on institutional practice, “Due to the complexity of the work, much the early evaluation simply consisted of documenting which areas staff perceived as having been affected by the work. No systematic attempt was made to gauge the extent of this impact; similarly, the credibility of many of these perceptions was frequently taken at face value” (Oliver & Harvey, 2002, p. 21). Within the time available for this study, I chose to examine how specific design features of an online resource could promote the potential of disruption of existing networks to bring new ideas, as this phenomenon was already taking place with LTTO. However, a logical next step in the research would be

to return at a later date to trace the evolution of such ideas into changes in practice over time.

Examining impact upon student learning

Being able to determine if exposure to knowledge within LTTO artefacts consistently improved an educator's *students'* online learning experience, runs well beyond the scope of the current work. Many other factors would enter this equation. My research could not hope to accurately determine impact upon the exceedingly wide range of users of LTTO, let alone any subsequent effect on their students. It is acknowledged that impact on student learning as a result of professional development of educators is one of the least studied aspects of this area (Dede, Jass Ketelhut, Whitehouse, Breit, & McCloskey, 2009; Fishman et al., 2014), because it is so difficult to identify common student learning outcomes and measures directly related to the professional development itself (Fishman et al., 2014). While impact upon student learning is an ultimate issue, I felt it more important, within the scope of this thesis, to question how and why the design of LTTO facilitated the phenomenon of diverse and widespread global sharing. In short, research into the efficacy of a design can legitimately stop at a number of points in the processes through which that design is taken up, reshaped and utilised.

Limitations of self-reflection in the qualitative data

I have demonstrated that there was a strong positive reception of and regard for LTTO within several different educational contexts. In Chapter 4, I identified several solicited and unsolicited qualitative data sources that presented a mostly positive perception of the value and merit of the artefacts. To recap, these included:

- open response questions within the open online questionnaire;
- evaluation of the project by an independent project evaluator;
- the open response sections of the external experts' review of a sample of the episodes;
- national and international awards;
- emails from educators using the resource;
- letters from educational institutions or organisations;
- reviews of the project on independent blogs; and
- messages from educators via Twitter, Facebook and other Web 2.0 platforms.

These data came from a diverse mix of learners, intermediaries, and influencers (as discussed in Chapter 6), each with their own pre-existing knowledge and perceptions, and each considering LTTO from their own unique perspective. As such, it is difficult and impractical to accurately identify a 'typical' educator from amongst everyone who has used LTTO in one way or another, in order to assess each piece of qualitative data within a standard comparative framework. As Oliver and Harvey describe, "...it would simply be impractical to account for all of the potentially important characteristics; the influences that

shape the way people act are incredibly complex and draw from their complete personal histories, often in ways that remain tacit and unarticulated...” (Oliver & Harvey, 2002, p. 21).

The previously discussed roles of the users of LTTO help to exemplify this in simplistic terms. Their existing knowledge, skills, attitudes and educational contexts all shape their individual professional development needs – hence their perception of the relevance and value of the information contained within LTTO is also effected. Therefore it is important to note that the sentiment contained within qualitative data gathered from a wide range of individual educators in this study will, by its very nature, vary depending upon who it is sourced from.

Apart from experience level or role, it has been noted that collecting data about the impact of technology related professional development upon educators’ practice presents its own challenges (particularly of the open access type of professional development offered by LTTO where anyone can engage). Nash, Plugge, and Eurelings (2000) discuss how stakeholders in a project can bring complications to the evaluation process because of the vast variables brought by differences in perception related to their operational level, personal perception of what the problem is the project was designed to address, and conflicting or hidden goals in relation to the initiative, to name a few. Oliver and Harvey (2002) discuss how assessment of the learning of educators through professional development initiatives is difficult, because for the most part educators undertaking professional development are usually not all enrolled in a common, assessed program where their progress can be measured with standardised criteria. This is especially true of LTTO, where access to and use of artefacts was diverse, and could not have been predicted or controlled. In addition, the type of qualitative data used in this thesis relies mostly upon self-reporting of the perceived value of LTTO from users in primary, secondary and tertiary roles. Oliver and Harvey note that for the most part, one’s professional practice remains tacit, and therefore a person may not think to include some elements or changes within their self-reporting of their own practice because they do not consciously notice them – although they do stress that this does not mean that significant change has not taken place. In effect, the data captured from this type of process will never be able to show the true extent of any changes that may have occurred. I have of course attempted to address this limitation by comparing and threading together many different stories within a range of datasets in my research.

However, it is useful at this point to reflect upon relevant models of evaluation in order to better frame the value and merit of the qualitative data surrounding LTTO in constructing a larger narrative of its value and potential impact. Evaluation has been described as a process of comparing results with intentions (Kaufman & Keller, 1994). The aims of the research as described in Chapter 1, outline the intent of the evaluation of LTTO. It should be reiterated that this thesis focuses on how the design of LTTO impacted the global dissemination and adoption of the resource, and what potential for disruption and positive change in practice could result from such a design. This research is not focusing upon determining exact impact upon individual teaching practices or student learning.

Kirkpatrick's popular model (1959) suggests that there are four levels of evaluation:

- Reaction (how learners feel about instruction).
- Learning (learner performance on in-class tests).
- Behavior (the extent to which learners implement, or transfer, what they learned in class).
- Results (organisational benefits, stated in terms of organisational performance or return on investment derived from a course).

With the intent of my research in mind, it can be seen that within this model, the qualitative data I have collected about educator's perceptions of the value of LTTO firmly sit within the first level – reaction. There has also been some examination of the third level, behaviour. However, this was also mostly from the perspective of educators' own perception of behavioural change in themselves or others in their immediate network (reaction). Since its development, there has been criticism of Kirkpatrick's model as being too simplistic and difficult to apply in more complex evaluation contexts (Alliger & Janak, 1989; Holton, 1996). Kaufman and Keller (1994) modified Kirkpatrick's first level of evaluation from 'reaction', to include 'methods, means, and processes' acceptability and efficiency'. This broadens the focus of reaction to include, "...determination of the value and worth of resources, methods, and tools and the efficiency of their use. Since evaluation, as we define it, compares results with expectations, consideration of the usefulness and appropriateness of our resources and methods is also relevant and important" (Kaufman & Keller, 1994, p. 377). This is of particular significance to my study, as it acknowledges that 'perception' of resources and their use in a given context is valuable – adding more significance to the personal perceptions of those using the LTTO artefacts in this research.

Kaufman and Keller also expanded Kirkpatrick's model to include a fifth level - 'societal contribution' – in which they state that organisations evaluating their initiatives need to consider, "...the societal consequences and payoffs of their actions" (Kaufman & Keller, 1994, p. 377). Stokking (1996) subsequently extended this five level model to seven levels, to further emphasise other less quantitative aspects of an initiative such as the importance of the availability and importance of resources; the social acceptability of the initiative; the satisfaction of those using the resources; and organisational benefits including increased quality of services and learning competence:

1. Criteria that can be applied beforehand:
 - a. Congruence between goals and means.
 - b. Availability and quality of resources.
2. Degree of implementation.
3. Process criteria:
 - a. Purpose (Is the process approaching its goals?).
 - b. Acceptability (Is the process accessible in view of social and moral values, norms, and

- standards?).
 - c. Satisfaction (Are the people involved satisfied?).
 - d. Efficiency (Is the process efficient?).
4. Learning results.
 5. Behavioral change.
 6. Organisational benefits:
 - a. Increased quality of products and services.
 - b. Increased organisational learning competence.
 - c. Increased economic fitness of the organisation (This criterion includes the question about the return on investment in the intervention.).
 7. Societal outcomes.

The more recent additions to Kirkpatrick's initial evaluation model by Kaufman, Keller, and Stokking exemplify the increasing realisation in more contemporary evaluation practice, that the impact of an initiative goes beyond immediately measurable, quantitative results – and can be inclusive of broader indicators of how an initiative is contributing in different ways to the improvement and development of a society (which may be considered as online educational practitioners in this instance). Stokking refers to this perspective as being more focused on evaluating process, which, in conjunction with product focused evaluation measuring outputs and impacts, can offer greater insight in to ascertaining whether an initiative has fulfilled its original intent, “Whereas product evaluation reports that objectives were or were not achieved, process evaluation provides a basis for interpreting the reason for the outcome. As a result, we need both evaluation efforts in combination to be able to evaluate the quality of our means (training or other)” (Stokking, 1996, p. 180). It is within this more inclusive evaluation framework that the qualitative data within this study has true value when combined with the other sources of quantitative data used; as the intent of this research is to determine how what can be learned from the design of LTTO can contribute to a very diverse educational community (including different sectors, disciplines and contexts).

Difficulty in obtaining data about the failure of the online community

Gathering sufficient data about individuals' interaction with the LTTO online community was also problematic. To delve deeper into the reasons for its failure also presents challenges – similar to those previously discussed about any exploration of potential changes in teaching practice or student learning. The limitation of time, and the need to follow the main narrative of this research precluded such an examination from occurring in this thesis. However, the failure of the LTTO online community does present an ideal case study for future research examining the dynamics of failure in social networks.

Inability to capture all data related to sharing and use

As discussed in Chapter 4, my ability to capture all data pertaining to the sharing and use of LTTO was limited due to non-digital forms of sharing (such as word of mouth, or people reading about the project in media articles, conference proceedings, etc.). In addition there were a range of instances where the online tools I used to automatically search and gather quantitative data about LTTO's online sharing and embedding (such as Google Alerts and Google Analytics, as well as YouTube and iTunes U analytics), could not determine the context or extent of use because of password protected websites, or by me not defining relevant search terms to capture unanticipated examples of use. If I had been more prepared for such wide international dissemination at the beginning of the project I would have ensured the data collection instruments were more comprehensive, to reduce the gaps in these 'data nets'.

Limited number and type of personal educator stories

As the data explored within this study illustrates, there are literally thousands of different personal stories of educators who used artefacts to different extents, existent within the larger LTTO rhizome. Within this thesis, I chose to explore a small, select sample of these stories, in order to understand more about the types of people who became rhizomic agents. These people were interviewed in depth because they were identified as influential agents through my data visualisations, and offered the most potential to study Type 3 RNA encounters in a range of disciplinary and education sector contexts. This in turn enabled me to map the rhizome's penetration, influence and its impact upon the creation of new knowledge in existing networks. I believe this was the right choice within the limitations of time and the scope of this thesis.

The uptake of LTTO in English speaking countries and more economically developed countries

It has been noted within this thesis that the majority of data surrounding the use of LTTO came from countries in which English is spoken as a first language. As such, any discussion about global impact or reach of LTTO in this thesis needs to be considered in this context. The scope of this study did not include further investigation into the artefacts' penetration into non-English speaking countries or less economically developed countries.

The research only examined the LTTO rhizome within a relatively small window in time

As previously discussed, the time frame for data collection was approximately three years, between October 29, 2009 (the first public announcement of LTTO) and October 23, 2012 (approximately 12 months after the official conclusion of the project). However, as discussed in Chapter 1, even after this period the LTTO rhizome has continued to grow, with increasing numbers of educators accessing the artefacts over time – continuing to connect with different individuals, and penetrating even more existing educational networks. While including more data would have resulted in a richer and more detailed narrative, limiting the volume of data I examined in this thesis was necessary so that there

was sufficient time for analysis and write up of the research, especially given that I was studying part time. That being said, a three-year time window was large enough to get a good sense of some of the dynamics of dissemination and take up of LTTO artefacts.

8.6 Ideas and considerations for further research

This research has revealed the existence of a multitude of related scenarios and stories. There are, therefore, opportunities to undertake further research into other unexplored or underexplored aspects of the larger and ongoing LTTO narrative.

Continuing to map the LTTO rhizome

The instruments explained in Chapter 4 are still collecting quantitative data about the sharing and embedding of LTTO artefacts on the Internet (and will continue to do so until they are manually switched off). This study explored these sets of data (collected within a limited time frame), helping me to map the movement of artefacts as part of my analysis of the effectiveness of their design and impact. There exists the immediate potential to continue to map the progress of the LTTO rhizome of sharing and use around the world, by adding new data to the existing visualisations. This would provide a much larger dataset from which to further validate the results from this thesis; highlight whether the patterns that emerged in the data visualisation in this study were consistent over an increased range of time; and provide interesting insights into the lifecycle and context of use of the artefacts within an ever changing digital educational landscape.

Exploration of more individual stories at a micro level

One of the limitations of this research was the number of individual stories that were examined in depth through qualitative interviews. The potential exists to use the data visualisations (either as they stand or expanded visualisations including new data) to identify a range of other personal stories of those using LTTO in a variety of disciplines and contexts. More interviews could be conducted with other rhizomic agents who integrated LTTO into their own educational and professional development programs (exemplifying Type 3 RNA encounters). This would allow for more opportunity to explore in detail whether LTTO did indeed create significant disruption to existing teaching or professional development practices within educational institutions, and the extent and implications of such change. But perhaps more importantly individual users encountering LTTO via Web 2.0 sharing could also be interviewed (exploring Type 2 RNA encounters in more depth). Particular attention could be paid to longitudinally mapping changes to perception, adoption and effectiveness of online teaching practice as a result.

Application of rhizomic design strategies to the design of other types of online resources

This research examined the effects of a particular design strategy upon the sharing and use of a specific online professional development resource about online teaching. What worked well for LTTO, could also work well for a number of other online professional development or learning initiatives. The design strategies discussed in this chapter were identified as being conducive to rhizomic sharing, penetration, and potential disruption and evolution of established knowledge construction practices. There exists the potential to determine whether these findings can be further generalised, to apply these design principles to a range of different online learning or professional development initiatives to further test their efficacy and compatibility in different learning contexts – in essence, to meet the needs of rhizomic agents by refining the design of online artefacts, thereby further magnifying their potential reach and impact.

Revisiting the notion of a constructed community to contextualise and amplify the affect of LTTO artefacts – how can more rhizomic agents be engaged?

Another avenue of future research is around the concept of a constructed community creating opportunity for more Type 3 RNA encounters. In Chapter 3, I discussed how the original COFA Online Fellowship community was a success in that it enabled people to temporarily step into a more formalised group of peers to work on developing their understanding of online teaching, while still being able to remain a part of their own networks. Yet when the LTTO online community was formed to provide a place where educators could come together to discuss their experiences of the artefacts, the initiative failed to gain any momentum. In the LTTO online community, there was no temporal structure – no pattern of worthwhile activities that promoted engagement in specific periods of time.

The difference between the original fellowship community and the LTTO online community was the existence of a formal program. As discussed in Chapter 3, for the original fellows, being able to work within such a program with other online teaching novices, allowed them to experiment and share ideas in a semi-private context, without fear of being judged for challenging existing teaching convention within their discipline. It also provided guidance and support at each stage of their learning.

In this thesis, I have observed instances where LTTO has had an ongoing impact upon the generation of new knowledge about online teaching practice. The weak ties (Granovetter, 1973) within the Web 2.0 network surrounding LTTO worked effectively for facilitating the sharing of artefacts out of their original context, amongst thousands of individuals. People also discovered LTTO by conducting web searches for help with online learning and teaching, or collegial recommendations from learning and teaching units, blogs, or institutional websites (as discussed in Chapter 4). As I indicated in the previous section, there was ample opportunity to explore more of the individual stories in the LTTO narrative, but I felt there was more to be learned at this stage by focusing upon how the artefacts could begin to make change at institutional level.

For the ideas within LTTO to take root within new contexts, accelerate the development of new ideas and ways of thinking (at a local network or institution level), and begin to change the knowledge construction

processes of existing practices on a large scale, my research suggests that the artefacts were effective when embedded within the framework of a more formalised education or professional development program. The artefacts' integration into educational programs by identified agents (between the Web 2.0 and the physical world of established disciplinary or institutional practice) is evidence of how a pedagogic structure around the artefacts can amplify their impact through increased frequency of Type 3 RNA encounters. Where LTTO brought new ideas, these programs wrapped their own context, support and formalised curriculum around the artefacts to give them localised relevance and meaning. This phenomenon depended upon the randomness of how a rhizomic agent discovered and embedded artefacts into an existing program. The agent had to be someone conversant with technology; well versed in established disciplinary practice; trusted by other members of the community; and willing to legitimise and share the artefacts by wrapping them within a familiar context. I am interested in understanding whether the element of chance can be reduced in this process. In other words, how can we engage more agents, to create more ongoing type 3 RNA encounters in more networks, in a faster, more consistent way?

It should be noted, that I am *not* suggesting that LTTO artefacts weren't effective when encountered and used in more individual, non-structured contexts. I believe the data explored in Chapter 4 illustrates that the artefacts were successful in this context. Rather, I feel that exploring the intersection between the rhizome of novel, disruptive ideas, and the root structure of a curriculum framework holds particular personal interest for subsequent investigation.

8.7 Putting new ideas into practice — the LTTO MOOC

One of the principles of DBR is to reapply findings back into practice. However, this has usually only ever been done at a relatively small scale, “DBR seems to have been used to make a difference—but mostly at the level of small-scale interventions and in the lives of individual teachers and schools. It is interesting to speculate if the methodology could and will be used by researchers to investigate today's disruptive innovations such as massive open online courses, tuition-free universities (e.g., People's University), OER, and other networked learning innovations” (Anderson & Shattuck, 2012, p. 24). By using my rhizomic methodological approach in this research, I was able to construct a detailed narrative of how the design of LTTO worked in many different contexts and circumstances. Returning to the principles of design research, in which knowledge is used to improve design process so that other initiatives can benefit, I have tested some of the strategies I defined above by applying them in the development of a larger scale open learning project.

The success of LTTO enabled me to secure further UNSW competitive funding in 2013, to lead the evolution of the concept into a free MOOC with the help of Dr Negin Mirriahi [coursera.org/course/ltto].

It drew upon the observations of what occurred organically within the larger LTTO rhizome, but building upon observations of what took part with the rhizomic agents as I have documented in this thesis. The MOOC is designed around the idea of reducing the dependence upon agents to discover and integrate LTTO artefacts into their own programs — by creating our own professional development program build around the original artefacts (along with new ones).

Contrary to the previous failed LTTO online community, the MOOC has a structure reminiscent of the COFA Online Fellowship programs — built around a logical structure introducing key pedagogic concepts and using LTTO videos and case studies to exemplify their application to teaching practice in a range of disciplines. In this way, a pedagogic framework can be constructed around the artefacts, and individual users along with potential rhizomic agents can be attracted into a more supportive, structured learning environment. The curriculum is not linear, but is designed around the principles of lines of flight, personalisation and the ability to set one's own goals and parameters for success. This draws upon the way LTTO artefacts themselves were originally used. Within the MOOC environment, participants can engage in more Type 3 RNA encounters with colleagues from many different teaching contexts, countries, disciplines and institutions — or undertake self directed learning through activities and assignments designed to help them understand more about their own online teaching needs, their context, and what they need to know to achieve their personal learning goals. The MOOC offers more structured support than was previously possible with the LTTO artefacts alone, to help teachers put the ideas shared in LTTO into practice in their own contexts.

The LTTO MOOC ran for the first time in June 2014. The eight-week course received over 28 thousand enrolments from 191 countries — with 18,024 people active over the duration of the course. Educators who took part came from a broad range of sectors, including higher education, K-12, community college, vocational, and private education, and gave very positive feedback. Out of 313 respondents to the end of course survey, 38% indicated they had applied knowledge learned in the MOOC in their teaching, and 58% indicated they planned to apply knowledge from the MOOC to their teaching. The comments from one of the participants below exemplify how the MOOC impacted their teaching practice,

“The topics covered, the videos and literature covering a wide range of topics provided me with knowledge of the difference between a learning management system and web 2.0. Also the effectiveness of knowing when to use which and why. The ability to understand the tool used for evaluation as and for learning are just a few things that made this course worth my while... I have utilized the skills and knowledge imparted in my teaching, but looking forward to improving the use of what has made me a confident teacher — imparting knowledge using technology”
(LTTO MOOC Participant. Quote from ‘Learner Stories’, voluntary feedback from participants after the conclusion of the course).

Like the original LTTO project, the MOOC also had significant impact outside of the higher education context. It was the only Australian course to be included in US President Obama's 2015 ConnectEd

program of continuing education accreditation [bit.ly/1Aj98Dw]. It was also included in the Trinidad and Tobago government's Knowledge TT program to enhance local learning opportunities [bit.ly/1LtJGhQ]. The course has also had an impact outside of the education sector. During the second iteration of the MOOC in July 2015, I will collaborate with the industry-based 'Learning Café' [bit.ly/1BGOS1e] to explore the integration of the MOOC with professional development in the industry sector [bit.ly/1dFmCAO]. The inclusion of the MOOC in these programs echoes what was observed in this research, and is evidence that the rhizomic nature of LTTO continues to penetrate new contexts.

The development of the LTTO MOOC provides significant opportunity to research whether it is possible to accelerate the emergence of Type 3 RNA encounters, through which more rhizomic agents can be in essence created – rather than relying on more random encounters with agents and a more organic penetration of artefacts into existing networks, that occurred in the Web 2.0 sharing examined in this thesis.

8.8 Concluding comments

Many educators who find their teaching practice affected by the digital literacy divide need help in accelerating the rate of their adaption to the use of technology in teaching. Only by bridging the divide can they play a real role in innovating effective technology inclusive knowledge-work practices that they can also imbue within their students. The balance between the rate of evolution of technology and professional practice however, will always be in flux. Approaches to professional development that are adaptable, accessible, relevant and relatable to a range of individual teaching practices, have the potential to help gradually redress the imbalance between the rate of development of technological and cultural practices within the education sector. It is hoped this research makes a significant contribution in this area.

Throughout the course of this research I have explored several stories that have illuminated the larger LTTO narrative. I have analysed the reasons for its conception; design; spread around the globe; and its impact upon some of those who have encountered it. From these stories, I have endeavoured to identify particular aspects of the design of the artefacts and the rhizomic networks that introduced them to various educational contexts, that can benefit the construction of knowledge in professional development contexts, and provide empirically based strategies for improving the design and management of future rhizome-based professional development resources. I have shed light on a number of issues that inform the design of professional development strategies and resources for individual users; agents who may share them within various Web 2.0 professional and social networks; and *rhizomic agents* who introduce new knowledge to their existing networks, and use it in ways that will enable sustainable innovation of existing practice through Type 3 RNA encounters. Outside the scope of this thesis, I have also begun new investigations into creating more focused means of initiating larger numbers of Type 3 RNA encounters through the development of a MOOC.

This thesis offers the following original contributions to knowledge, specifically within the area of online professional development in the field of education. This research helps to address the gaps in best practice in the design of online professional development resources, and effective research methods to evaluate their success as identified in my literature review and particularly by the observations of Dede et al., (2009) and Moon et al., (2013) discussed in Chapter 2:

- An effective method of researching the spread and use of online professional development resources, through the rhizomic integration of narrative inquiry, design research, DBR, data visualisation, and RNA methods – contributing to improving the research process for similar studies in the future.
- A blended empirical research method for determining the effectiveness of the design of an online professional development program from both practical and theoretical perspectives.
- A detailed analysis of the design of an online professional development resource that was effective across disciplines and sectors for individual users, agents who spread the resource via Web 2.0 networks (taking it out of its original context in Type 2 RNA encounters), and rhizomic agents, who integrated it into established localised professional development practices (redefining it in new contexts and ensuring continued impact in Type 3 RNA encounters).
- Observations and strategies derived from this analysis that can help others to improve the design process for future online professional development resources, so that they can effectively use rhizomic networks to achieve global dissemination; help individual users in a range of teaching situations; and penetrate existing networks to increase the potential for innovation in the ongoing development of new knowledge about online teaching practice.

In Chapter 3, I discussed how LTTO was an experiment in finding a balance between designing a professional development resource applicable to a breadth of disciplines, while still achieving a useful depth in exploring pedagogical principles so as to be effective. LTTO has shown it is possible for one online professional development resource to be effective in a wide range of different educational scenarios – if the design recommendations outlined in this chapter are adopted. Design is a process that has to resolve many competing forces. Designers often have to create solutions that balance several incompatible or contrasting requirements to satisfy different types of users or stakeholders – without offering compromised solutions that work for no one. In the case of LTTO, individual users from different disciplines and sectors; online teaching novices and experts; and even rhizomic agents; all have somewhat different needs from a single professional development resource. Exploring the story of LTTO's travels within the digital and physical rhizome has helped me understand that a considered design for an online professional development resource *can* effectively reconcile the competing needs of the varied and disparate cohort of educators who engage with it; contribute to the innovation of their personal online teaching practice; and inspire lasting change within the established professional development practices of a wide range of existing disciplinary and institutional networks.

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Appendix 1. Links to media articles about the LTTO project

Bennett, J. (2012). US award for Australian online learning site. *Campus Review*. Retrieved from Campus Review website: <http://bit.ly/1dPerlL>

Hamilton, S. (2012). International award for COFA Online. Retrieved from UNSW Newsroom website: <http://newsroom.unsw.edu.au/news/art-design/international-award-cofa-online>

McIntyre, S. (2011). Filling the Gap in Online Education. *Campus Review*. Retrieved from Campus Review website: <http://bit.ly/1JDSLz>

Blackwell, A. (2010). Learning to teach online website goes live. *Campus Review*. Retrieved from Campus Review website: <http://bit.ly/1GkLntD>

Holder, P. (2010). Men of Influence Under 45. *Men's Style Magazine Winter*, 119. <http://bit.ly/1tYwRHU>

Hamilton, S. (2010). An (Online) Education *UNIKEN*, 16. <http://bit.ly/1lw9Vv6>

Appendix 2. Full tables documenting reference to the LTTO website and artefacts

Links or embeds on institutional websites		
Institution	Sector	Country
ADFA	University	Australia
ADFA (Adlib blog)	University	Australia
Australian Council for Private Education and Training	Private organisation	Australia
Australian Flexible Learning Framework	Government organisation / VET	Australia
Australian Learning and Teaching Council	Government organisation	Australia
Bond University Library	University	Australia
Bosco Primary School	K-12	Australia
Campus Review	Media organisation	Australia
Centre for educational innovation & technology	University	Australia
Certified Practising Accountants Australia	Professional organisation	Australia
College of Fine Arts, The University of New South Wales	University	Australia
Create Ed (RMIT ALTC GRANT)	RMIT ALTC grant	Australia
Creative Commons Australia	Professional organisation	Australia
Curtin University of Technology	University	Australia
Edith Cowan University	University	Australia
EDNA	Government organisation / primary	Australia
Education Services Australia	Government organisation	Australia
James Cook University	University	Australia
Learning in Networks of Knowledge	Government organisation	Australia
Macquarie University	University	Australia
Our Lady of the Rosary Primary School	K-12	Australia
PLP Inc. Print Disability Services	Accessible Publications NGO	Australia
St Andrew's School - Malabar	K-12	Australia
St Francis Xavier Primary School	K-12	Australia
St Gertrude's Primary School - Smithfield	K-12	Australia
Swinburne University of Technology	University	Australia
TAFE NSW eCommunities	Vocational education	Australia
The University of Adelaide	University	Australia
The University of New South Wales – TELT Resource	University	Australia
The University of New South Wales – Institutional post	University	Australia
The University of New South Wales – News feature	University	Australia
The University of Newcastle	University	Australia
The University of Newcastle, Faculty of Business and Law	University	Australia
The University Of Queensland eLearning	University	Australia
The University of Queensland SBL Interactive	Software Developer	Australia
The University of Sydney	University	Australia
Transforming Assessment ALTC project (University of Adelaide, The University of Queensland, RMIT)	University	Australia
University of Southern Queensland	University	Australia
University of Canberra	University	Australia

University of New England	University	Australia
University of South Australia	University	Australia
University of Tasmania	University	Australia
University of Wollongong (Cool things)	University	Australia
eLearning Europa	Government organisation	Belgium
eTwinning (European Commission's Directorate General for Education and Culture)	Government organisation	Belgium
iEducate (European Commission Leonardo Program)	Government organisation	Belgium
Veduca	Open web sharing	Brazil
New Bulgarian University	Private University	Bulgaria
British Columbia University of Technology	University	Canada
Cape Breton University	University	Canada
Cape Breton University	University	Canada
Commonwealth of Learning	Professional organisation	Canada
Dalhousie University	University	Canada
Dalhousie University	University	Canada
Dawson College	Community College	Canada
Greater Saskatoon Catholic Schools	K-12	Canada
Lambda Solutions (Moodle Partner)	Private Consultancy	Canada
NAIT (Northern Alberta Institute of Technology)	Community College	Canada
Oral Health Journal	Dentistry Journal	Canada
Queens University	University	Canada
The University of British Columbia	University	Canada
University of Waterloo	University	Canada
University of Toronto	University	Canada
CONCEDE (Content Creation Excellence through Dialogue in Education) University Erlangen-Nürnberg	University	Germany
Leeward Community College (iTeach @ Leeward)	Community College	Hawaii
Eötvös Loránd University	University	Hungary
Bluebrick.ie (represents 14 institutes of technology)	Course Broker	Ireland
Dublin City University (DCU)	University	Ireland
Dundalk Institute of Technology	Community College	Ireland
Hibernia College	Community College	Ireland
Universidad Da Vinci	Private University / Languages	Mexico
Windesheim University of Applied Sciences	Community College	Netherlands
Ako Aotearoa, National Centre for Tertiary Teaching Excellence	Professional organisation	New Zealand
Auckland University of Technology	University	New Zealand
Eastern Institute of Technology (TiLT Space)	Private University	New Zealand
Knowledge Net	Software Developer	New Zealand
Massey University	University	New Zealand
MyPortfolio (New Zealand Tertiary Education Commission)	K-12	New Zealand
Its Learning	Software Developer	Norway
University of Strathclyde Glasgow	University	Scotland
Schoolnet South Africa	K-12	South Africa

South African Theological Seminary	Private organisation	South Africa
College of Urdaneta	Community College	Spain
The National Council of Medical Students of Spain (CEEM)	Non-profit student organisation	Spain
Karolinska Institutet	University	Sweden
Birmingham City University	University	UK
Bradford College	Community College	UK
British Council	Government organisation	UK
British Universities Film & Video Council	Government organisation	UK
De Montford University	University	UK
EdMediaShare JISC Digital Media	University	UK
Hartlepool College of Further Education	Community College	UK
Learning Pool		UK
Liverpool Hope University	Private University	UK
Medicles	Student organisation	UK
Pebblepad (University of Wolverhampton)	University	UK
Shoulderdoc	Medical resource	UK
The Open University	University	UK
The University of Leicester	University	UK
University of Bristol	University	UK
University of Westminster	University	UK
World News Network	News Media	UK
Antioch University	University	USA
Boise State University (BSU Ed Tech)	University	USA
California State University Bakersfield	University	USA
Central Michigan University	University	USA
College of the Mainland	Community College	USA
Coppell Independent School District / Edmodo	K-12	USA
Dartmouth College	Community College	USA
Edmodo	Open web sharing	USA
Emory University	University	USA
Epsilen	Private organisation / software	USA
Fashion Institute of Design and Merchandising	Private University	USA
Frederick County Public Schools	K-12	USA
Freedom University.TV	Private organisation	USA
Govloop	Government organisation	USA
Indiana University	University	USA
Indiana University—Purdue University Fort Wayne (IPFW) (Center for Enhancement of Learning and Teaching)	University	USA
K-12 Learning Network (BOCES Consortium)	Boards of Cooperative Educational Services	USA
Lesley University (PedL)	Private University	USA
MarylandOnline Quality Matters Program	K-12	USA
Mayo Clinic	Medical Clinic / Research / Education	USA
Muhlenberg College (Alexandra Herb)	Private University	USA
Ning.com	Software Developer	USA

Northeastern University	University	USA
Online Teaching Conference 2011	Community College	USA
OTAN (Outreach and Technical Assistance Network for Adult Educators) California Department of Education	Adult Education	USA
Pearson eCollege	Private organisation / software developer	USA
Project Management Institute	Private organisation	USA
Rockingham Community College	Community College	USA
Rosalind Franklin University of Medicine and Science	Private University / Medicine	USA
Saddleback College CIDDE	Community College	USA
Schoolcraft College	Community College	USA
South Dakota Board of Regents	Private organisation	USA
St Louis Community College	Community College	USA
The University of Arizona	University	USA
The University of North Carolina Greensboro	University	USA
The University of Toledo	University	USA
The University of Virginia's College at Wise	Community College	USA
Tutor.com	Private organisation	USA
University of Alberta	University	USA
University of Hawaii (Distance Course Design and Consulting)	University	USA
University of Maryland University College	Private University	USA
University of Massachusetts Boston	University	USA
University of North Texas	University	USA
University of Wisconsin-Stout	University	USA
Virginia Commonwealth University Centre for Teaching Excellence	University	USA
Vmaks	Software Developer	USA
Western Nevada College (WNC)	Community College	USA
Wikispaces	Private organisation	USA
Yavapai Community College	Community College	USA
Yavapai Community College	Community College	USA
Yola	Software Developer	USA

Table 1. Links or embeds on institutional websites

Unsolicited blog posts and reviews			
Institution	Sector	Country	
Business English 2020	Academic / Languages	Community College	Argentina
Blogging@UoW		University	Australia
Cameron's Space/ Victoria University	Academic / Engineering	University	Australia
Cool Things at UOW	Learning Designer	University	Australia
Ed Judo Education + Technology	High School Teacher	K-12	Australia
Infoventurer	Academic / Information studies	University	Australia
Learning in Networks of Knowledge	Academic / Internet Studies	University	Australia
LindyKlein.com	Educational Consultant	Private Consultancy	Australia
Mountain Masala	Theology		Australia
Net Crit	Academic / Internet Studies	University	Australia
Pamela's Research Blog	Postgrad Student / Educational Designer	University	Australia
Rae's Learning Journal	Student / Education	University	Australia
Robyn's Portfolio	Educational Consultant	Private Consultancy	Australia
S.A. E-Learning Newsletter	Vocational Education	Vocational	Australia
S.A. E-Learning Newsletter	Vocational Teacher	Vocational	Australia
Sultanalbalwy	Student / Mathematical Science	University	Australia
TamaLeaver.net	Academic / Internet Studies	University	Australia
Thoughts of an online educator	Academic	University	Australia
Guidea - Institute for Tourism and Hospitality	Tourism and Hospitality	Non-profit Organisation	Belgium
Grumo Media	Video Producer	Private Consultancy	Canada
Stephen Downes	Researcher	Private Consultancy	Canada
Tony Bates	Educational Consultant	Private Consultancy	Canada
Flat Classroom Project	Online Curriculum Developer	K-12	China
Quiet Treasures	Principal	K-12	China
Helge Scherlund's eLearning News: eLearning, Blended Learning, Computer-Mediated Communication...	Mathematician	Government Agency	Denmark
#ED 250 Blog Tool			Fiji
Education Technology - theory and practice	High School Teacher	Private Consultancy	Finland
Jog the Web		Software Developers	France
Felix Wolf's Blog	Student / Education	K-12	Germany
Lernwolke Neue Medien im Schulunterricht	Primary School Teacher	K-12	Germany
Teaching with Weblogs	Student / English as a Second Language	University	Germany
craigbellsblog	Academic / Languages	Private Consultancy	Holland

21st Century How To Guide For Teaching- People (Knol)	Educational Technologist	Private Consultancy	Luxembourg
Im the the. ninja >>D	Student / Education	University	Malaysia
OPENER #2 E-Learning and Blended Learning	Academic	University	Malaysia
Wilfred Rubens: technology enhanced learning	Educational Consultant	Private Consultancy	Netherlands
WitBlauw - Basisonderwijs en ICT	Primary School Teacher	K-12	Netherlands
Ethos Consultancy	Primary School Teacher	K-12	New Zealand
Pass the SoLT	Academic	University	New Zealand
E-læring	High School Teacher	Private Consultancy	Norway
Ed Links Morocco	Academic / Education	University	Peru
Materials e Recursos para eLearning 2011 - MPEL 5	High School Teacher/ English	K-12	Portugal
Aprendizaje a Distancia	Academic / Chemist	University	Puerto Rico
The corridor of uncertainty	Academic / Internet Studies	University	Sewden
Emoderation Skills	Educational Consultant	Private Consultancy	Spain
UOC UNESCO Chair in e-learning	United Nations Educational Scientific and Cultural Organization		Spain
Polaine Uncommon Sense	Academic / Design	University	Switzerland
EXHILARATING EXPERIENCES AT MMU, DUBAI	High School Teacher	K-12	UAE
C4LTP Centre for Learning & Performance Technologies	Educational Consultant	Private Consultancy	UK
Creativity in Education			UK
EBI eLearning (European Bioinformatics Institute)	Bioinformatics		UK
Research and learning technologies	Academic / Languages	University	UK
artpadilla82			USA
BGSU Blogs / Bowling Green State University		University	USA
Blogs-RSS-Podcasting.com			USA
Classroom Aid		K-12	USA
Coaching in and out of the classroom	High School Teacher	K-12	USA
Creativeteach	Educational Technologist	Community College	USA
Darin Elm's Ed Blog	High School Teacher	K-12	USA
Digital Age Page			USA
Dillard U. CTLAT E-Learning Blog		University	USA
EdTech Classroom	Learning Designer		USA
Education Technology and More	High School Teacher	Private Consultancy	USA
EduHerald.org (ebook + website)	Academic / Computer Science	Private Consultancy	USA
ePortfolios for Learning	Educational Consultant	Private Consultancy	USA
Joseph Reagle	Academic / Communications	University	USA
Learnandteachonline.com	Educational Technologist	Non-Profit	USA
Learning Ecosystems	Learning Designer	Community College	USA

Learning Supreme	Product Marketing Manager	Telecommunications	USA
Lifelong Learning -- everyone's future	Archivist	University	USA
Lisahistory.net	Academic / History	Community College	USA
Online Learning Insights	Online Curriculum Developer	Community College	USA
Rose Coloured Glasses	Educational Technologist	Community College	USA
Sail's Pedagogy	Educational Technologist	K-12	USA
Tech the Plunge	High School Teacher	K-12	USA
Technology & Instruction for UNEX	Academic / Distance Learning	University	USA
TED Education	Academic / Education	University	USA
The Educator's PLN	High School Teacher	K-12	USA
The Learning Explosion	Educational Consultant	Private Consultancy	USA
Web 2.0 Edu	High School Teacher	K-12	USA
Asynchronous Educator Collaboration			
eLearning for you			

Table 2. Unsolicited blog posts and reviews

LTTO artefacts being used in education or professional development programs			
Program title	Program type	Institution	Sector
Meteorology online course		College of the Mainland	Community College
Quality online course creation	Professional development	Education Service Centre - Region 19	Community College
	Professional development	College of Western Idaho	Community College
		Irish College of Humanities and Applied Sciences	Community College
	Professional development	New England College	Community College
		Schoolcraft College	Community College
LIDERLIK FORUMU	Professional development	Technology and the Ministry of Education Leadership Forum	Government agency
Partnerships that empower and actively involve all Kawerau learners utilising I.C.T	Professional development	PeaK-ICT (Partnerships that empower and actively involve all Kawerau learners utilising I.C.T)	Government agency
		Cooperative Educational Service Agency (CESA)#2	Government agency
Maryland Virtual Learning Opportunities Program (MVLO)	High School Equivalency	Maryland State Department of Education	High School
Online Classroom Management	Professional development	Northwest Nazarene University	High School
8th Grade English	K-12 English	Pine Point School	K-12
9th Grade English	K-12 English	Pine Point School	K-12
	Professional development	Pinellas County Schools	K-12
	Grad Cert qualification	The Learning Curve Consortium Worldwide	K-12
	Professional development	Calvert County Public Schools	K-12
Moodle for Teachers (M4t) online workshops	Professional development	Integrating Technology for Active Lifelong Learning	Non-profit
	Professional development	Education Development Centre (EDC)	Non-profit organisation
Teaching Effectiveness Certificate program	Professional development	Humer Polytechnic	Polytechnic
		Manukau Institute of Technology	Polytechnic
E-Moderation	Professional development	The Consultants-E	Private Consultancy
Making the Virtual Classroom a Reality (MVCR)	Professional development	Illinois Online Network	Private Consultancy
		eClass4learning	Private Consultancy
New Employee Orientation Online Course	Professional development	Kansas Children's Services League	Private Foundation
Foundations of Learning and Teaching Online	Professional development	Australian College of Applied Psychology	Private Higher education
Think Flexible professional development program	Professional development	Think Education Group	Private Higher education
Cambridge CELTA Course Online		International House London	Private Language Education
		Navitas English	Private Language education

ACE Communications B	Professional development	AlphaPlus (George Brown College upgrading)	Private organisation
Building Online Community with Social Media	Professional development	@One (Ning course site)	Private organisation
T2 Case Studies	Professional development	Centre de Géosciences (Centre of Geosciences)	Private organisation
		@One (Moodle site)	Private organisation
EDU 504 - TELECOMMUNICATIONS IN EDUCATION	Masters qualification	University of Sioux Falls	Private University
EDUC 594 EDIT 610 New Technologies for Learning	Masters qualification	University of Bridgeport	Private University
ELT7008 - Online Learning Communities	PhD qualification	Northcentral University	Private University
Teaching in on-line environments: from face-to-face to blended learning	Professional development	Central European University (E-Learning Centre)	Private University
	Masters qualification	Amity University	Private University
Design and Management of Online Courses		University of Missouri Online	University
TCHE 1011 Technological Implications for Tertiary Learning & Teaching WITHIN Graduate Certificate in Tertiary Teaching & Learning (GC020)	Grad Cert qualification	RMIT	University
Training and Course Development	Professional development	Middlesex University	University
Graduate Certificate in Education (Tertiary Teaching)	Grad Cert qualification	University of Ballarat	University
	Professional development	Nottingham Trent University	University
course management strategies course	Professional development	Thompson Rivers University	University
Delivering Online Distance Learning (DODL)	Professional development	The University of Birmingham	University
ETEC 522: Ventures in Learning Technology (elective course)	Masters qualification	University of British Columbia	University
Faculty of Economics and Business blended learning training program	Professional development	The University of Sydney	University
Grad Cert Elearning and online teaching	Grad Cert qualification	University of Wisconsin-Stout	University
Grad Cert L&T program	Grad Cert qualification	Swinburne University of Technology	University
Making the Virtual Classroom a Reality (MVCR)	Professional development	University of Illinois	University
Master of Arts in Online & Distance Education	Masters qualification	Open University	University
Masters & PhD classes in Educational Technology	Masters & PhD qualification	Illinois State University	University
Online Learning and Teaching	Masters qualification	University of Wollongong (class wiki)	University
PhD in Educational Technology	PhD qualification	Walden University	University
Postgraduate Certificate in Higher Education	Grad Cert qualification	The University of Greenwich	University
T&L 521 Secondary Certification / student assignment	Grad Cert qualification	Washington State University Vancouver	University
	Professional development	Ateneo de Manila University/High School	University

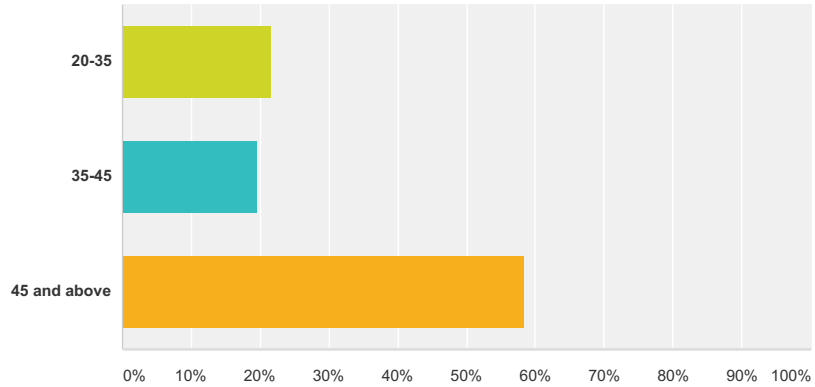
Teaching and Learning in Higher Education	Professional development	University of Bristol	University
		Victoria University of Wellington	University
	Professional development	Sultan Qaboos University	University
	Professional development	Southern Connecticut State University	University
		Charles Sturt University	University
		University of Wollongong	University
	Professional development	Charles Darwin University	University
	Professional development	Auckland University of Technology	University
		Macquarie University	University
	Professional development	Cooperative Research Centre for Infrastructure and Engineering Asset Management - Queensland University of Technology	University
		Københavns IT Universitet	University
		University of Tennessee Chattanooga	University
		Texas A&M University Corpus Christi	University
		Concordia University of Chicago	University
		University of Tennessee Knoxville	University
		Virginia Commonwealth University	University
		Emily Carr University of Art and Design	University
		Dublin Region Higher Education Alliance (DRHEA)	University
		Edith Cowan University	University
Access and use the internet / Study Skills	Certificate III	TAFE South Australia	Vocational
e-Skills	Professional development	e-Skills Vocational Education & Training South Australia	Vocational
	Vocational training	IEFP, Instituto Do Emprego E Formação Profissional	Vocational
		University of Ballarat - TAFE	Vocational
		Wintec, Waikato Institute of Technology	Vocational
Web Quest 2.0	Professional development	Web Quest 2.0	

Table 3. LTTO artefacts being used in education or professional development programs

Appendix 3. Learning to Teach Online open online questionnaire

Q1 What is your age group?

Answered: 188 Skipped: 5



Answer Choices	Responses
20-35	21.81% 41
35-45	19.68% 37
45 and above	58.51% 110
Total	188

Q2 What is your discipline?

Answered: 184 Skipped: 9

#	Responses	Date
1	English Composition and Literature	4/18/2013 4:56 AM
2	Academic Technology Coordinator	4/12/2013 2:57 AM
3	ICT	4/3/2013 7:00 AM
4	Deafness	3/27/2013 2:35 PM
5	Educatoion	3/23/2013 9:52 AM
6	education	3/15/2013 2:51 AM
7	Sciences	3/12/2013 8:25 AM
8	nutrition	3/8/2013 1:42 AM
9	high school teacher of students with disabilities	3/2/2013 10:38 AM
10	Marketing	2/27/2013 11:56 AM
11	Entrepreneurship/Business	2/26/2013 5:44 PM
12	Law	2/26/2013 12:44 PM
13	Nursing	2/18/2013 5:11 AM

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14	Teacher	2/9/2013 8:50 AM
15	Sales and Engineering	2/5/2013 4:08 PM
16	Education	1/23/2013 9:11 AM
17	english and american literature	1/20/2013 4:52 AM
18	Biosciences	1/14/2013 10:51 AM
19	Information Studies	1/9/2013 7:16 PM
20	Language Instructor	12/31/2012 11:29 PM
21	INFORMATION SYSTEMS	12/21/2012 6:21 AM
22	Educational technologies	12/14/2012 9:34 AM
23	teaching and learning	12/5/2012 9:28 AM
24	Education	12/3/2012 12:43 AM
25	education	12/1/2012 5:21 AM
26	Education	11/25/2012 5:39 AM
27	Linguistics	11/22/2012 8:46 AM
28	EFL	11/9/2012 6:41 PM
29	education	11/3/2012 4:02 AM
30	DL Nutrition Lecturer	11/2/2012 2:20 PM
31	Nursing	10/27/2012 11:12 AM
32	English: rhetoric and writing	10/22/2012 5:57 AM
33	Chemistry	10/19/2012 5:22 AM
34	Developmental Reading	10/19/2012 2:50 AM
35	Instruction	10/19/2012 2:02 AM
36	Education	10/5/2012 1:51 PM
37	online learning content writer	10/4/2012 3:35 PM
38	Humanities	9/29/2012 12:53 AM
39	Business	9/27/2012 3:28 AM
40	IT	9/24/2012 5:45 PM
41	education	9/19/2012 9:48 PM
42	English	9/17/2012 9:28 AM
43	nursing	9/10/2012 1:13 AM
44	ESL	9/6/2012 12:21 AM
45	English teaching	8/25/2012 4:39 PM
46	Mathematics	8/19/2012 1:18 PM
47	student	8/2/2012 5:48 PM
48	d	7/31/2012 3:19 PM
49	Former Teacher, Current Masters Student and Graduate Assistant in Instructional Design and Technology	7/27/2012 8:33 AM
50	Cross Disciplinary Art & Design	7/26/2012 2:07 PM
51	education and cultural work	7/25/2012 3:23 AM

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SurveyMonkey

52	Instructional Design	7/20/2012 4:08 AM
53	Education	7/15/2012 9:20 PM
54	Literacy Education and Research Methods	7/15/2012 12:26 AM
55	Computers, French	7/12/2012 4:15 AM
56	Business	7/2/2012 8:19 PM
57	Mathematics	6/30/2012 1:19 AM
58	Instructional Design	6/23/2012 7:59 AM
59	Instructional Design, Education	6/16/2012 2:11 AM
60	Graphic designer	6/13/2012 8:33 AM
61	Library, Teaching and Learning	6/10/2012 4:29 PM
62	Educational Technology	6/2/2012 12:20 AM
63	Education	5/27/2012 4:14 PM
64	Design	5/13/2012 6:20 AM
65	Educational development	5/10/2012 2:46 PM
66	Clinical practice alcohol and other drugs	5/2/2012 6:04 PM
67	Science, Technology and society	5/1/2012 12:28 PM
68	education	4/17/2012 6:29 AM
69	Media Design	4/10/2012 11:28 AM
70	how to integrate technology into teaching process	4/9/2012 8:57 PM
71	Language Pedagogy	4/9/2012 8:19 PM
72	adult education	4/9/2012 1:26 PM
73	Educational technology	3/31/2012 2:00 PM
74	Health Informatics/Digital Literacy/Information Management	3/31/2012 7:07 AM
75	Middle School Reading Language Arts Consultant	3/30/2012 2:45 AM
76	Flexible Learning	3/29/2012 10:10 AM
77	veteran teacher, current master's student (pursuing my MEd in Curriculum and Instruction)	3/25/2012 12:13 PM
78	Culture	3/22/2012 10:04 PM
79	Psychology	2/26/2012 3:33 PM
80	R.N. Educator/Student	2/25/2012 7:52 AM
81	teaching & teacher training	2/18/2012 1:03 AM
82	library	2/6/2012 10:13 PM
83	Teacher	2/5/2012 6:23 PM
84	just teaching English wishing to improve myself professionally for more fruitful outcomes	2/5/2012 6:03 PM
85	Instructional Design	1/26/2012 7:34 AM
86	Education liberal arts	1/23/2012 11:37 AM
87	Education	1/17/2012 7:37 AM
88	English as a Foreign Language	1/7/2012 2:18 AM
89	business	12/13/2011 10:24 AM

Learning to Teach Online Episodes Evaluation

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90	Business	12/2/2011 9:15 AM
91	Fine art/ I&t	11/24/2011 6:17 PM
92	English teaching	11/18/2011 12:02 PM
93	Faculty Development	11/18/2011 4:34 AM
94	Geology	11/9/2011 7:23 PM
95	designer	11/3/2011 9:41 PM
96	Audio Engineering	10/31/2011 6:37 AM
97	educational technology	10/31/2011 2:13 AM
98	teacher, teacher trainer	10/29/2011 8:25 AM
99	Education	10/23/2011 4:02 PM
100	medicine	10/21/2011 8:02 AM
101	Educational Technology	10/14/2011 7:45 AM
102	Communication	9/27/2011 2:55 AM
103	Academic writing and publishing	9/13/2011 11:57 PM
104	English	9/12/2011 2:59 PM
105	a	9/9/2011 4:10 AM
106	school and tafe teacher support - education	9/7/2011 12:11 PM
107	Counselling and Psychotherapy	8/31/2011 6:37 AM
108	Psychotherapy	8/25/2011 8:34 PM
109	psychological therapies	8/23/2011 12:26 AM
110	English Language Teaching	8/16/2011 10:47 PM
111	History	8/5/2011 11:02 AM
112	Vocational Education	8/4/2011 2:19 PM
113	Technology	7/26/2011 12:32 AM
114	education	7/25/2011 1:06 PM
115	Biology, Chemistry	7/22/2011 1:27 PM
116	Economics, internet marketing	7/21/2011 8:54 AM
117	Adult/Technical Education	7/20/2011 11:42 PM
118	consultant online-trainer	7/19/2011 5:40 PM
119	vocational education and training	7/14/2011 2:36 PM
120	careers education	7/12/2011 10:21 AM
121	English Language	7/11/2011 7:13 PM
122	communication/media	7/9/2011 11:26 AM
123	Special Education Teacher	7/9/2011 9:23 AM
124	educational technology	6/30/2011 7:52 AM
125	librarian	6/27/2011 7:54 AM
126	Education	6/27/2011 3:43 AM
127	ICT Consultant	6/25/2011 10:41 PM

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128	Information Technology	6/24/2011 5:49 PM
129	Special Education	6/23/2011 3:01 PM
130	Educational development	6/22/2011 10:21 AM
131	High School Teacher	6/22/2011 6:50 AM
132	Teacher	6/22/2011 12:44 AM
133	Sociology	6/14/2011 7:55 AM
134	Ingeniera de Sistemas	6/12/2011 12:31 PM
135	Education	6/9/2011 5:15 PM
136	Learning design	6/7/2011 11:19 AM
137	education	6/4/2011 12:42 PM
138	English, French and Spanish non curricular, History, Geography, ICT, P.E.	6/3/2011 7:26 AM
139	Full Time Student and a Part Time employed American Sign Language Instructor for children 0-9	5/27/2011 4:32 PM
140	Media Technology and Flexible learning	5/24/2011 7:20 PM
141	exellent	5/21/2011 10:53 PM
142	Teacher	5/20/2011 6:36 PM
143	adult learning	5/19/2011 1:41 PM
144	Languages/Distance Education	5/19/2011 4:21 AM
145	Instructional Designer, all disciplines	5/19/2011 4:07 AM
146	Education	5/18/2011 11:35 AM
147	Higher Education	5/18/2011 11:34 AM
148	Instructional Design	5/18/2011 10:51 AM
149	Counseling Psychology	5/13/2011 5:29 PM
150	Biomedicine	5/12/2011 12:25 AM
151	fine art	5/10/2011 5:02 PM
152	Media Studies	5/8/2011 4:31 PM
153	UniLink Design (Pathways program for international students)	5/7/2011 3:02 PM
154	E-Learning instructor, information fluency specialist	4/28/2011 11:06 AM
155	ESOL	4/24/2011 11:41 AM
156	Philosophy	4/23/2011 3:52 AM
157	education	4/21/2011 2:12 PM
158	ESL	4/20/2011 7:37 AM
159	Technology Coach, grades 5-12	4/20/2011 6:16 AM
160	MS Ed	4/19/2011 10:05 PM
161	Speech Language Pathologist	4/18/2011 2:03 PM
162	social studies	4/18/2011 12:44 PM
163	Education	4/12/2011 11:21 PM
164	education	4/11/2011 11:53 AM
165	English	4/10/2011 12:16 PM

Learning to Teach Online Episodes Evaluation

SurveyMonkey

166	elearning	4/8/2011 2:27 AM
167	Higher Education/Academic Development	4/7/2011 2:10 PM
168	Education	4/7/2011 11:39 AM
169	Animation/video installation	4/5/2011 12:10 PM
170	education	4/4/2011 3:30 AM
171	Elementary	4/4/2011 1:38 AM
172	e-Learning	4/1/2011 1:21 AM
173	Counselling	3/31/2011 7:44 PM
174	Environmental Science	3/29/2011 3:16 PM
175	Educational Studies	3/29/2011 12:00 AM
176	Marketing	3/26/2011 7:35 PM
177	Medical	3/25/2011 9:02 PM
178	Marketing and Public Relations	3/25/2011 3:09 PM
179	Didactic	3/25/2011 1:20 AM
180	Psychology	3/24/2011 7:06 PM
181	Knowledge Management & e-Learning	3/24/2011 9:24 AM
182	Education	3/23/2011 7:57 AM
183	Education Technology	3/23/2011 6:34 AM
184	Media	3/22/2011 11:36 PM

Q3 In which country do you reside?

Answered: 186 Skipped: 7

#	Responses	Date
1	USA	4/18/2013 4:56 AM
2	Canada	4/12/2013 2:57 AM
3	Ghana	4/3/2013 7:00 AM
4	Australia	3/27/2013 2:35 PM
5	USA	3/23/2013 9:52 AM
6	malta	3/15/2013 2:51 AM
7	Australia	3/12/2013 8:25 AM
8	uk	3/8/2013 1:42 AM
9	USA	3/2/2013 10:38 AM
10	Australia	2/27/2013 11:56 AM
11	Australia	2/26/2013 5:44 PM
12	Australia	2/26/2013 12:44 PM
13	USA	2/18/2013 5:11 AM
14	Albania	2/9/2013 8:50 AM

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SurveyMonkey

15	Turkey	2/5/2013 4:08 PM
16	Australia	1/23/2013 9:11 AM
17	both in france and the US	1/20/2013 4:52 AM
18	Australia	1/14/2013 10:51 AM
19	Australia	1/9/2013 7:16 PM
20	Saudi Arabia	12/31/2012 11:29 PM
21	COLOMBIA	12/21/2012 6:21 AM
22	NSW	12/14/2012 9:34 AM
23	australia	12/5/2012 9:28 AM
24	Ireland	12/3/2012 12:43 AM
25	US	12/1/2012 5:21 AM
26	Algeria	11/25/2012 5:39 AM
27	Mexico	11/22/2012 8:46 AM
28	Ukraine	11/9/2012 6:41 PM
29	Canada	11/3/2012 4:02 AM
30	VIC/NSW	11/2/2012 2:20 PM
31	USA	10/27/2012 11:12 AM
32	USA	10/22/2012 5:57 AM
33	Canada	10/19/2012 5:22 AM
34	United States	10/19/2012 2:50 AM
35	United States	10/19/2012 2:02 AM
36	USA	10/5/2012 1:51 PM
37	Australia	10/4/2012 3:35 PM
38	U.S.A.	9/29/2012 12:53 AM
39	USA	9/27/2012 3:28 AM
40	Finland	9/24/2012 5:45 PM
41	uk	9/19/2012 9:48 PM
42	Colombia	9/17/2012 9:28 AM
43	US	9/10/2012 1:13 AM
44	Russia	9/6/2012 12:21 AM
45	China	8/25/2012 4:39 PM
46	Australia	8/19/2012 1:18 PM
47	india	8/2/2012 5:48 PM
48	sa	7/31/2012 3:19 PM
49	USA	7/27/2012 8:33 AM
50	Austalia	7/26/2012 2:07 PM
51	USA	7/25/2012 3:23 AM
52	Canada	7/20/2012 4:08 AM

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SurveyMonkey

53	Australia	7/15/2012 9:20 PM
54	United States of America	7/15/2012 12:26 AM
55	Canada	7/12/2012 4:15 AM
56	Ireland	7/2/2012 8:19 PM
57	USA	6/30/2012 1:19 AM
58	United States	6/23/2012 7:59 AM
59	U.S.A.	6/16/2012 2:11 AM
60	Mexico	6/13/2012 8:33 AM
61	New Zealand	6/10/2012 4:29 PM
62	UAE	6/2/2012 12:20 AM
63	AMERICA	5/27/2012 4:14 PM
64	Australia	5/13/2012 6:20 AM
65	Australia	5/10/2012 2:46 PM
66	Australia	5/2/2012 6:04 PM
67	Australia	5/1/2012 12:28 PM
68	US	4/17/2012 6:29 AM
69	USA	4/10/2012 11:28 AM
70	Albania	4/9/2012 8:57 PM
71	Indonesia	4/9/2012 8:19 PM
72	USA	4/9/2012 1:26 PM
73	Australia	3/31/2012 2:00 PM
74	England	3/31/2012 7:07 AM
75	USA	3/30/2012 2:45 AM
76	New Zealand	3/29/2012 10:10 AM
77	USA	3/25/2012 12:13 PM
78	Croatia	3/22/2012 10:04 PM
79	Australia	2/26/2012 3:33 PM
80	Canada	2/25/2012 7:52 AM
81	UK	2/18/2012 1:03 AM
82	spain	2/6/2012 10:13 PM
83	Croatia	2/5/2012 6:23 PM
84	Turkey	2/5/2012 6:03 PM
85	United States	1/26/2012 7:34 AM
86	United States	1/23/2012 11:37 AM
87	United States	1/17/2012 7:37 AM
88	Romania	1/7/2012 2:18 AM
89	Australia	12/13/2011 10:24 AM
90	Australia	12/2/2011 9:15 AM

Learning to Teach Online Episodes Evaluation

SurveyMonkey

91	Australia	11/24/2011 6:17 PM
92	Colombia	11/18/2011 12:02 PM
93	United States	11/18/2011 4:34 AM
94	Australia	11/9/2011 7:23 PM
95	Netherlands	11/3/2011 9:41 PM
96	United States	10/31/2011 6:37 AM
97	USA	10/31/2011 2:13 AM
98	Germany	10/29/2011 8:25 AM
99	Oman	10/23/2011 4:02 PM
100	romania	10/21/2011 8:02 AM
101	US	10/14/2011 7:45 AM
102	USA	9/27/2011 2:55 AM
103	Norway	9/13/2011 11:57 PM
104	Australia	9/12/2011 2:59 PM
105	thailand	9/9/2011 4:10 AM
106	australia	9/7/2011 12:11 PM
107	Ireland	8/31/2011 6:37 AM
108	Ireland	8/25/2011 8:34 PM
109	ireland	8/23/2011 12:26 AM
110	Chile	8/16/2011 10:47 PM
111	UK	8/5/2011 11:02 AM
112	Australia	8/4/2011 2:19 PM
113	USA	7/26/2011 12:32 AM
114	australia	7/25/2011 1:06 PM
115	United States	7/22/2011 1:27 PM
116	Australia	7/21/2011 8:54 AM
117	Canada	7/20/2011 11:42 PM
118	Australia	7/19/2011 9:55 PM
119	austria	7/19/2011 5:40 PM
120	Australia	7/14/2011 2:36 PM
121	Australia	7/12/2011 10:21 AM
122	Australia	7/11/2011 7:13 PM
123	australia	7/9/2011 11:26 AM
124	USA	7/9/2011 9:23 AM
125	USA	6/30/2011 7:52 AM
126	United States	6/27/2011 7:54 AM
127	USA	6/27/2011 3:43 AM
128	UK	6/25/2011 10:41 PM

Learning to Teach Online Episodes Evaluation

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129	Australia	6/24/2011 5:49 PM
130	US	6/23/2011 3:01 PM
131	USA	6/22/2011 12:26 PM
132	Canada	6/22/2011 10:21 AM
133	United States of America	6/22/2011 6:50 AM
134	United States	6/22/2011 12:44 AM
135	Canada	6/14/2011 7:55 AM
136	Dominican Republic	6/12/2011 12:31 PM
137	Australia	6/9/2011 5:15 PM
138	Oz	6/7/2011 11:19 AM
139	Australia	6/4/2011 12:42 PM
140	Italy	6/3/2011 7:26 AM
141	United States of America	5/27/2011 4:32 PM
142	Sweden	5/24/2011 7:20 PM
143	sudan	5/21/2011 10:53 PM
144	Nederland	5/20/2011 6:36 PM
145	Hong Kong	5/19/2011 1:41 PM
146	Canada	5/19/2011 4:21 AM
147	Canada	5/19/2011 4:07 AM
148	Australia	5/18/2011 11:35 AM
149	Canada	5/18/2011 11:34 AM
150	United States	5/18/2011 10:51 AM
151	Kenya	5/13/2011 5:29 PM
152	UK	5/12/2011 12:25 AM
153	austalia	5/10/2011 5:02 PM
154	AU	5/8/2011 4:31 PM
155	Australia	5/7/2011 3:02 PM
156	USA	4/28/2011 11:06 AM
157	NZ	4/24/2011 11:41 AM
158	USA	4/23/2011 3:52 AM
159	USA	4/21/2011 2:12 PM
160	Peru	4/20/2011 7:37 AM
161	USA	4/20/2011 6:16 AM
162	US	4/19/2011 10:05 PM
163	USA	4/18/2011 2:03 PM
164	United States	4/18/2011 12:44 PM
165	Australia	4/12/2011 11:21 PM
166	usa	4/11/2011 11:53 AM

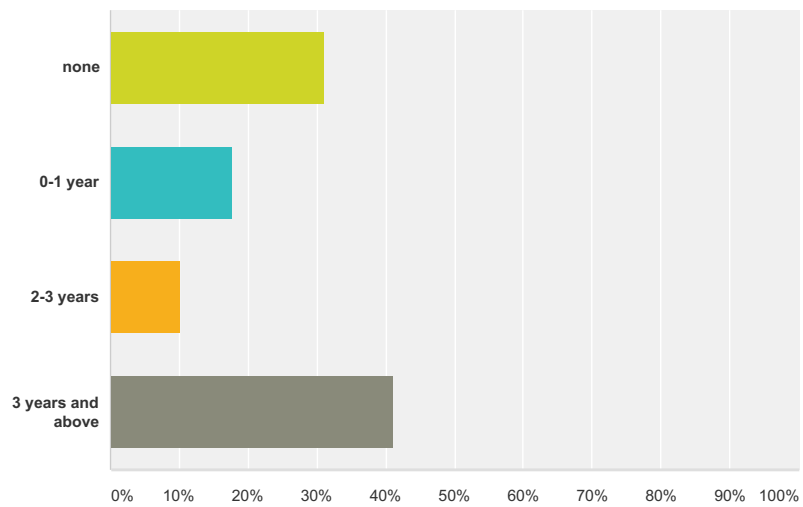
Learning to Teach Online Episodes Evaluation

SurveyMonkey

167	Brazil	4/10/2011 12:16 PM
168	UK	4/8/2011 2:27 AM
169	Australia	4/7/2011 2:10 PM
170	Australia	4/7/2011 11:39 AM
171	Australia	4/5/2011 12:10 PM
172	uk	4/4/2011 3:30 AM
173	United States	4/4/2011 1:38 AM
174	Scotland	4/1/2011 1:21 AM
175	UK	3/31/2011 7:44 PM
176	Australia	3/29/2011 3:16 PM
177	Belgium	3/29/2011 12:00 AM
178	Australia	3/26/2011 7:35 PM
179	UK	3/25/2011 9:02 PM
180	Australia	3/25/2011 3:09 PM
181	Spain	3/25/2011 1:20 AM
182	Australia	3/24/2011 7:06 PM
183	Australia	3/24/2011 9:24 AM
184	UK	3/23/2011 7:57 AM
185	Australia	3/23/2011 6:34 AM
186	Australia	3/22/2011 11:36 PM

Q4 How much existing online teaching experience do you have?

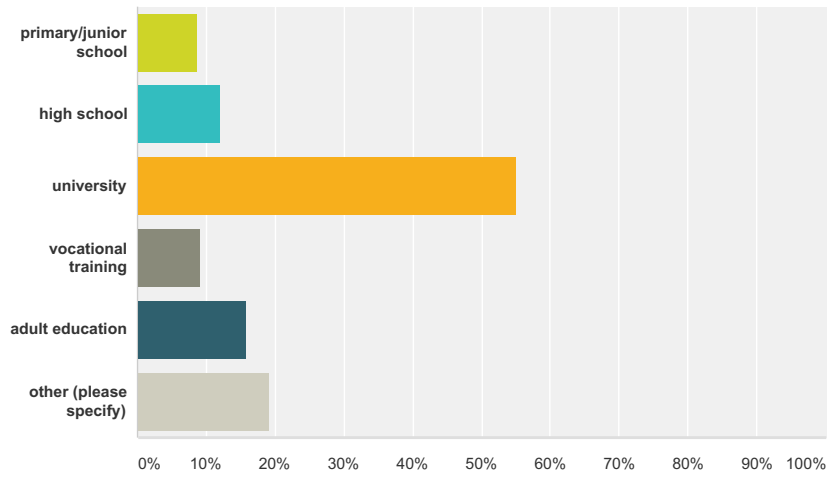
Answered: 187 Skipped: 6



Answer Choices	Responses	
none	31.02%	58
0-1 year	17.65%	33
2-3 years	10.16%	19
3 years and above	41.18%	77
Total		187

**Q5 In what type of institution do you teach?
(you can tick more than one)**

Answered: 183 Skipped: 10



Answer Choices	Responses	
primary/junior school	8.74%	16
high school	12.02%	22
university	55.19%	101
vocational training	9.29%	17
adult education	15.85%	29
other (please specify)	19.13%	35
Total Respondents: 183		

#	other (please specify)	Date
1	Four-year college	4/18/2013 4:56 AM
2	Graduate School	3/23/2013 9:52 AM

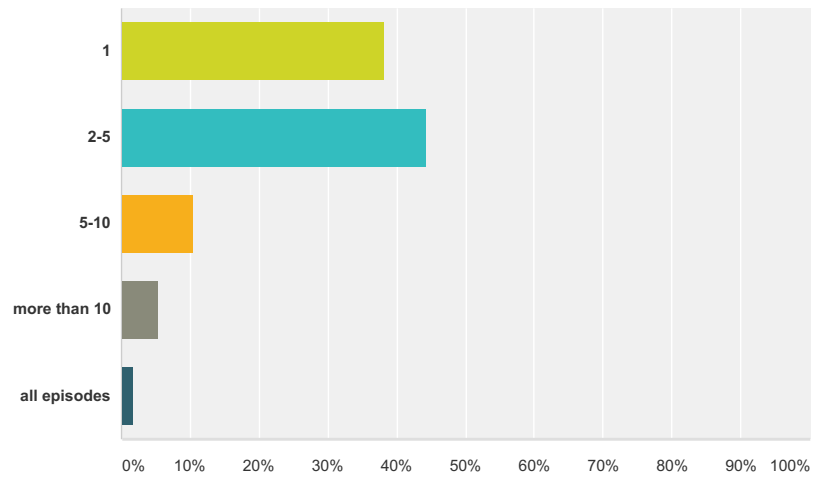
Learning to Teach Online Episodes Evaluation

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3	supporting teachers in using elearning across the curriculum	3/15/2013 2:51 AM
4	mandatory post graduate NFP	2/26/2013 12:44 PM
5	College teaching undergraduate applied science degree courses	1/14/2013 10:51 AM
6	do not teach	12/14/2012 9:34 AM
7	Non-profit international organisation	11/25/2012 5:39 AM
8	Career college	10/27/2012 11:12 AM
9	community college	10/22/2012 5:57 AM
10	Community college	10/19/2012 2:50 AM
11	I am not an instructor. I am a Program Specialist at a Community College.	10/19/2012 2:02 AM
12	U.S. Middle School (6th-8th grade) - 11-14 year olds	9/29/2012 12:53 AM
13	not a teacher	9/19/2012 9:48 PM
14	community-based, intergenerational projects in marginalized, immigrant communities (English not mother tongue)	7/25/2012 3:23 AM
15	Institute of Technology	7/2/2012 8:19 PM
16	Instructional design in higher ed, corporate and NGO environments	6/16/2012 2:11 AM
17	University Foundation English program	6/2/2012 12:20 AM
18	corporate setting	4/9/2012 1:26 PM
19	workplace	2/25/2012 7:52 AM
20	Private tutor (online)	1/23/2012 11:37 AM
21	community education	10/31/2011 2:13 AM
22	Community College and Faculty Development	10/14/2011 7:45 AM
23	Community college	9/27/2011 2:55 AM
24	Technology Integration Specialist for a school district.	7/26/2011 12:32 AM
25	High School but now retired	6/25/2011 10:41 PM
26	I don't teach anymore - I'm an LMS vendor	6/24/2011 5:49 PM
27	I'm not a teacher, I'm a research analyst at a community college researching social media and education	6/14/2011 7:55 AM
28	Student but on design team for EPcop MOOC. Hope to research eportfolio use. particularly PP	6/4/2011 12:42 PM
29	I am a student, and I tutor other students through discussion, email, and chat rooms	5/27/2011 4:32 PM
30	Community college in Canada	5/19/2011 4:21 AM
31	College	5/18/2011 11:34 AM
32	Pathways program (accredited Diploma course)	5/7/2011 3:02 PM
33	private tertiary	4/24/2011 11:41 AM
34	Hospital	3/25/2011 9:02 PM
35	private college offering bachelors degrees	3/25/2011 3:09 PM

Q6 Approximately how many Learning to Teach Online episodes have you viewed?

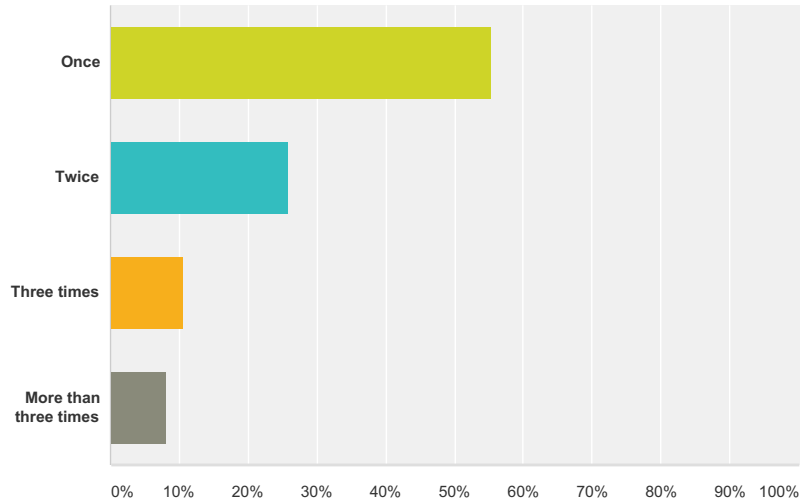
Answered: 181 Skipped: 12



Answer Choices	Responses
1	38.12% 69
2-5	44.20% 80
5-10	10.50% 19
more than 10	5.52% 10
all episodes	1.66% 3
Total	181

Q7 How many times have you watched the video or read the PDF component of an episode?

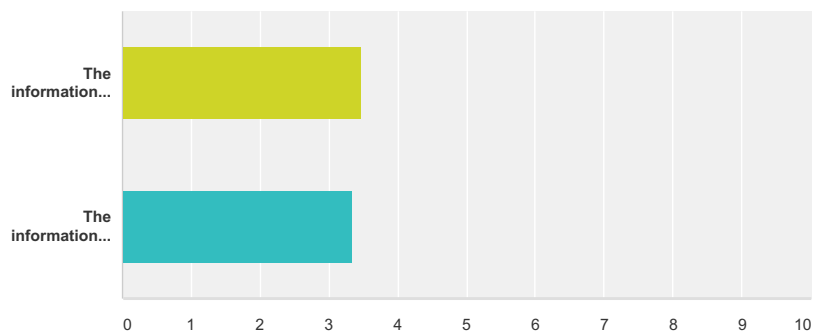
Answered: 159 Skipped: 34



Answer Choices	Responses
Once	55.35% 88
Twice	25.79% 41
Three times	10.69% 17
More than three times	8.18% 13
Total	159

Q8 How would you rate the following components of the episodes in general?

Answered: 165 Skipped: 28

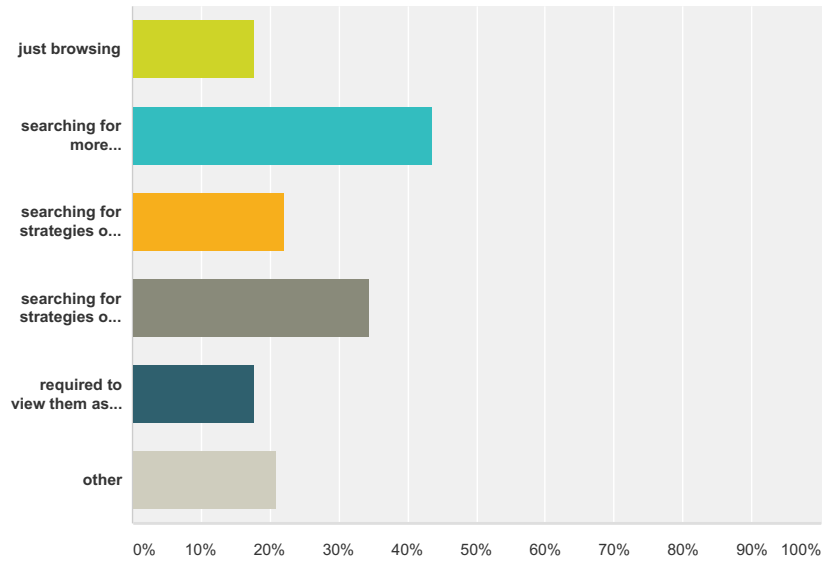


	strongly disagree	disagree	agree	strongly agree	Total	Weighted Average
The information within the videos was engaging and easy to follow?	3.66% 6	1.83% 3	39.02% 64	55.49% 91	164	3.46

The information within the accompanying PDF files was easy to follow and engaging?	2.72% 4	5.44% 8	45.58% 67	46.26% 68	147	3.35
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Q9 Why did you view the episodes? (You can tick more than one)

Answered: 163 Skipped: 30



Answer Choices	Responses
just browsing	17.79% 29
searching for more information on a specific topic of online teaching	43.56% 71
searching for strategies on how to start teaching online	22.09% 36
searching for strategies on how to improve my online teaching	34.36% 56
required to view them as part of my university's training program	17.79% 29
other	20.86% 34
Total Respondents: 163	

#	additional comments	Date
1	indirectly found out about your web site through Stephen Downes education newsletter	4/12/2013 3:00 AM
2	Most resources are not adapted for use by Deaf viewers. I think that it is a rude diservice to ignore the needs of Deaf students.	3/27/2013 2:38 PM
3	Rresearching strategies for peer feedbak	3/23/2013 9:52 AM
4	I am taking an online course on teaching in the blended classroom. This was one of the resources.	3/2/2013 10:40 AM

Learning to Teach Online Episodes Evaluation

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5	about to create a Virtual World for VET sector teachers to use and found the episode of Virtual Worlds interesting.	1/23/2013 9:12 AM
6	Question 1 - the PDF file was not available.	1/9/2013 7:18 PM
7	Searching for strategies to motivate students. Can I suggest that you include learners' motivation in your videos?	12/31/2012 11:35 PM
8	recommended by a colleague for example of OER	12/14/2012 9:36 AM
9	discussion based online teaching	12/3/2012 12:44 AM
10	Required to view the video as part of my E-Moderator course	11/25/2012 5:41 AM
11	Looking for open resources to re-use in our own faculty development program	11/3/2012 4:03 AM
12	I liked the e-publishing video. It was short and easy to understand.	10/4/2012 3:36 PM
13	I found this resource that was linked on a required reading for a course at George Mason University in Virginia, U.S.	9/29/2012 12:55 AM
14	assignment - searching for info	9/19/2012 9:49 PM
15	I was looking for a video to share with my students (I am teaching a course "What Works in K-12 Online Learning").	7/27/2012 8:35 AM
16	I want to hear and then read a thorough perspective in online T&L to formulate my own views and write courses I fear I have a contributory skills, knowledge and expedience.	7/26/2012 2:10 PM
17	I would very much like to hear all of what Professor Matthew Allen (Curtin University, Dept. of Internet Studies) had to say in that last video clip which apparently got edited down (he goes from saying what PD should not be, to advocating what it should be, but the full recommendation is not on the video. The break occurs just after he mentions that academics should be provided a "genuinely developmental exercise," with "time, resources, and money" put into [BLIP]. The speech that continues is not congruent with that half-made statement, and I would very much like to know what he said at the BLIP. Thanks. You (or he) can email me at jlcamp@episd.org	7/25/2012 3:32 AM
18	I have a masters in DL - distance learning - and I have designed 5 online courses.	7/12/2012 4:16 AM
19	Searching for hands on tools for students to master group dynamics and assess each other in group work	6/16/2012 2:12 AM
20	I was looking for some materials useful for professors to understand the Creative Commons usage, it's such a pity that they don't understand english.	6/13/2012 8:35 AM
21	maintaining engagement is my key concern. linking to assessment is already done. Need more strategies.	5/2/2012 6:05 PM
22	Searching materials to support my research	4/9/2012 8:21 PM
23	Looking for resources and examples I can direct my colleagues to	3/31/2012 7:10 AM
24	Can't figure out where the accompanying PDF file(s) are.	3/30/2012 2:46 AM
25	This is an awesome video and I plan on watching more and linking to them from my blog. I am pursuing a Master's in Curriculum and Instruction with a specialization in Educational Technology and I am hoping to teach online at some point in the near future. This was a pleasant surprise amongst the usual drivel on youtube. Thank you!	3/25/2012 12:15 PM
26	creative commons wiki	2/25/2012 7:52 AM
27	MERLOT Peer Reviewer	1/26/2012 7:35 AM
28	I've used them as part of teacher training sessions for teachers new to online learning - something they are highly appropriate for. The quality of the production and content is outstanding, even more so given that it is freely viewable.	11/18/2011 12:06 PM
29	More or less stumbled on the site after viewing other presentation posted by teacher on Facebook. Have an interest in moving activities online (especially lectures), so found this an interesting resource. The presentation is very inviting and looks promising (with the videos per topic).	11/3/2011 9:45 PM
30	got to the site via scoop.it	10/29/2011 8:28 AM
31	finding strategies on how to help teachers teach online	10/23/2011 4:03 PM
32	A colleague referred me to the video. I did not read the PDF	10/14/2011 7:46 AM

Learning to Teach Online Episodes Evaluation

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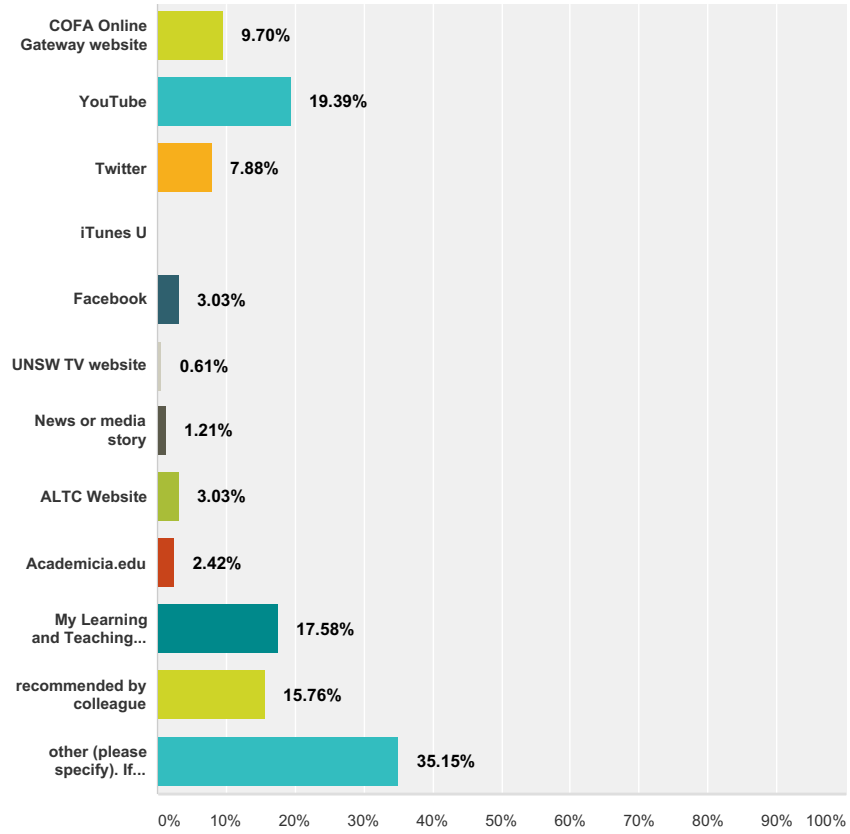
33	I was sent a link by a trusted colleague	9/7/2011 12:12 PM
34	Recommended here: http://wnctraining.org/?p=389	8/5/2011 11:07 AM
35	Searching for additional resources for the class I am designing "Online Classroom Management".	7/22/2011 1:28 PM
36	Interested to see whether any of the strategies and technologies that are used elsewhere on the web to engage, build user traffic and/or sell, have been adopted into the on line teaching methodologies.	7/21/2011 8:57 AM
37	I teach educational technology courses and workshops to faculty in our technical institute and I was looking for additional/newer/better resources for my teaching.	7/20/2011 11:47 PM
38	referred to site by university colleagues (yammer) as we are introducing Desire to Learn and eportfolio. whilst there I started to browse other episodes that interested me and will refer this site to my Careers and Employment colleagues	7/12/2011 10:25 AM
39	Leading an online faculty development offering for faculty at my own institution. Delighted to find your site and materials as an additional resource I will refer them to.	6/30/2011 7:54 AM
40	Particularly interested in ePortfolio approaches	6/25/2011 10:43 PM
41	I am looking for resources and models to support faculty in our institution. I am very impressed by the model you have developed. Thank you for creating such a great resource!	6/22/2011 10:24 AM
42	Referred to the site by a colleague, was specifically looking for information on ePortfolios and found the episode very helpful!	6/9/2011 5:17 PM
43	I didn't know about them until a colleague sent me a link http://www.youtube.com/watch?v=JUXM2OOPMMw&feature=player_embedded	6/4/2011 12:43 PM
44	I decided to forward these to my college instructors at West Hills Community College in Lemoore, California, USA	5/27/2011 4:34 PM
45	Responsible for Flexible learning cooperation at my University	5/24/2011 7:21 PM
46	The link had been sent to me because of 'our' involvement in an ALTC on chemistry education and active learning so I know both the academics.	5/19/2011 1:42 PM
47	Looking for resources to share with the Instructors I work with. We have a collaborative model of online course development where an Instructional Designer (me) is paired with a Subject Matter Expert (typically an instructor) to develop the course. Often the Instructor has never taught online and needs additional support.	5/19/2011 4:09 AM
48	As a professor assigned to our Centre for Academic Excellence with responsibility for Professional Development for teaching and learning I am constantly searching for resources. While there is no shortage of resources, excellent ones are hard to find I am currently designing workshops for faculty interested in teaching blended or hybrid courses - I plan to link to these and to share these videos and pdf files with our faculty here at Seneca - even though designed for fully online they are relevant to the broad spectrum of blended learning.	5/18/2011 11:40 AM
49	Looking for resources to share with the faculty members I support, especially in regards to getting over fears about moving to online learning environments.	5/18/2011 10:53 AM
50	seems a good way to engage students & encourage more discussion, peer evaluation activities	5/7/2011 3:03 PM
51	I'm always interested in video that provides a thoughtful overview of any Online Teaching and Learning Process. These resources are far superior to what is typically found on YouTube. I'm actively promoting the home website for COFA Online via my university resources and global social networks.	4/28/2011 11:09 AM
52	a link in an e-mail	4/24/2011 11:42 AM
53	Reviewing the project and the relevance of the episodes for staff at my university.	4/7/2011 2:11 PM
54	To inform the development of an online teaching resource.	4/7/2011 11:40 AM
55	Followed a link from Jorum	4/1/2011 1:23 AM
56	I used COFA for information and posted the link as part of my LeTTOL course at Sheffield College	3/31/2011 7:46 PM

Q10 How did you find out about the Learning to Teach Online project? (You can tick more than one)

Learning to Teach Online Episodes Evaluation

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Answered: 165 Skipped: 28



Answer Choices	Responses
COFA Online Gateway website	9.70% 16
YouTube	19.39% 32
Twitter	7.88% 13
iTunes U	0.00% 0
Facebook	3.03% 5
UNSW TV website	0.61% 1
News or media story	1.21% 2
ALTC Website	3.03% 5
Academia.edu	2.42% 4
My Learning and Teaching unit	17.58% 29

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recommended by colleague	15.76%	26
other (please specify). If a blog or website, please paste the url/name/title into the box below if possible	35.15%	58
Total Respondents: 165		

#	other (please specify). If a blog or website, please paste the url/name/title into the box below if possible	Date
1	http://www.downes.ca/	4/12/2013 3:00 AM
2	http://ariadne.cs.kuleuven.be/	4/3/2013 7:00 AM
3	Christopher Pappas 14 March 16:10 http://ow.ly/Iv8B	3/15/2013 2:54 AM
4	see above	3/2/2013 10:40 AM
5	part of "reading" for post grad studies in Education with Macquarie Uni	2/26/2013 12:45 PM
6	The Consultant-E	11/25/2012 5:41 AM
7	Google	11/22/2012 8:46 AM
8	http://www.emoderationskills.com/?p=884	11/9/2012 6:43 PM
9	ACNT	11/2/2012 2:21 PM
10	ION	10/19/2012 5:23 AM
11	Found the link to the site through Google.	10/19/2012 2:04 AM
12	Assignment given in QM workshop.	9/27/2012 3:29 AM
13	Google	9/24/2012 6:34 PM
14	google	9/19/2012 9:49 PM
15	I took my Masters program at Cofa online learning.	7/26/2012 2:10 PM
16	Educational Service Center, Region 19, Texas, USA	7/25/2012 3:32 AM
17	browsing on google and I found it.	7/12/2012 4:16 AM
18	MERLOT	6/16/2012 2:12 AM
19	Twitter through my PLN. I bookmarked it and came back to it now.	6/2/2012 12:20 AM
20	search on google	5/13/2012 6:21 AM
21	google search on the topic	5/2/2012 6:05 PM
22	campus review	5/1/2012 12:29 PM
23	MERLOT.com	4/9/2012 1:27 PM
24	http://kiwibelma.wordpress.com/	3/31/2012 7:10 AM
25	ihonline training material	2/18/2012 1:04 AM
26	am a partner on the etwinning project "Online Facilitations" founded by Daniela Arghir and this was the task for us to watch and evaluate...happy to come across more! thanks. P.S.eTwinning is an international official portal for teachers to collaborate on online projects as well as finding partners for other type of projects as Comenius etc. all available at the "LifeLongLearningProgramme =LLP"	2/5/2012 6:08 PM
27	MERLOT Peer Reviewer	1/26/2012 7:35 AM
28	googled "online facilitation"	1/7/2012 2:19 AM
29	Technology for T & L Forum	12/13/2011 10:25 AM
30	on an in-house Web2.0 training course	11/18/2011 12:06 PM
31	google search	11/9/2011 7:24 PM

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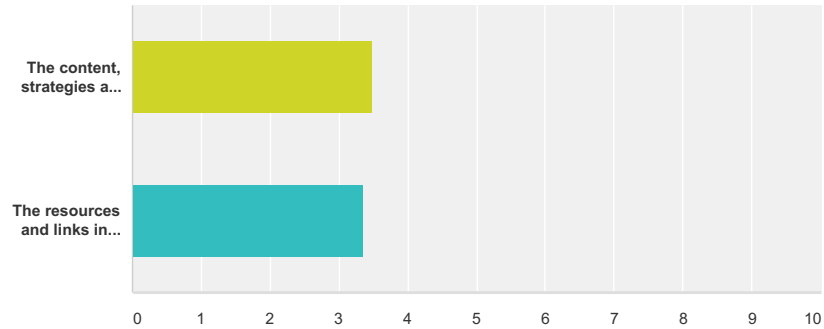
32	scoop.it http://www.scoop.it/t/the-21st-century/p/570097851/edmediashare-teaching-with-web-2-0-technologies-twitter-wikis-blogs-case-study?_tmc=UuxPZB1AAIMzWkKGwVgs17y1eTOFGBJEBrhBHGvwCl	10/29/2011 8:28 AM
33	I googled online teaching and found it.	8/16/2011 10:48 PM
34	http://wncrtraining.org/?p=389	8/5/2011 11:07 AM
35	Googling for recommended web sites	8/4/2011 2:20 PM
36	You forgot "googled" LOL!	7/21/2011 8:57 AM
37	Tony Bates's Blog (We use his text on my course.) http://www.tonybates.ca/2011/07/19/learning-to-teach-online-a-professional-development-resource/	7/20/2011 11:47 PM
38	Googling Online Learning Resources	7/14/2011 2:37 PM
39	Yammer	7/12/2011 10:25 AM
40	http://sydney.edu.au/education_social_work/coco/index.shtml	7/11/2011 7:14 PM
41	Professional development training that I signed up for, hosted by Kathrin Salazar, Technology Coordinator, Education Support Center, Region 19, El Paso, Texas	7/9/2011 9:28 AM
42	I am sorry, I do not recall.	6/30/2011 7:54 AM
43	required reading for distance learning course	6/27/2011 3:45 AM
44	Google Alerts	6/25/2011 10:43 PM
45	Academia.edu link: Ros followed the paper: Using online environments for teaching large classes - Case study (follow) by Simon McIntyre	6/22/2011 10:24 AM
46	My teacher at Illinois State University	6/22/2011 6:51 AM
47	email from colleague	6/4/2011 12:43 PM
48	Google	5/27/2011 4:34 PM
49	Blog Wilfred Rubens	5/20/2011 6:37 PM
50	a reviewer at one point in the early development of the resource	5/19/2011 1:42 PM
51	http://paper.li/markbullen#	5/19/2011 4:22 AM
52	OLDaily Newsletter sent by Stephen Downes	5/18/2011 11:40 AM
53	samgliksmann e-mail	4/24/2011 11:42 AM
54	www.classroom2.0	4/20/2011 7:38 AM
55	Video was posted on Classroom 2.0	4/20/2011 6:17 AM
56	linked in updates	4/8/2011 2:28 AM
57	Invited as part of project reference group	4/7/2011 2:11 PM
58	Followed a link from a Jorum newsletter.	4/1/2011 1:23 AM

Q11 How would you rate the following pedagogical aspects of the project?

Answered: 156 Skipped: 37

Learning to Teach Online Episodes Evaluation

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	strongly disagree	disagree	agree	strongly agree	Total	Weighted Average
The content, strategies and ideas featured in the episodes (videos and PDFs) were valuable and relevant	3.21% 5	0.64% 1	40.38% 63	55.77% 87	156	3.49
The resources and links in the PDFs were useful as a starting point for additional information, reading and/or research	2.88% 4	2.88% 4	49.64% 69	44.60% 62	139	3.36

#	additional comments	Date
1	Because of exigencies of time I am unable to downlo9ad PDF files at this time	4/18/2013 4:58 AM
2	Fantastic resource! Very high quality!	4/12/2013 3:01 AM
3	Excellent, well supported use of blogs for student to student feedback.	3/23/2013 9:54 AM
4	I just meant to view a small amount of the information, but it was very informative and interesting. I plan to return to the site even after I finish the course.	3/2/2013 10:43 AM
5	The PDF file was not available	1/9/2013 7:18 PM
6	Have not read the PDF as it does not appear to be downloadable. Unlike younger folks, I hate being chained to the computer.	10/22/2012 5:59 AM
7	These make good foundations to take your study further into relevant areas that you hold in your own expertise.	7/26/2012 2:11 PM
8	I'm a visual learner so it helps to see the videos, get my interst and then read the research.	7/12/2012 4:17 AM
9	*Absolutely clear, now I've got strong arguments to defend the Share-Alike images in our onlione courses.	6/13/2012 8:38 AM
10	Good pragmatic discussion. Did not actually go into pedagogical principles, which in my view is crucial	5/1/2012 12:30 PM
11	If I could find the PDF files I most likely would agree.....	3/30/2012 2:47 AM
12	I haven't read the pdfs yet. I tried to download it but was directed to this survey first. I thought the pdf materials might be my prize for completing this survey.	1/26/2012 7:37 AM
13	I haven't made use of the PDFs yet.	11/18/2011 12:07 PM
14	The video I watched (partially) just never gets to the point. It seems to be a collage of various slogans or general ideas, but doesn't actually teach the viewer what it promises: why online learning is important.	11/3/2011 9:49 PM
15	These are graet videos whih should be used in all teacher training!!!! I wish, we had this in Germany!	10/29/2011 8:29 AM
16	Did not read the PDF	10/14/2011 7:47 AM
17	i didn't read the PDF	9/7/2011 12:51 PM
18	the Pdf are an excellent follow up resource	7/12/2011 10:26 AM
19	did not read the pdf	6/27/2011 3:46 AM

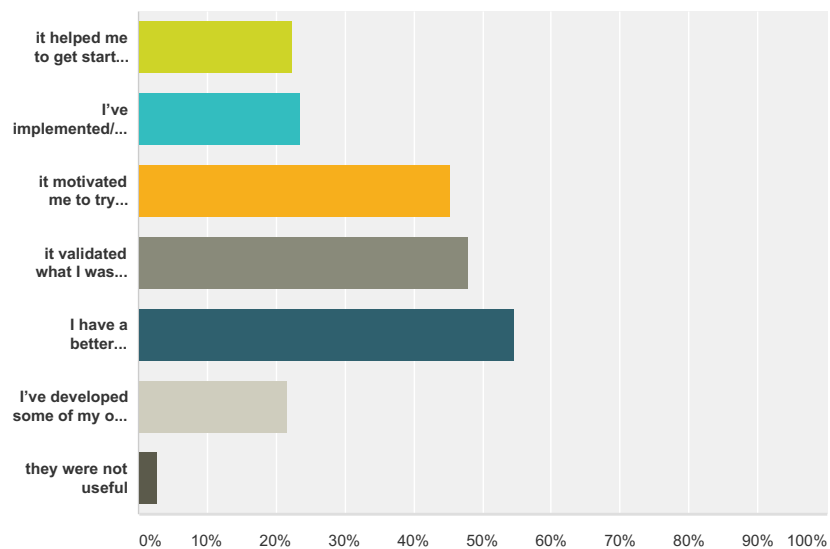
Learning to Teach Online Episodes Evaluation

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20	Excellent choice of further reading.	6/22/2011 10:26 AM
21	I was not aware that there were PDFs with the videos so I would check n/a if I could.	6/22/2011 6:52 AM
22	The pedagogy offered in these videos is completely consistent with current literature and our online learning program's advice for new online instructors.	5/19/2011 4:10 AM
23	the pdf links are difficult to find	5/10/2011 5:03 PM
24	I'll be adding selected video / pdf resources to my course designs. I'll be teaching with them starting summer session.	4/28/2011 11:12 AM
25	The video was inspirational and confidence-building. Made me want to get out there and do things.	4/24/2011 11:44 AM
26	Didn't ever see the PDF	4/20/2011 6:22 AM
27	more linkages please :)	4/12/2011 11:23 PM
28	The resources that I've viewed have a good balance between student learning and other educational concerns, staff concerns and practicalities.	4/7/2011 2:23 PM

Q12 Overall, the video and PDF episodes (videos and PDFs) were effective as a learning resource because (you can tick more than one)

Answered: 148 Skipped: 45



Answer Choices	Responses
it helped me to get started in online teaching	22.30% 33
I've implemented/adopted some of the ideas into my own teaching	23.65% 35
it motivated me to try something new	45.27% 67
it validated what I was already doing	47.97% 71

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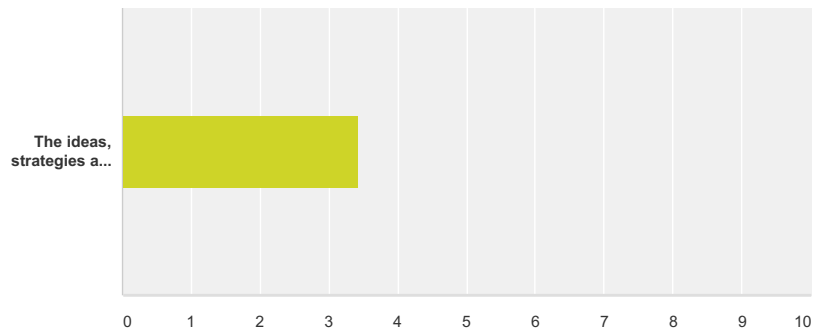
I have a better understanding of online teaching	54.73%	81
I've developed some of my own approaches based on what I seen	21.62%	32
they were not useful	2.70%	4
Total Respondents: 148		

#	additional comments	Date
1	they were ignorant of the needs of Deaf learners. I am not talking special education. I am talking good teaching strategies. You have chosen not to implement all inclusive strategies.	3/27/2013 2:39 PM
2	I am a student right now, so this supports my research on blogs as an effective means to provide student feedback,	3/23/2013 9:54 AM
3	Google	11/22/2012 8:47 AM
4	The video is more substantial than the others we were asked to view.	10/22/2012 5:59 AM
5	it is an exciting area as the content has an aptitude for richness and diversity.	7/26/2012 2:11 PM
6	I work for the Virtual University of Guanajuato State, Mx. and it's been confusing the usage of Creative Commons materials, as graphic designer I'm glad to be able of sharing this knowledge with my work team. Thank you very much! Fátima López. :)	6/13/2012 8:38 AM
7	None of the above. I had a bad experience when my uni brought in some similar ideas, and I want to be sure that we are going to use approaches that actually work. This approach seems far more realistic	5/1/2012 12:30 PM
8	If I was new to online teaching I think the resources would encourage me to try/try something new and would provide a good insight into how online teaching works.	3/31/2012 7:12 AM
9	It validated what I was 'thinking' rather than 'doing' (I have as yet no online teaching experience), but extended these points with additional relevant points	2/18/2012 1:08 AM
10	The first rule of online presentation (IMHO) is to keep it to the point. There is too much extra fluff here to be waded through. The list of key points in the PDF was useful, but everything useful in the video and PDF could have been presented in a video and PDF of say, 20% of the length.	11/3/2011 9:49 PM
11	It helped me see that using videos where teachers share their experiences can be meaningful for teachers considering how to use elearning	10/23/2011 4:05 PM
12	They gave me a balanced view of what was out there, where to look, and how to use some of the suggested software.	8/16/2011 10:50 PM
13	They will become a require part of my formal EdTech course and I will be discussing/promoting them in one or more of my blogs.	7/20/2011 11:49 PM
14	I plan to draw on these, recommend them to faculty in our institution,.	6/22/2011 10:26 AM
15	There were many interesting points made throughout the information I have observed. I agree with many thoughts these professionals speak of on different topics. Thank you for providing this. As a young adult coming into the world, information like this is very useful indeed. Best of luck. -Lupita.	5/27/2011 4:35 PM
16	Because they are honest and give aspects of both sides, + and -, of online teaching!	5/24/2011 7:22 PM
17	I'm an e-learning professional. Although there was nothing new as such, the quality of the presentation and the bonus of pdf materials is very appreciated. I also feel that this work has excellent academic credibility and will be very valuable when it comes to training university staff.	4/28/2011 11:12 AM
18	I plan on using these with teachers in my schools	4/20/2011 6:22 AM
19	it helped me encourage others	4/8/2011 2:28 AM
20	They address very common issues as well as opening up options. The only suggestion that I'd have is to perhaps break some of them into episodes that address the different subissues. That would make it a bit easier for people to use them as discussion triggers in academic development workshops. For example, I'd like to show bits of several if we were having a discussion about why you might choose one technology over another for a particular learning purpose.	4/7/2011 2:23 PM

21	The learning resource provided really interesting and accessible information about the possibilities of online teaching - as well as currently developing a resource I am involved in the review of our university's distance learning program and see the COFA resource as a valuable source of information for this review.	4/7/2011 11:42 AM
22	I'm finding that I'm using a Facebook as an addition to my online course because does the thing that the online environment at COFA does not do. A single place where comments, links, uploaded video and photos can all exist together so there is an immersive interchange of posts.	4/5/2011 12:16 PM

Q13 Would you agree with the following statement?

Answered: 145 Skipped: 48



	strongly disagree	disagree	agree	strongly agree	Total	Weighted Average
The ideas, strategies and concepts from the different disciplines represented in the episodes were relevant and useful to me even though my discipline may have been different	2.07% 3	1.38% 2	48.28% 70	48.28% 70	145	3.43

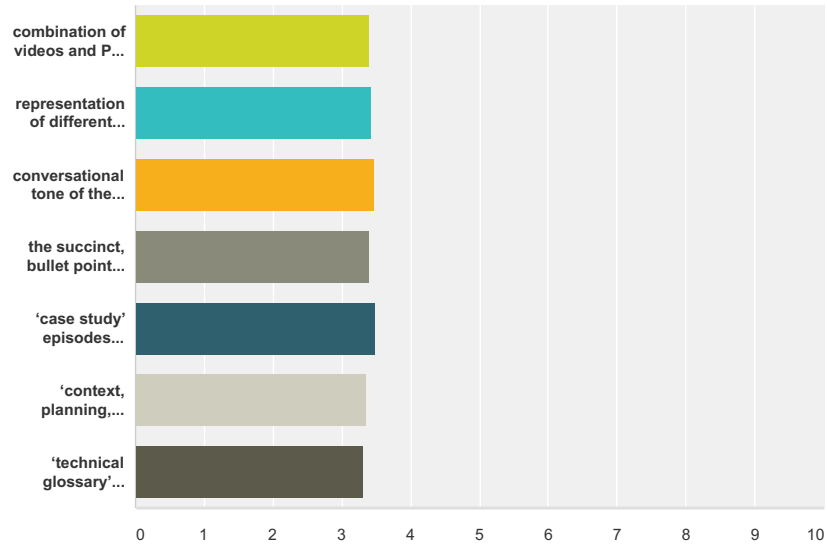
#	additional comments	Date
1	The viewpoints showed the diversity of how diverse teachers will be involved and how diverse the student population can be.	7/26/2012 2:15 PM
2	It's networking - finding out another person's viewpoint. Seeing what you've been doing with a different eye.	7/12/2012 4:23 AM
3	the comments were made by people from totally different disciplines (engineering to fine arts) which made them all the more credible. they were general enough to be applied to any discipline	2/26/2012 3:37 PM
4	Very useful videos! I have no formal training as an online teacher, much of what I have learned has been trial and error. These videos have helped me to refine my teaching methods to connect with my students better.	7/22/2011 1:34 PM
5	although the disciplines chosen probably lend themselves to reflective practice - I would like to see the strategies used in an IT or Science environment	7/12/2011 10:31 AM
6	Cross discipline comments allow colleagues to see the applicability for online.	5/19/2011 4:24 AM
7	I work with instructors from a large variety of disciplines.	5/19/2011 4:12 AM

Q14 Would you agree that the following aspects of the episodes were useful and effective

Answered: 144 Skipped: 49

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	strongly disagree	disagree	agree	strongly agree	Total	Weighted Average
combination of videos and PDF for each episode	2.22% 3	2.96% 4	45.93% 62	48.89% 66	135	3.41
representation of different opinions of academics in the videos	2.24% 3	1.49% 2	48.51% 65	47.76% 64	134	3.42
conversational tone of the videos	2.14% 3	1.43% 2	45.00% 63	51.43% 72	140	3.46
the succinct, bullet point format of the PDFs	2.38% 3	1.59% 2	49.21% 62	46.83% 59	126	3.40
'case study' episodes showing specific examples	1.53% 2	1.53% 2	44.27% 58	52.67% 69	131	3.48
'context, planning, teaching' episodes introducing pedagogical concepts	1.65% 2	1.65% 2	55.37% 67	41.32% 50	121	3.36
'technical glossary' videos to support getting started in different technologies	2.54% 3	3.39% 4	53.39% 63	40.68% 48	118	3.32

#	additional comments	Date
1	I will utilize this resource again and share it with classmates.	3/23/2013 9:56 AM
2	I actually didn't see a technical glossary video, but the choice to say I didn't see it was not available.	2/18/2013 5:15 AM
3	short and sharp makes the episodes easy to watch	1/23/2013 9:16 AM
4	The PDF file was not available	1/9/2013 7:20 PM
5	excellent resource	9/19/2012 9:51 PM
6	The academics' opinions did not diverge all that much. It would have been more interesting to have less cheerleading and more problem posing in the video. Maybe that's in another title you could suggest?	7/25/2012 4:00 AM
7	Text highlights in the videos would be helpful	6/16/2012 2:15 AM

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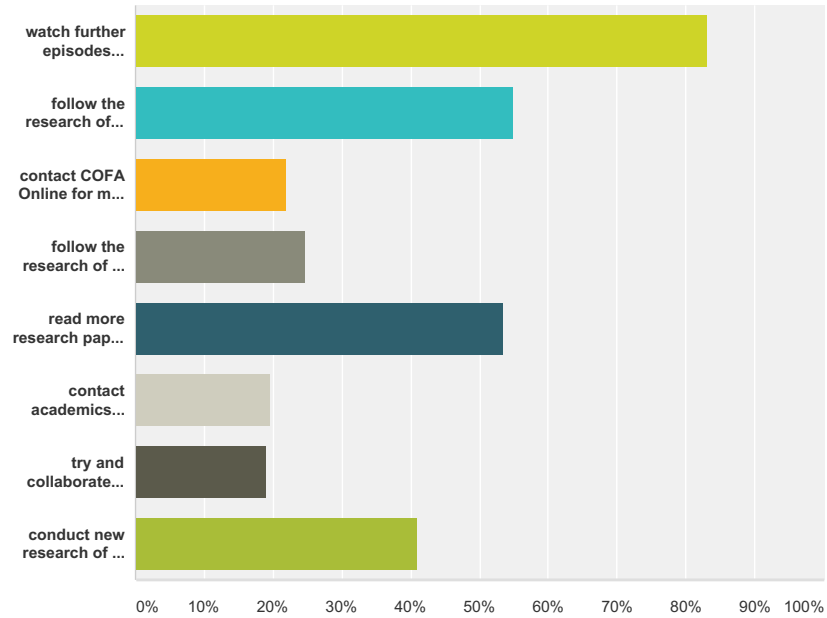
8	I don't have enough experience by browsing your videos still. But I'll hardly recommend this magnificent and useful website to my partners.	6/13/2012 8:41 AM
9	I didn't bother with PDF. Was already familiar with most ideas in the content.	5/2/2012 6:07 PM
10	Everything is very, very good. I especially appreciated that you included students and would like to have seen a little more from different students in terms of their experiences (i.e. "It was really helpful to me once when my teacher").	3/25/2012 12:18 PM
11	I have not yet come across case study episodes	2/18/2012 1:11 AM
12	Didn't notice all of the above content (I only watched the first video, and not all the way through before downloading the PDF).	11/3/2011 9:54 PM
13	For me the most valuable videos were the ones outlining how to use online technologies - even the ones I already use - eg audacity and twitter. The most useful video I have watched so far was "An overview of Second Life" which took me into a site I have not been to and was not familiar with - awesome! Overall I have a sense of top athletes who are, say, long distance runners who now find themselves in the surf. What they know how to do well is running, so there they are in the surf running like crazy! And they may well be the best surf-runners on the planet. But what I say is: "lets go surfing"!	7/21/2011 9:12 AM
14	looking for more information about interactive ebooks and Linked In so will search your site for reference to these or will subscribe	7/12/2011 10:31 AM
15	Video/PDF pairing was excellent. Finding more info in the PDF motivates me to download/read future PDFs.	6/22/2011 10:29 AM
16	Student comments are excellent	6/4/2011 12:44 PM
17	The case studies were my favourite!	5/18/2011 11:42 AM
18	I ticked 'disagree' but would have ticked n/a because of the nature of the single episode I watched.	4/12/2011 11:25 PM
19	The episodes introducing the pedagogical concepts were informative - I sometimes became irritated with the quick grabs, almost bullet point way speakers made comments - I would have liked more than one sentence per speaker.	4/7/2011 11:45 AM

Q15 Are you likely to pursue any of the following because of watching these episodes? (You can tick more than one)

Answered: 142 Skipped: 51

Learning to Teach Online Episodes Evaluation

SurveyMonkey



Answer Choices	Responses
watch further episodes produced by COFA Online	83.10% 118
follow the research of COFA Online	54.93% 78
contact COFA Online for more advice or guidance	21.83% 31
follow the research of an academic featured in the episodes	24.65% 35
read more research papers related to topics raised in the episodes	53.52% 76
contact academics featured in the episodes for more information and/or advice	19.72% 28
try and collaborate with academics featured in the episodes on future papers or ventures	19.01% 27
conduct new research of my own into online learning and teaching	40.85% 58
Total Respondents: 142	

#	other/additional comments	Date
1	no	3/27/2013 2:40 PM

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2	The restructuring of workforce settings to move at the speed of technology and not of humans it is meant (?) to serve has increased the time poverty of those of us fortunate enough to stay employed (more and more web-based tasks crammed into fewer and fewer hours for doing PAID work). Not just in the education sector. This poses one of the problems I would have liked to see explored in terms of PD: the school districts are now offering more and more unpaid, do-on-your-own-copious-free-time "webinars," even more isolating and discourse-imbalanced than the old herd-'em-into-a-big-room-and-give-'em-PD model. All very rushed and superficial. These are trends, in which the "how" and "why" of online teaching-learning, posed by your video academics, become reduced to the cost-benefit, short-term business model that more and more is replacing anything community-based or even public from public education (especially this state, Texas, a national "leader" for privatizing initiatives and public funding cuts). So the how and why are really not receiving the kind of deliberation or public scrutiny that I heard proposed by at least some of your video advocates. Besides how and why, I think we should also be asking who: who benefits the most from any pedagogical practice. If it is the usual suspects, we aren't doing our job.	7/25/2012 4:00 AM
3	Looking at portfolio based learning for 2 years with Grades 8 and 9 students in Information Technology with a blended method of online and classroom. Also looking at differentiated learning using online courses in my classroom. I have 6 courses going on in one classroom.	7/12/2012 4:23 AM
4	I will remain wary, but it might be a good idea!	5/1/2012 12:32 PM
5	This resource will be very helpful to me. I need to convince my managers that this is what online teaching should be like. Thank you very much for providing some leverage for me.	3/31/2012 7:16 AM
6	I followed the book and article links in the PDF, they look helpful. Will probably order 'Theory and Practice of Online Learning'.	11/3/2011 9:54 PM
7	As a relatively new online teacher and a novice course designer I am very interested in collaborating with experienced course designers on best practices for designing online graduate courses. In the future I would like to develop a course of science methods for teaching science online and would appreciate any advice or feedback about course design.	7/22/2011 1:34 PM
8	I watched the videos as part of my purpose to expand my understanding of online teaching - and will continue to do this.	7/21/2011 9:12 AM
9	As I said earlier, I will be using them in my teaching.	7/20/2011 11:52 PM
10	In the future, I would love to teach ASL (American Sign Language) on-line for people who want to learn but are not able to go to classes due to priorities in their life.	5/27/2011 4:37 PM
11	I am working on a Masters of Distance Education with Athabasca University, my topic is online instructor skills, I am developing a protocol for an institution to collaborate with online instructors to develop a skills standard for training and evaluation.	5/19/2011 4:12 AM
12	I've known for sometime that Australia is a leader in distance education. I appreciate the polished expertise of COFA and their efforts to use social media to spread the word about this resource. I'll highly recommend it to my colleagues around the world!	4/28/2011 11:16 AM

Q16 What was the most valuable aspect of the Learning to Teach Online project to you?

Answered: 104 Skipped: 89

#	Responses	Date
1	validates, supports and confirms my own experiences	4/12/2013 3:03 AM
2	Using online environments for teaching large classes - Case study	4/3/2013 7:13 AM
3	nil	3/27/2013 2:40 PM
4	It was straightforward and easy to understand the logic behind the research.	3/23/2013 9:56 AM
5	copyright	3/15/2013 2:57 AM

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6	accessibility, convenience , free of charge	3/8/2013 1:44 AM
7	The appropriateness of the subject matter, the timeliness to today's world, and they way they are arranged so an educator can view the ones that are best suited to that person's needs.	3/2/2013 10:48 AM
8	simplicity	2/27/2013 11:57 AM
9	Overall, it is valuable in a holistic context. The proof of the value will emerge over this coming semester as some of the new ideas are implemented in the course I am with.	2/26/2013 5:47 PM
10	It presented so many different experiences. It made me think about things I had not anticipated needing further knowledge on.	2/18/2013 5:15 AM
11	it is accessible	1/23/2013 9:16 AM
12	Short and accessible- not lengthy and difficult to follow. "Easy to digest" information	1/14/2013 10:55 AM
13	Review of benefits of online discussion	12/3/2012 12:46 AM
14	I liked the sustaining participation & engagement part as it listed a lot of ideas that helpt me to start my project	11/25/2012 5:44 AM
15	feedback, engaging and motivating students	11/9/2012 6:46 PM
16	being able to repurpose the materials into my own context. Please see https://canvas.instructure.com/courses/200141/self_enrollment/WGY7JC	11/3/2012 4:05 AM
17	Simplicity	10/27/2012 11:14 AM
18	The professional tone.	10/22/2012 6:01 AM
19	I felt as though the entire video was valuable. The topics discussed were right on point and provided beneficial information.	10/19/2012 2:09 AM
20	The psychology behind motivating the on-line learner	10/5/2012 1:57 PM
21	short, easy to access, relevant	10/4/2012 4:24 PM
22	Different opinions; however, there were too many. Using fewer faculty with more in depth conversation	9/27/2012 3:36 AM
23	It woke up desire to learn more. I think it's collected were thoughtfully and in systematic way.	9/24/2012 6:55 PM
24	videos and PDFs	9/19/2012 9:51 PM
25	The availability in You Tube!	9/10/2012 1:15 AM
26	Implemented student-centered teaching approach	8/19/2012 1:23 PM
27	So far, the only episode I viewed was about Discussions online. I plan to seek out others.	7/27/2012 8:38 AM
28	To see the alignment of it's far reaching aims.	7/26/2012 2:15 PM
29	Helping me get started on this path, reflecting on practice and policy implications, especially among my language minority students in an anglophone environment. Any suggestions on what to view next?	7/25/2012 4:00 AM
30	Clear instructions re how to do things	7/15/2012 9:25 PM
31	I have been looking for ways to share my photos in an effective way	7/15/2012 12:31 AM
32	The networking and the learning.	7/12/2012 4:23 AM
33	Choosing Technology	7/2/2012 8:23 PM
34	Shortness of videos, clearness of information presented	6/30/2012 1:23 AM
35	aspect of building a community and responding to learners sets the groundwork for the rest of the course.	6/23/2012 8:02 AM
36	The examples gave in and the PDF material that allows me to consult periodically the information.	6/13/2012 8:41 AM
37	The ideas and scope offered was great. THANK YOU!	6/2/2012 12:22 AM
38	Easy access and the visual nature of the online project	5/13/2012 6:23 AM
39	Would like to look ways of maintaining teacher presence.	5/2/2012 6:07 PM

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40	the realism: people who have used these approaches talk frankly about them.	5/1/2012 12:32 PM
41	The wide range of concepts and useful tips presented.	4/10/2012 11:33 AM
42	Authentic spoken language (for my listening materials)	4/9/2012 8:26 PM
43	ability and user friendly	4/9/2012 1:29 PM
44	Hearing others talk about their online teaching	3/31/2012 7:16 AM
45	Openness to share and collaborate. Thank you!	3/29/2012 10:14 AM
46	The quality of the information and its presentation; the multiple viewpoints to show that it wasn't just one guy saying a bunch of stuff; and the accompanying document	3/25/2012 12:18 PM
47	Introduction to the power of online learning	2/26/2012 3:37 PM
48	creative commons	2/25/2012 7:53 AM
49	Learning that there is good advice out there	2/18/2012 1:11 AM
50	reinforced my belief that dreams do come true and nothing is impossible!	2/5/2012 6:13 PM
51	Hearing the various speakers strategies and perspectives.	1/26/2012 7:39 AM
52	learning more about strategies for teaching online and getting tips from experienced academics	12/13/2011 10:29 AM
53	As a resource	11/24/2011 6:20 PM
54	The case studies. So much of what is available online is you can do this activity or try that activity, this worked really well with my students etc, but, in my opinion, it's the case studies here that teaching practitioners will connect with - plus the humanistic factor of seeing the person talking.	11/18/2011 12:11 PM
55	These videos are excellent!! They provide actual examples of the benefits of online teaching by academics who have the experience. We're hoping to provide these as resources to our faculty who are just starting to teach online.	11/18/2011 4:36 AM
56	It provides an accessible means of sharing information about online teaching issues with my colleagues who are less interested in digging into these issues.	11/9/2011 7:27 PM
57	In concrete terms: the link to the book and the bullet points (key points) in the PDF. However, the idea of collecting videos and resources in this way appeals to me. If the content was better, I would certainly use it. As it is, I shared it with colleagues.	11/3/2011 9:54 PM
58	I'm looking to teach English abroad, it is interesting to see where education and the classroom itself may move to.	10/31/2011 6:40 AM
59	the very personal way how change in learning was promoted by these videos.	10/29/2011 8:32 AM
60	teachers' experiences	10/23/2011 4:06 PM
61	Hearing common themes around utilizing Educational Technology and incorporating it into teaching and learning practice.	10/14/2011 7:48 AM
62	Video and info on it	9/27/2011 2:56 AM
63	The opinions of others as I was a little nervous	8/25/2011 8:37 PM
64	educative	8/23/2011 12:28 AM
65	Being able to chose which episode interested me at any one moment (no-linear structure) according to my needs.	8/16/2011 10:52 PM
66	Carefully prepared and though through, developing coherent arguments with some clear evidence to support	8/5/2011 11:10 AM
67	accessibility of getting instant information and watching/listening	8/4/2011 2:22 PM
68	Very good videos and it was very helpful to have the option of downloading the pdf's for further resources.	7/22/2011 1:34 PM
69	I was hoping to join a community of people who are developing their online teaching skills - ie the forum. The videos were an added bonus.	7/21/2011 9:12 AM
70	Hearing from front line higher educators.	7/20/2011 11:52 PM

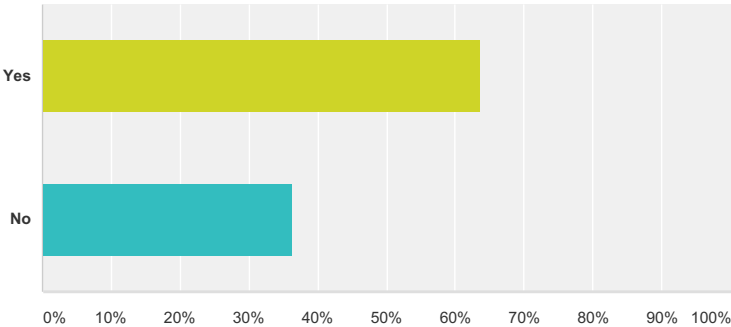
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71	Enthusiasm shared by academics shown and validation of own values of online learning	7/14/2011 2:40 PM
72	Sharing of information and advice at other universities. New ideas and also some basic technical information (ie Twitter)	7/12/2011 10:31 AM
73	succinct relevant and well produced episodes inspire me to look deeper into the topics.	7/11/2011 7:16 PM
74	Being able to listen and watch the presenters discussing the strategies for developing my teaching skills to prepare classes on-line has been the most valuable aspect of Learning to Teach Online.	7/9/2011 9:33 AM
75	Excellent design of the site overall and comprehensive collection of resources.	6/30/2011 7:56 AM
76	easy to watch, short snippets of information, loved the accent	6/27/2011 3:47 AM
77	Real examples rather than hypotheticals	6/25/2011 10:46 PM
78	Practicality - the ideas are ready to use!	6/22/2011 10:29 AM
79	Finding out about it	6/4/2011 12:44 PM
80	It's here, it's FREE information I have access too, and I don't have to travel around the world to get this valid, professional, and updated research that is still growing as I write..	5/27/2011 4:37 PM
81	Collection of real "people" telling real stories :)	5/24/2011 7:24 PM
82	power system	5/21/2011 11:04 PM
83	The videos	5/20/2011 6:39 PM
84	Affirmation of my own practice and the training currently being undertaken at our institution	5/19/2011 4:24 AM
85	The currency of the pedagogic approaches to the constantly shifting target of online teaching best practices!	5/19/2011 4:12 AM
86	It is all very valuable - the case studies were my favourite but I also really value the video/pdf combination.	5/18/2011 11:42 AM
87	The wealth of information gathered into one resource	5/18/2011 11:38 AM
88	Lecturers presence during the online teaching and introducing community of learners aspect.	5/13/2011 5:39 PM
89	Validation of ideas with practical tips.	5/12/2011 12:28 AM
90	The Creative Commons video.	5/8/2011 4:33 PM
91	very relevant to my subject area and students' needs	5/7/2011 3:07 PM
92	Up to the minute information on technology and e-learning concepts presented from multiple points of view.	4/28/2011 11:16 AM
93	It convinced me of the simplicity of the approach.	4/24/2011 11:45 AM
94	I think these are great resources for teachers. Thanks!	4/20/2011 6:23 AM
95	breadth of coverage, disparity of opinions of practitioners	4/12/2011 11:25 PM
96	Hearing from different sources	4/10/2011 12:19 PM
97	The overall quality and usefulness of the resources for academic development in online learning and teaching and the diversity of cases used.	4/7/2011 2:33 PM
98	Looking at the way the information was presented and the very helpful information in the case studies.	4/7/2011 11:45 AM
99	Useful portal containing lots of advice which I'll come back to when I have time and when required.	4/1/2011 1:26 AM
100	I think the fact it was freely available and delivered what it promised were real positives.	3/31/2011 7:49 PM
101	It's online!	3/29/2011 3:19 PM
102	Seeing how things were done elsewhere, and adopting features of other projects to further our own. Even the idea that others out there were having the same ideas and difficulties is encouraging to keep working at improving our own work...	3/25/2011 9:07 PM
103	entertaining way to get new ideas and information. Also validation of what I have been doing as an online teacher	3/25/2011 3:12 PM
104	Wikies	3/24/2011 7:08 PM

Q17 Would you be willing to participate in further interviews or questionnaires about your use of the Learning to Teach Online resource, to help further research in this area?

Answered: 80 Skipped: 113



Answer Choices	Responses	
Yes	63.75%	51
No	36.25%	29
Total		80

Appendix 4. Learning to Teach Online. Final report of the external evaluation

Learning to Teach Online:
Developing high quality video and text resources to help
educators teach online

An ALTC Funded Project

Led from the College of Fine Arts
The University of New South Wales (UNSW)
Sydney, Australia

Final Report of the External Evaluation

Patrick Boyle
Director and Consultant, Q Associates
External Evaluator

June 2011

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Executive Summary

My experience in Australia and elsewhere has resulted in detailed knowledge of a wide range of substantial projects that had educational innovation or development goals. Using this as a reference frame, the *Learning to Teach Online Project* is unquestionably an exemplar of its kind. With a limited budget, given its goals and challenges, and only a 2 years timeframe, this ALTC funded initiative achieved extraordinary results. The Project is also the best example of an initiative I have experienced for demonstrating the kind of positive impact that the ALTC has been making on Australian higher education through its project grants.

There is clear evidence of the very high quality and utility value of the Project's principal outcome, a coherent set of 32 online "Episodes" to support professional development for educators in online teaching. This evidence includes: data from a systematic external review of a sample of the Episodes which I directed and which hinged on detailed feedback from experts external to the Project; and a large amount of unsolicited feedback from people and organizations outside the Project that have reviewed or used the resources that it has developed.

The Project achieved many very positive results. In broad terms, the following are highlights.

- 1) A comprehensive and high quality suite of online Episodes to support enhancement of educators' online teaching capabilities.
- 2) Significant positive impacts (already) on a large number of educators in Australia and internationally. Positive interest and buy-in (including explicit uptake) have been growing rapidly, even before the end of the Project – a rare result.
- 3) A creative and highly effective online/social media focused dissemination strategy, which emphasized knowledge and resource sharing and openness to critique. This was a key factor behind the early impact effects identified above.

The extraordinary demonstrable achievements of the LTTO Project are the main indicators of its success. The achievement of early and considerable uptake of ideas and resources for improving practice, during the life of a project like this and well beyond its local domain, is regarded internationally as an unusual and highly prized result.

The key causal factor of the Project's success was the excellent leadership and management provided by Simon McIntyre and Karin Watson, College of Fine Arts (COFA), University of New South Wales. Based on my experience of project leadership internationally they have demonstrated outstanding talents and professionalism.

Acknowledgements

Although I didn't work directly with them, the people who worked hard and creatively to produce the Project's online resources deserve special acknowledgement. Similarly, without the time, effort and good will of those who participated in interviews or in other ways to enable good content development the Project would not have succeeded as it did.

My special thanks go to the experts who gave their valuable time to carry out the external review the Episodes. All were senior and busy leaders or professionals in their academic or corporate fields and I was very fortunate to receive their assistance.

Caveat

External evaluators can rarely develop the depth of knowledge about a project that those engaged deeply with its work have. In the case of the LTTO Project there was the added factor of its extraordinary speed of emergence (e.g. new materials, reviews or other data becoming available almost by the day). This report is global and summative in nature, so in general it is not meant to be concerned with fine details or nuances of the Project. Accordingly, I may well have missed details or described aspects of it with some inaccuracy or drawn conclusions that can be disputed.

1. Project Description and Context

The overall description and context of projects, particularly complex ones, are not usually evaluative per se. However, they can be important for framing and making more sense of a project's evaluation.

I have left detailed description of the LTTO Project to the Project leadership team and the Final Report to the ALTC. For evaluation purposes I provide a limited description based mainly on the Project's objectives and a synopsis of my reading of the overall strategy adopted to address them. Objectives provide an important reference line for evaluation, as project success is almost always judged significantly on the basis of a comparison between actual achievements and intentions.

The context of a project can also be important for enriching its description. It helps with evaluation too because it provides a background, which often includes the significant drivers or antecedents of a project and/or factors that might facilitate or inhibit its success. Knowledge of context is valuable for making interpretations and judgments about relative success, including the merit of the *work done* to achieve certain outcomes, not just the merit of the outcomes.

1.1 Goal and objectives

The overall goal of the Project was to develop and disseminate well designed, practical, easy to apply and pedagogy-focused digital professional development resources which will be helpful for enhancing users' online teaching capability.

The main objectives of the Project were as follows.

- 1) To assist educators in developing the specific knowledge, analytical, planning and online teaching skills they require to confidently integrate sustainable and effective online teaching practice and assessment into existing curricula.
- 2) To establish an active, global and diverse online community of practice and scholarship specific to online learning, that will help foster a positive strategic change in online teaching practice and attitude across institutions in a broad range of disciplines ultimately improving the student online learning experience.
- 3) To widely disseminate online pedagogy training material through free electronic distribution mediums - that is easy to apply, flexible, practical, portable, and modular.

The intended online suite of “Episodes” (originally to be 25-30), each having video and PDF components, was to be the principal outcome/deliverable of the Project and also the key element for facilitating achievement of its three main objectives.

1.2 Context of the LTTO Project

In the relatively short history of teaching and learning online, educators, learners and educational developers have faced many challenges. From the perspective of educational developers and technologists in particular, these have included:

- the need to develop and demonstrate the merit and practicality of ways of teaching and learning online;
- increasing pressure within universities and other educational providers to implement more diverse ways for students to learn and engage in their studies;
- changing the perceptions of university academics and other educators who often view online teaching and learning as a practice change challenge, or as an inferior way to enable teaching and learning; and
- demand for far better resources and means to support professional development for educators that enhances their online teaching capabilities and confidence.

Educational development projects concerned with teaching online have often had limited success. Key among the reasons for this has been their relative failure to devise the ideas, means and resources to *engage educators* in non-threatening ways and to illuminate a path for professional development which appears feasible and valuable.

An important contextual factor, given the Project’s objectives, was the compound condition of short timeframe (2 years) and small budget (less than \$250,000).

In brief, this was the backdrop for the LTTO Project.

1.3 Project Strategy

Having a clear overarching project strategy is always important for success, regardless of whether the strategy is simple or complex. Good strategy reflects wise consideration of context and the best ways to achieve the project objectives. The identification of *critical success factors* (for achieving objectives), as part of strategy formulation, is almost always a good idea. I often encourage project teams to develop some kind of *intended project logic*, which includes success factors, as a way of articulating or strengthening overall strategy. Knowledge of project strategy is important for evaluation, both formative and summative.

The foundation strategy for the LTTO Project was clear. It can be summarized by the following elements, most of which can be viewed as success factors.

- 1) Have a very small, single institution and hands-on Project leadership team
- 2) Develop and maintain positive relationships with a wider group of people who would contribute important input and services
- 3) Devise a clear project logic to help guide the Project’s implementation
- 4) Identify success factors, indicators and risks as part of the project logic
- 5) Use adaptive operational planning, particularly in relation to content development and the production process for video components

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- 6) Ensure that the resources developed (including content) are demonstrably useful for people seeking to learn about online teaching, even for the first time
 - 7) Avoid glorification of online teaching by ensuring that the resources developed reflect a balanced ('warts and all') perspective
 - 8) Adopt highly effective dissemination strategy, including good two-way communication, effective use of social media and the gathering and use of evaluative feedback to improve outcomes in progress
 - 9) Create a means for the suite of resources to evolve by adopting a modular approach to website development
 - 10) Integrate evaluation and project monitoring into operations from the start

The more specific choices and methods used to do the work of the Project are described in the relevant Project reports.

2. Evaluation Approach

Reflecting the overall evaluation philosophy held by the Project leadership team, a decision was made to engage an external evaluator early in the life of the Project.

An impression I gained from the start was that the Project leadership wanted to take evaluation seriously and there was enthusiasm for what I call integrative evaluation. This is still a relatively rare perspective in many project contexts in Australia. Such a perspective can have many facets and nuances, but in general it holds that aspects of project implementation (what is done and how) can serve both project success goals and evaluation purposes. General examples of practices which reflect such an approach include:

- participative development of some kind of strategic blueprint for the project, such as an *intended project logic*^{*}, which links intents to enablers, including success factors and risk management (* which is often very different to typical project management plans);
- ongoing identification of stakeholders' (or users') values and needs and the use of what's learned to shape project success factors, processes and outcomes; and
- the continual creation of opportunities for users, people impacted and others to provide evaluative feedback on processes and stage outcomes and acting on this to enable improvement and greater buy-in.

2.1 Role of the External Evaluator

Following submission of a formal expression of interest aligned with the brief provided, I was appointed as the external evaluator in 2010.

My work in this role had both advisory and process aspects. The advisory role focused on evaluation strategy and methods as well as arms-length critical reflection in relation to aspects of the Project concerned with evaluation or closely related matters. General examples of this work included responding to elements of the intended project logic (e.g. success factors), which was developed early and under my guidance by the Project leadership, and proposing and helping to refine evaluation questions.

My evaluation process work was concerned largely with:

- assisting with the planning and development of evaluation activities
- gathering, reviewing and analyzing data of different kinds
- synthesizing information, learning and deriving conclusions
- communicating my findings and opinions at different stages
- writing external evaluation reports including this final report for the ALTC

2.2 Overall evaluation approach and emphases

Given the clear and concrete nature of the Project's goal and objectives there was no need for a complex evaluation strategy or set of methods. Its intent and primary values provided an excellent basis for identifying the overall emphases and purposes for evaluation and for developing clear evaluation questions (see section 2.3). It was decided that at the broadest level evaluation would be characterized as follows.

- Type/Emphasis: Outcomes and impact (achieved and potential)
- Purposes: Formative/learning and summative
- Key Dimensions: Merit (quality of outcomes) and perceived utility value
- Key Principles:
 - Stakeholder engagement and valuing of the Project;
 - Genuine respect for the values of likely users of outcomes (resources);
 - Effective dissemination;
 - Open critique/feedback; and
 - Continual improvement of processes and outcomes.

The resource constraints of the Project necessitated a pragmatic approach to evaluation. As is often the case, if resources and timeline conditions had been closer to the ideal, more time and energy could have been invested in richer and more sensitive evaluation methods. This need for a realistic approach was increased by the extraordinary production and 'hands-on doing' demands of the LTTO Project. Ultimately, the evaluation work done and the resulting effects on the Project were very effective.

2.3 Guiding Evaluation Questions (GEQs)

Focusing the evaluation, within this broader frame, was enabled by a set of *guiding evaluation questions* (GEQs). The primary purpose of these questions was to frame summative evaluation but they also provided a foundation for more precise formative evaluation and project monitoring. The GEQs were agreed following preliminary consultations and review of Project documentation.

The GEQs were set at a relatively high level. Their main purposes were to illuminate what was important for project success, guide the review of available data and evidence and provide a reference frame for drawing conclusions. They also helped to keep implementation focused and generate more precise questions for data gathering during the Project. In this case, they provided guidance for development of the Project Internal Evaluation Summaries (PIES) and other evaluation processes, including the external expert review and desk-based examinations of documentation and data.

Guiding Evaluation Questions

- 1) How valuable* are the web-based resources developed by the Project for enhancing online teaching and learning?

** As judged by important stakeholders, particularly those who have used or reviewed the resources.*

- 2) To what extent do the resources developed reflect current good pedagogical practice for further/higher education?
- 3) What levels of engagement with and uptake of the work/outcomes of the Project have been achieved across the Australian HE sector?
- 4) Are there unintended outcomes of the Project and how significant/valuable are they?
- 5) How effective was the overall strategy for achieving the Project's main objectives?
- 6) To what extent were the Project's main objectives achieved?
- 7) What was learned from the Project that is valuable for: (a) advancing the mission of enhancing online teaching and learning in further and higher education; and (b) improving the effectiveness of ALTC or other projects which aim to enhance learning and teaching practices?
- 8) How well was the Project led and managed?

As indicated in section 2.3 above, positive stakeholder perceptions of the value of the Project were important, so this needed to be considered in the summative evaluation. As this Project value/principle is implicit in a number of the GEQs (particularly GEQ1), the intention was to address it in this way.

3. Evaluation Methods and Information

There were essentially three main kinds of information which promised good levels of validity for the purpose of helping to answer the GEQs.

- 1) Material evidence of the outcomes of the Project (particularly the online suite of Episodes)
- 2) Perceptions and judgments (data) from well placed people concerning the merit (quality) and worth (value) of these outcomes and any related impacts
- 3) Judgments about the merits of the Project overall, including its leadership

3.1 Methods for information gathering

Essentially five methods were used to capture and/or review evaluative information.

- 1) Intended project logic (development): an early-days process for formative strategic review of the Project overall
- 2) Surveys: for formative and summative purposes, including an independent external review; using fixed (rating) and open-ended (individual voice) responses
- 3) Logging of salient unsolicited evaluative feedback: from emails, reviews, etc
- 4) Material outcomes/artifacts capture: e.g. observation and logging of Project materials (intended project logic; minutes; website elements)
- 5) Internal project evaluation summaries: essentially brief structured portfolios outlining achievements, evidence and challenges (submitted to the external evaluator at the end of year 1 and just prior to the end of the Project)

In addition to the more formal methods, the external evaluator role I had meant that I was in a good position to observe and record views on important aspects of the Project's leadership and management.

Some elaboration is warranted on three of the methods identified above. First, early in the life of the Project I worked with the Project leadership to review and develop a more explicit and refined intended project logic (IPL). While being a little late to serve a 'readiness evaluation' purpose, this formative process was valuable for improving Project strategy and providing guidance for ongoing evaluation.

Survey methods were used throughout the Project. Data for formative evaluation and learning purposes were gathered around important turning points, mainly via systematic surveys and distillation of salient messages from an increasing stream of unsolicited feedback (from across the World). Some of this information was useful as input to summative evaluation.

Towards the end of the Project a survey-based external review of a sample of the Episodes was conducted under my direction (see details below). This focused primarily on two important overall merit criteria for the Episodes; 'pedagogical quality' and 'likely utility value for professional development'.

The Project leadership also prepared and submitted to me two *internal project evaluation summaries* (IPES), one in June 2010 and the other in May 2011. These were based on templates and requirements I provided (see Appendix 1 for an example). Their main purpose was to enable the description of the most significant achievements of the Project (to date) and to point to the best available evidence that demonstrated these achievements, which I could examine.

3.2 Information used to help answer the GEQs

Using the methods identified above a range of information was derived and examined to help answer the GEQs.

3.2.1 Material evidence of major outcomes

While they encompass many more specific ones (e.g. records of interviews with experts and academics), for the purpose of summative evaluation I have chosen to highlight two major outcomes of the Project.

- 1) The Project Website incorporating the Episodes
- 2) Disseminations results

These are discussed further in section 4 where I address the GEQs directly. Here I simply cite some of the main evidence that demonstrates the achievement of these outcomes.

The LTTO Website and Episodes

The Project's online presence 'speaks for itself'. At the time of writing, a coherent suite of 32 Episodes had been produced, with each having both video and PDF components. The Episodes are openly available via the COFA Online website <http://bit.ly/7NV2tV> and they can be accessed in other ways (e.g. iTunes U site, <http://bit.ly/koX2Os>; YouTube Channel, <http://bit.ly/iEQe35>).

Evident dissemination results

There is a wide and extraordinary range of results due to the Project's dissemination strategy. In brief these include:

- 50,000+ unique views of elements of the suite of Episodes from more than 100 countries;
- continuing viral dissemination of the Project's outcomes, mainly by users or reviewers, via Web 2.0 media (e.g. Twitter; Facebook; Blogs);
- unsolicited promotion of the Project's resources (including linking and referral) by external entities (based on review or use), including universities in several countries and respected associations (e.g. ASCILITE; MERLOT; Jorum);
- incorporation/use of resources in the professional development or learning programs of a growing number of universities and other organizations; and
- media interest (e.g. The Australian Newspaper (HES); Campus Review; EDNA)

3.2.2 Evidence of the merit/worth of the Project outcomes

The merit and value of the Project's main outcomes, particularly the suite of Episodes, are indicated clearly by perceptions data and observations from a number of well placed people and organizations.

Evaluative feedback during the Project

Both solicited and a large and expanding amount of unsolicited feedback received during the different stages of the Project, particularly in its second year, focused clearly on the quality and utility value of the Episodes as a set of resources.

Evaluative feedback on the Episodes was gathered via online survey continually during the Project. Aspects focused on included "practicalities" (e.g. length of videos),

“pedagogical merits” (e.g. sufficiency of guidance provided) and “perceived relevance and value” (e.g. professional development value for the educator). The feedback obtained in this way during the first year of the Project provided many helpful suggestions for improvement (e.g. particular videos need more screen shots; some PDFs need to focus more on tips and insights). However, the solicited feedback during this stage was largely positive as was the unsolicited feedback.

In the last 6 months of the Project (January to June 2011) both the solicited and unsolicited feedback obtained by the Project leadership was overwhelmingly positive. In my experience, the amount of unsolicited positive feedback flowing in via emails, blogs, formal reviews, etc. was extraordinary. I have left the presentation of samples of this feedback to the Project leadership in the Final Report of the Project.

External experts’ review of a sample of the Episodes

By the end of 2010, 18 months into the Project’s life, I had formed the view that it was reasonable and desirable to hold this Project up to a ‘strong light’ as part of its summative evaluation. There had been many indications along the way that the Project was achieving very good results. I made a judgment, and recommended to the Project leadership, that a systematic external review of the Episodes, while not without risk, would provide higher quality evidence to help determine the standard that the Project had achieved. While not all evaluation theorists and practitioners would agree, I believe that sensible judgments need to be made by external evaluators in relation to what *standards or expectations* to bring to summative evaluation of a project, and these judgments need to be shaped by a range of project context factors.

Over the period February-April 2011 I arranged and facilitated the independent review of a sample of 9 Episodes. Seven external experts engaged in this review with each reviewing 3 Episodes. Each Episode in the sample was reviewed independently by three people. All of the external reviewers had no association with the Project and were invited on the basis of their demonstrable expertise in learning and teaching in universities and in leadership and development of learning and/or communication technologies.

Special note on this element of the summative evaluation

When deciding to invite the external reviewers I sought to ensure a range in the details of the people in terms of background, including their main academic discipline or profession. As a result, the reviewers’ disciplinary backgrounds included management, corporate communication and learning, information technology, marketing, medicine, music education and science. The reviewers varied considerably on other criteria, including gender (3F; 4M) and current activity (academic; consulting; leadership in the corporate sector; ICT management; university management). Importantly, the two most important things they had in common were evidence-based expertise in learning/teaching and broad and deep experience in the development and/or use of online learning resources.

I also sought to recruit people who varied in terms of what I refer to as ‘likely evaluative disposition’. On this characteristic I included 3 people known for their tendency to be very detailed in their evaluative review work and if anything a “bit hard” in their judgments.

The external review process

The process for the external review was relatively straightforward. After the reviewers agreed to participate, the process outlined below was implemented.

- On one fixed date I sent each reviewer a brief document outlining the objectives, philosophy and broad context of the Project.
- Two weeks later I sent 3 copies of a survey instrument (including clear guidelines) to each reviewer along with identification of the 3 Episodes they were to review.
- Approximately 3 weeks later all reviewers had returned their 3 reviews to me.

The survey instrument for the external reviewers included two kinds of items; 8 fixed-response and 2 open-response items. For the 8 fixed-response items a Likert-type scale was used with no neutral response category (see example below and Appendix 2).

1. The ideas and strategies presented for helping educators with online teaching are clear.

Strongly Disagree	Disagree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Items 9 and 10 in the survey sought the reviewers' "personal thoughts on the particular merits of this Episode and aspects that you believe should be improved".

Overview of the results of the external review

In an overall sense the result of the external review was a collective judgment of the merit of the online Episodes, mainly in terms of their pedagogical quality and their potential value for educators' professional development. This judgment was overwhelmingly very positive.

1) Evaluative judgment of external reviewers based on ratings data

Each Episode in the sample was evaluated by 3 reviewers using 8 quality criteria (see Appendix 2). While there was some modest variation across reviewers on one of the criteria for a couple of the Episodes (balance in the Episode between instruction and activity) overall all of the 9 Episodes reviewed received highly positive ratings. More than 85% of the reviewers' responses were positive across all criteria and Episodes (i.e. reviewers "Agreed" or "Strongly Agreed" that the particular quality indicated by the item was evident in the Episode (video and/or PDF components).

The table below shows the set of reviewer evaluative responses for *one* of the Episodes. These data relate to one of the most highly rated Episodes but they are indicative of the general pattern of results. In table 1, "SA" means that the reviewer strongly agreed that the Episode reflected the particular quality criterion and "A" means they agreed. An SA 'rating' can be likened to a judgment that the Episode is excellent on the criterion. Appendix 2 provides the complete description of the quality criteria (and survey items).

Table 1: Example of external reviewers’ evaluative feedback on an Episode

<i>External Reviewer</i>	<i>ER1</i>	<i>ER2</i>	<i>ER3</i>	<i>ER4</i>	<i>ER5</i>	<i>ER6</i>	<i>ER7</i>
Quality Criterion*							
1) Clear ideas for helping educators	SA		SA	SA			
2) Technologies easy to use/accessible	A		A	A			
3) Easy to digest (information)	SA		A	A			
4) Balanced perspective (e.g. pros/cons)	SA		SA	A			
5) Useful across contexts	SA		A	SA			
6) Good balance (instruction/activity)	SA		A	SA			
7) Reflects good practices (pedagog.)	SA		A	SA			
8) Valuable for professional development	SA		SA	SA			

* Short descriptor only

2) Reviewers’ personal thoughts on the merits of the Episodes

Each reviewer provided individual comments on the merits of each of the 3 Episodes they evaluated along with suggestions for improvement. Synthesis of these comments resulted in 7+ pages of feedback which I forwarded to the Project leadership.

This feedback was largely very positive and indicated an overall judgment by the reviewers that this sample of resources reflected excellence and innovation for providing professional development support for educators. Suggestions for improvement were generally concerned with practical things such as ease of linking between online elements (e.g. sites and documents), and the provision of a larger number of helpful examples of the suggested practices in some Episodes.

Power of the external review for evaluation purposes

The overall evaluative judgment distilled from the external review process provides valid and valuable information for the summative evaluation of the LTTO Project. It gets its power from the facts that the reviewers were all completely independent of the Project, were all well placed and qualified to judge the merits of its central outcome (the Episodes), and they varied considerably in their orientations and backgrounds. Although only 9 Episodes were reviewed in this way, the validity of the very positive judgment provided by the reviewers is supported by reference to the high positive correlation between this and a large amount of positive feedback received through other channels on a much larger number of the Episodes. In addition, the same design principles and production quality standards were applied to the suite of Episodes.

External recognition

The LTTO Project has been recognized in positive terms by a growing number of well-placed people and entities external to its operations. The extent of this recognition, even before the Project’s conclusion, is remarkable. The following is just an indication of the kinds of recognition achieved to date.

-
- Wide and expanding viral dissemination (internationally) by individual and group users of the Project's resources (via Blogs; Facebook; LinkedIn; Twitter)
 - Formal recognition/referral by entities concerned with Open Educational Resources (e.g. MERLOT (4.5 /5 stars rating by peer review; unsolicited); OER Commons; Jorum).
 - Promotion of the Project by a large number of institutions across the World, including respected universities, professional associations and networks.

4. Conclusions Referenced to Guiding Evaluation Questions

In this section I provide my conclusions about the impacts, achievements and value of the Project, aligning these with the GEQs. To avoid repetitive references to data and sources, I note here that all conclusions are based on the data available to and considered by me, as described in section 3 above.

For the LTTO Project, the answers I provide to the GEQs are relatively brief. This is because the evidence, summarized in section 3, enables mostly unequivocal and brief answers. This circumstance is not that common. For a range of reasons, project circumstances often do not permit the evaluator(s) to provide unequivocal answers to evaluation questions. Much time and space is often needed to provide the most truthful answer in the best possible way. Fortunately, this is not the case here.

GEQ 1: How valuable* are the web-based resources developed by the Project for enhancing online teaching and learning?

** As judged by important stakeholders, particularly those who have used or reviewed the resources*

The resources developed by the Project are extremely valuable for professional development in online teaching and learning. The strongest evidence to support this conclusion is that the Episodes are already being used in a large and growing number of educational environments around the World. The highly positive judgment of the external reviewers in terms of utility value supports this conclusion, as does the continuing stream of unsolicited positive feedback from people using the resources.

There are almost always higher levels of evidence that might be hoped for to demonstrate enhanced teaching and learning (e.g. clear and valid evidence of improved student learning outcomes). Even if it is possible or practical to obtain such evidence, and it often isn't, much more time is involved than is available in a short project. The developments enabled by the LTTO Project have been in place for too short a time to make any clear inferences about their likely longer-term positive impacts on teaching and learning practices or how far they will reach, but the early signs are very good on this front.

GEQ 2: To what extent do the resources developed reflect current good pedagogical practice for further/higher education?

The evidence available suggests that overall the Episodes reflect good pedagogical practices. The external review process obtained judgments based mainly on pedagogical quality criteria (see Appendix 2). It's clear that a success factor for this achievement was

the research and good practice based approach taken to the design and development of the Episodes.

GEQ 3: What levels of engagement with and uptake of the work/outcomes of the Project have been achieved across the Australian HE sector?

There is no doubt that engagement with the work and outcomes of the Project across Australia has been good, particularly given that the Project has just been completed. Unsolicited communications, in particular, indicate that positive engagement is wide and still increasing. In addition to the early and considerable impact in Australia, there are clear indications of international engagement and uptake.

Current evidence suggests those engaging most seriously with the Project's outcomes are people who are already involved with or motivated to develop or learn more about online teaching. The Project leadership is clearly aware a major challenge remains to reach the vast majority of educators who are currently not yet motivated to be involved in online teaching. One of the keys to addressing this challenge effectively is uptake of the outcomes of the LTTO Project by institutions for strategic professional development purposes. The early signs are good that the Project has achieved a multiplicative effect on this front, and this is all that could have been expected.

GEQ 4: Are there unintended outcomes of the Project and how significant/valuable are they?

Unintended outcomes are inevitable with most substantial projects. Though rare, it's always a special pleasure for an evaluator to report that the most significant unplanned achievement of a project is that it was considerably more successful than its leaders and stakeholders imagined it might be at the beginning. This is certainly the case with the LTTO Project. Its success in terms of the evidence-based quality and utility value of the Episodes, and the dissemination results achieved is well beyond the norm for projects of this scale.

At a finer grained level, the Project leadership was more pleased than surprised that educators beyond the higher education domain (in Australia and elsewhere) have found the work and outcomes of the Project valuable. Across educational sectors (e.g. vocational; continuing professional; university), individuals, teams and larger entities (e.g. CPA Australia) see clear merit and practical utility value in the Project's outcomes. Related to but beyond this important effect, the Project has enabled organic awareness raising whereby an increasing number of people are sharing ideas, engaging in renewed learning and having their confidence raised in relation to online teaching. This effect has been enabled in large part because of the strategic and creative approach to dissemination adopted in the Project. This included a strong focus on inclusiveness and active listening, the use of multiple social media, and more generally, effective two-way communication.

The Project leaders were also gratified by the extent of the development of constructive and ongoing relationships with people around the Project. One result of this has been the generation of collaborations that will enable extension of the Project's work.

GEQ 5: How effective was the overall strategy for achieving the Project's main objectives?

Two somewhat different answers are possible to this question, and this is often the case with successful projects. One of the answers is extremely brief and simple. The Project has been very successful, so the overall strategy must have been effective, and this answer is true for the LTTO Project. However, it's often also true that even when a project has been relatively successful, findings or concerns about the effectiveness of aspects of strategy are identified. I make some comments later in this section about very small 'project teams', mainly to provide a cautionary note about the risk to the success of many projects associated with this strategic choice.

From my perspective one of the most important ways of seeing "strategy" for projects is the critical (strategic) thinking and choices that occur early in their life about how to proceed, so that maximum success is more likely. In particular, identifying a-priori *critical success factors* for the project is very important, and a stage of this process should involve a careful consideration of significant risks. Essentially, these 'before the event' success factors are the things (e.g. actions; conditions; methods; supports; ways of working) that are considered *likely to be important causes of success*. It will not be known what the 'actual success factors' were until the project is completed. This is why, when possible, I encourage project leaders and teams to engage in a participative process to develop some form of explicit *intended project logic*. The LTTO Project leaders did this and I believe the exercise and resulting ideas, including front-end success factors, were useful for optimizing the success of the Project.

Actual success factors for the LTTO Project

I believe there were three powerful underlying success factors for the Project.

- 1) Highly committed, capable and energetic leadership and management
- 2) A very effective dissemination strategy and set of practices (including smart use of social media, active listening and open sharing of information and resources)
- 3) Interest and will to contribute to the Project in the broader online teaching and educational development community

I will discuss the first of these factors under GEQ 8 and I have already discussed factor 2) earlier in the report and will make further comments in subsequent sections. The third factor, which is related to and strengthened by 1) and 2) above, is self evident.

There were other more precise success factors (as aspects of emergent strategy) for the LTTO Project. These included the following strategic choices, actions and conditions.

- Agile and efficient project leadership, due in part to a single institution team
- Ensuring that a large number of Australia's leading universities were involved
- Covering most academic disciplines in the resources developed
- Presenting a balanced perspective on online teaching and learning
- Prioritizing the evident practical use of the resources
- Attention to good design, content and production quality for the resources
- Collection of evaluative feedback throughout and acting on this
- Positive feedback from and early uptake of developed resources by peers
- Active involvement of international parties

A cautionary comment on the potential risk of very small project teams

As indicated above, the LTTO Project succeeded because of some primary success factors and several other more precise ones. However, in relation to one of the Project's most powerful success factors, highly effective leadership and management, there was a significant risk involved – the very small size of the Project team (2 people). Even though this risk had no major consequences for the Project's success, in my view it was a risk that was not assigned appropriate weight when the Project strategy was being developed.

The LTTO Project leadership team worked creatively and effectively to get good people to do important work on the Project (e.g. video shooting and production) but there was no larger coherent 'project team' per se which would have enabled a more distributed approach to responsibilities, tasks and contingency provisions. Notwithstanding the good reasons that can exist for keeping teams small (e.g. agility), there is often a high consequential risk involved in having such a small team on a project like this. The thought of one serious illness or accident is probably sufficient to underscore this point.

GEQ 6: To what extent were the Project's main objectives achieved?

The three formal objectives of the Project are restated below.

- 1) To assist educators in developing the specific knowledge, analytical, planning and online teaching skills they require to confidently integrate sustainable and effective online teaching practice and assessment into existing curricula.
- 2) To establish an active, global and diverse online community of practice and scholarship specific to online learning, that will help foster a positive strategic change in online teaching practice and attitude across institutions in a broad range of disciplines ultimately improving the student online learning experience.
- 3) To widely disseminate online pedagogy training material through free electronic distribution mediums - that is easy to apply, flexible, practical, portable, and modular.

Objectives 1) and 3) were clearly achieved. There is strong evidence to support this conclusion, particularly the mass of positive feedback on the Episodes and other materials from users and reviewers.

As it is stated, objective 2) was a very tall order, and it wasn't achieved. This was not surprising, given the time available, the enormous amount of effort invested in other critical work on the Project, and the great difficulties in getting very busy educators to engage actively in a brand new community of practice. Notwithstanding this objective not being achieved, as a result of the highly successful dissemination strategy the ground has been well prepared by the Project for the emergence of such communities, if the will is there in parts of the wider education community.

GEQ 7: What was learned from the Project that is valuable for: (a) advancing the mission of enhancing online teaching and learning in further and higher education; and (b) improving the effectiveness of ALTC or other projects which aim to enhance learning and teaching practices?

While the Project is continuing to expand its reach nationally and globally, this has largely been an effect for people already engaged in some way with online learning and teaching. More time and smart and collaborative strategies remain the keys to getting more educators who are not yet into online teaching, for whatever reasons, to change. The integration of the LTTO Project outcomes (and similar resources) into institutional professional development programs will continue to be a powerful enabler for this goal.

There's no doubt that in the LTTO Project the creative and systematic use of social media worked very well for dissemination, and this suggests that many other ALTC and similar projects could benefit from wise incorporation of social media tactics in their strategies.

This Project had logistical challenges because of the high-volume production and technical aspects of its work, particularly in relation to video component development (e.g. shooting; editing) and programming and other tasks associated with the web-based/social media dimension. The Project leadership felt that their relative lack of experience meant that some choices made would perhaps be different next time. For example, decisions about what to outsource (e.g. editing) and what to do in-house need to be made carefully and informed by clear assessment of needs, resources and risks.

The Project leadership team found that the decision not to have partner institutions was a significant success factor for this particular project, as it enabled very agile decision making and implementation.

GEQ 8: How well was the Project led and managed?

In my view there's little doubt that the most powerful causal factor for the success of the LTTO Project was the excellent leadership and management of Simon McIntyre and Karin Watson, COFA, UNSW. The attributes and capabilities I observed consistently while working with them included passion for the Project, deep engagement with their work on it, persistence, creativity and exceptional productivity. In addition they are both authentic critically reflective leaders and practitioners. They would be amongst my first choices if I was building a team to serve as mentors for leaders and managers of educational development projects.

5. Overall Conclusion

In the context of its available resources, domain and goal (development and dissemination of high quality resources for professional development for educators in online teaching and learning), the LTTO Project is an exemplar.

Regardless of how comprehensive a summative evaluation process is, external evaluators' findings about projects can only ever provide a limited perspective. Conclusions are sometimes less accurate and are almost always less precise when held up against the knowledge held by the people who led, worked on or were impacted by the project. Nevertheless, in relation to the LTTO Project I am very clear and comfortable about my overall evaluative conclusion.

Elaborating briefly, in my judgment the following were highlights of the Project's success.

1. The LTTO Project delivered on time and budget against its most important feasible objectives, which were demanding.
2. The suite of online Episodes for supporting professional development for educators in online teaching, the Project's most demanding and concrete outcome, has been shown to be of very high quality in pedagogical, design and production quality terms.
3. The online Episodes have been found to be of very high practical value (worth) as a coherent set of resources to facilitate professional development for educators in higher education and other sectors.
4. The Project's dissemination strategy was creative and remains highly effective. Importantly it is sustainable because a key element of it is now viral and enabled by social media. The social media element was well thought out and implemented, but the personalized relationship building of the Project leadership team and their ongoing use of external feedback for continual improvement and reflected communication were also key positives of the strategy.
5. The dissemination results achieved have been extraordinary. This is indicated most clearly by the international scope of engagement and buy-in that is occurring and the range of positive reviews and commendations being received. The fact that uptake to date has been largely in the 'already interested' sector of the population of educators, does not detract from the significance of this result. These are the people who are in the best position to achieve wider engagement into the future.
6. The leadership and management of the LTTO Project were excellent. Simon McIntyre and Karin Watson demonstrated remarkable strategic and operational talents as well as very high commitment to the values and success of the Project. However it might be possible in the future, their capabilities should be harnessed to help others to be better at project design, implementation and leadership.

Appendix 1: Project Internal Evaluation Summary

ALTC Funded Project – Learning to Teach Online

Project Internal Evaluation Summary (Summative)

Purpose and Rationale

This Project Internal Evaluation Summary (PIES) will serve the purpose of providing information that will assist me with the development of the *summative evaluation report* for the Project.

In the template (attached) you will see that the information I am asking for focuses on the *nature and range of the Project's results* (e.g. outcomes), the *evidence that demonstrates these, what's being done to sustain the Project's effects and effort, and what's been learned*.

As part of the process of forming my views I shall be reviewing different kinds of information. However, it isn't practical for me to gather much data directly from Project stakeholders. In any case, those closest to the action of the Project, including the Project Team, have special and detailed knowledge about results, processes and associated evidence.

The spirit and intent behind the PIES is to help me develop the best possible picture of the Project's achievements, merits and challenges. I would welcome the inclusion of brief data summaries, but I am not expecting large amounts of attached data. Where relevant data do exist, I ask that they be summarized or references or other guidance be provided that will help me find and review them.

Practicalities

- 1) I have provided a simple template to help frame the PIES, but feel free to adjust this (e.g. add one or two other headings)
- 2) Please limit the length of the completed PIES to seven (7) pages
- 3) I ask that you email the completed PIES to me by Monday 16 May 2011 at patricqa@gmail.com

Project Internal Evaluation Summary (Summative)

Template for Project Leadership

1. Results. Provide a synopsis of the most significant/important results of the Project.

If appropriate, please differentiate between *outputs*, *outcomes* and *impacts*¹

2. Evidence of results. Identify the most powerful (valid) evidence that demonstrates each of the major results reported under 1) above.

3. Alignment of results with objectives. Through brief description, show how the main results of the Project align with its key objectives.

4. Unintended results. Identify any important unintended results (or restate if included under 1) above) and explain briefly why they are important.

5. Sustainability. Identify what's being done* to sustain the results, uses of results and the processes generated by the Project (including dissemination).

** In particular, identify activities, entities, commitments or other elements that will be in place to enable continuity of progress on the Project's objectives.*

6. Critical success factors. Describe briefly the factors that were critical to the success of the Project.

7. Learning. Describe briefly anything important that has been learned from the Project, particularly relating to:

- (a) overall strategy/logic used for a project like this one;
- (b) particular challenges in the area of focus (enhancement of online teaching); and
- (c) project leadership/management for university teaching development projects.

8. Evidence of merit. Identify the best evidence (in your opinion) that demonstrates the merits of the Project (e.g. quality of results), including its overall worth (e.g. value for investment; significance in the larger scheme of higher education).

¹ In some project contexts (but not all) it is important or useful to do this. For example: a website might be viewed as an output (or deliverable); the constructive use of the website by a significant number of people, an outcome; and a demonstrable increase in uptake of desired practices or activities across multiple domains (partly as a result of the use of the website), an impact. In some contexts, such 'results' are viewed in hierarchical terms, with "impacts" being at the top of the tree. Such a view isn't always sensible or necessary.

Appendix 2: Quality criteria (and associated survey items) used in external review of the Episodes

Criterion: Clarity of ideas presented

Item 1. The ideas and strategies presented for helping educators with online teaching are clear.

Criterion: Appropriateness of technologies covered

Item 2. The technologies shown and/or demonstrated are appropriate (e.g. accessible; easy to use), keeping in mind the mixed levels of confidence people have with learning-teaching technologies.

Criterion: Digestibility of information

Item 3. The information presented is digestible (e.g. at about the right level; practical).

Criterion: Balance of the perspective provided on online teaching

Item 4. The Episode presents a balanced perspective on the aspect of online teaching it is concerned with (e.g. it shows benefits, pitfalls, things to be mindful of).

Criterion: Utility value of ideas/practices presented

Item 5. The ideas and practices covered are likely to be useful for educators in different learning-teaching contexts (e.g. different disciplines or fields).

Criterion: Balance between instruction and demonstration/activity

Item 6. There is a balance in the Video Component between 'instruction' (i.e. telling the viewer things) and observable activities and demonstration.

Criterion: Extent of evident good practice principles for learning/teaching

7. Overall, in your view, this Episode reflects good practice principles for learning and teaching.

Criterion: Value of the Episode as a resource for professional development

8. All things considered, this Episode is a valuable professional development resource for people seeking to enhance their existing online teaching capability (or for people about to start online teaching).

Appendix 5. Full interview transcripts

5.1 Semi structured interview used for rhizomic agents

Overview/ Identity

1. What discipline do you teach?
2. What education sector (eg higher ed, k-12, private, Community College, Vocational, etc)?
3. What is the name of the program in which you use the Learning to Teach Online (LTTO) resources?
4. Can you give an overview of the program, and describe its aims?
5. Can you describe your students?
6. How would you rate your students' level of skill in online learning and teaching before undertaking your class?
7. How many classes run per year, and what are the class sizes?
8. Can you remember which LTTO episodes have you referred to?

Discovery / dissemination

9. How did you hear about the Learning to Teach Online project (please be as specific as you can, for example if it was from Twitter, who tweeted etc)?
10. How did you make the decision to include the resource in your own educational program?
11. Have you told anyone else about, or otherwise promoted the project? If so why?
12. How did you do this, and how many people do you think heard about the project from you?

Project practicalities

13. What is your opinion about the video and PDF format of the episodes?
14. Did the design or production quality have any influence upon your decision to use the resources? Why?
15. How would you describe the tone of the resource? How does this fit with your own program and style of teaching?
16. From where did you access the episodes for use in your own program (website, iTunes, Youtube)?
17. Are you aware of the full range of episodes available (32 in total)?
18. What do you think is the best aspect of the structure or design of the resource?

19. Are there any aspects you think could be improved?

Pedagogical merit

20. In your opinion, do you think the resources made a difference to your students' understanding or ability to implement an online teaching practice? How?
21. Do you trust the information being communicated in the resource? Why or why not?
22. Do you think the project would appeal to teachers in different disciplines and sectors to yours? Why?

Perceived relevance and value

23. What do you think the life cycle of this resource is? Why?
24. How long do you plan to continue using LTTO?
25. Could you and your students relate to the experiences and opinions of the people represented in the resource, even if they were from a different discipline? Why?
26. What value do you think the LTTO project has brought to your own program and your students? Why?

Making meaning, adoption and contextualisation

27. Can you describe the context in which the LTTO episodes are used in your program? (eg. As an optional resource, related to assessment tasks, required viewing, etc)
28. Did the ideas and knowledge in LTTO change your own teaching practice related to elearning in any way? How?
29. Was it valuable to hear opinions and information from outside of your immediate professional network? Why?
30. Do you have anything else you'd like to add?

5.2 University A interview transcript

- Q1 Interviewer:** Could you tell me your name and what discipline you teach?
- Interviewee:** My name is [...], and I basically do online faculty training.
- Interviewer:** Okay.
- Interviewee:** I teach some educational technology courses in a Masters of Education program — kind of an integrating technology into education. But I do a lot of online faculty training, which is why I use these resources.
- Q2 Interviewer:** Okay and what educational sector did you actually use the resources in because I notice a couple of different sectors?
- Interviewee:** Yes. I used them to train community college online faculty, as well as university online faculty.
- Q3 Interviewer:** Okay. Excellent. And what's the name of the program, or perhaps programs, in which you used the Learning to Teach Online resources?
- Interviewee:** I don't know that it has a specific name of a program, per se, it's our — the one I'm currently facilitating is just our associate faculty training program. I don't know that it has an official name, or anything.
- Q4 Interviewer:** Okay. Well, could you give me an overview of the program and describe what its aims are?
- Interviewee:** Okay. I guess we're getting, again, just do all of the next three questions by describing the students and their levels of — and their skill level in with that. The students are faculty who are preparing to teach online courses for the first time at this specific university. Some of the students may have had previous online teaching experience at other universities or colleges. Some may have never taught an online class before, and this is their first opportunity to get some experience with online teaching. We have students that have all skill levels from no online teaching experience to — I had an instructor just last week, in the last session I taught, that had been teaching online for 10 years at another institution, so the whole range.
- Q7 Interviewer:** Excellent. Okay. So how many of those classes would run a year, and what are the rough class sizes that you deal with?
- Interviewee:** We are going to be — we've just started running this new program, and it's a two-week training program, and it's going to be running every two weeks, so what, 25-26 times a year. And the classes sizes will range — they'll vary from — I had one session that only had three students in it, and I've had them with as many as 25 in it.
- Interviewer:** Okay. Wow, that's quite a high turn around, isn't it, having that running every two weeks? Fantastic.
- Interviewee:** Well, we've just created a new program — a new training program for this particular university, and a lot of the program directors are finding that they want their faculty, who took the old training, they want them to take this new one because they feel it's a better program, and so they want us to re-train them, so it's kind of interesting.

- Q8 Interviewer:** Okay and can you, by any chance, remember which Learning to Teach Online episodes you referred to?
- Interviewee:** I'll tell you my favorites because I've used a lot of them. In the previous community college where I was, I developed quite a bit of online faculty training, and then I also did some follow up, kind of, mini four-day online workshops for them. The ones I use the most, of course, is the Why is Online Teaching Important. For [0:04:43.7] I use that as an introduction, normally, but the Discussion Board video I use quite a bit. I've also used — I think I've used all of the ones in that top — in the Context Planning and Teaching section, at one point or another. The Case Study ones, I've used several of those, too. So I mean there are just some really good resources, and I always go there first when I am creating some kind of a new workshop or training to see if there's a relevant video in there.
- Q9 Interviewer:** Oh, excellent, I'm really glad to hear that. Okay, well, if we talk about discovery of these, how did you actually hear about this project?
- Interviewee:** I believe — I mean, like I said, I've been using them, I think, pretty much since they started coming out on here. And I believe I just found them doing an internet search for teaching online, and it happened to show up in an internet search.
- Q10 Interviewer:** Okay, well that's good, quite simple. And how did you actually make the decision to include the resource in your own programs?
- Interviewee:** Well, I have been, either as a teacher or a student, in online education for the past 10 years. I'm a student of online teaching and learning, and I was looking for resources that kind of agree with everything I've been learning — all of the theories, and the research, and everything. And when I found these videos, they do, they support the research that I have been reading and following the past several years, so it's good support for that, kind of, feel for the research and that.
- Q11 Interviewer:** Okay, and have you told anyone else about, or otherwise promoted the project? And if you have, why did you do that?
- Interviewee:** Yes, in fact, one of my colleagues, she and I have just started working at this new university — well, it was in August, so it's been three months ago. I showed her these videos and told her that we need to include these in our new training program. And the reason I like to pass these along is because of the quality of them — of not only the content, but the way they're created.
- Q13 Interviewer:** Okay, thank you. Yes, so I'm just looking at the next question, which you kind of answered in the same time is more how did you do this? So I'll skip over that one and go down to the actual practical aspects of the project. So what is your opinion about the video and pdf format of these episodes?
- Interviewee:** I like the format of the videos because they would give a variety of perspectives from different people, throughout all of the videos. The pdf format — I like the pdf's that go with them. I have not used them as much as I would like to, for no particular reason other than when I use — I'm going to be answering questions down further. When I use these videos, we use Blackboard for our learning management system.
- And I will typically imbed them into the course unit or module, and so the students are watching the video right within Blackboard, and they're not viewing them from

your website where the pdf link is. And if I was to use the pdf's, I would — we like to keep the students all, kind of, within Blackboard in the Blackboard environment. So if I was to use the pdf's, in addition to the video, I would have to download that and then include it in the activity that way. So I think that's just semantics of how we create our courses.

Interviewer: No, that's actually been a common kind of response is that disjointedness between the two. I'm just digressing for a second.

Interviewee: Sure.

Interviewer: I have actually uploaded them all into Scribd., and you can actually imbed them directly from there if you would like to. So if you search for them in Scribd, you can actually do that, and I've actually also put them all into an iTunes U course, so it's in one place as well. But that doesn't really relate to your imbedding them in, but there are a few different options to try and cover that anyway.

Interviewee: Sure. Because the videos — the pdf's are — I really like the quality, and they do contain a lot of good information on them, and every time I go to the site to look for it, it's like, oh yeah, I need to get that pdf in there, too, and then I kind of forget to do it and just kind of stay with the videos.

Interviewer: Fair enough. We're going to be working on that in the future and continue to develop it for sure.

Interviewee: Okay.

Q14 Interviewer: So, you kind of hinted at this a little bit before, but did the design or production quality have any influence upon your decision to use these? And why would that be?

Interviewee: Absolutely, that is one of the main reasons, other than the content itself, why I do use these so frequently is because of the quality. You've got some really good — it appears to be HD video — video format. Everything's really clear. Everything, it seems, to be well scripted out. The flow is good; it's just an overall exceptional quality on these and that makes your — you know, the courses that we design, that makes them look high quality, as well, if we use high quality materials.

Q15 Interviewer: And how would you describe the tone of the resource, and do you think that that fits with your own program, or style of teaching?

Interviewee: Yes, because the comments that come from the individuals in the video are — it appears that they are professionals in the field, that they have experience with the tools and the techniques that they're dispensing. And that's what we like to portray is, you know, sharing of experiences with colleagues, and it just kind of feels — it just kind of has that feel in these videos.

Q16 Interviewer: Okay and I think I already know the answer to this from something you said earlier, but from where did you access the episodes? Our website, iTunes, YouTube, etc.?

Interviewee: Yeah, we, like I said, imbed — using the embed code on your site, so I get them from video Learning to Teach Online website and I copy and paste the imbed code into Blackboard to imbed them in there.

- Q17 Interviewer:** Yep, okay. And I also know the answer to the next question, but I'll just ask it anyway, which was are you aware of the full range of episodes that we have?
- Interviewee:** Yes, I have them up right now. I'm looking at all of them. When are you going to make more?
- Q18 Interviewer:** And what do you think's the best aspect of the structure or the design of this resource?
- Interviewee:** I guess structure and design could mean — I think the length of the videos are a perfect length; they're not half hour things that you have to sit through, they're — or hours. Sometimes you find videos that are an hour long lectures, and that's not what these are. They move quickly and keep your attention, and they're concise, and they bring across — they get their point across, without rambling. It makes it really easy to listen to. I don't know if that means structure, but I think it would.
- Interviewer:** That's perfectly fine because there could be several — I'm trying not to be too descriptive on that question because then it will sort of guide what people say.
- Interviewee:** Sure, exactly.
- Q19 Interviewer:** So, no, that's perfect. And are there any aspects that you would like to see improved?
- Interviewee:** I don't — I really can't think of anything to improve these other than we need more of them, and then finding some way to connect the supplemental materials, the pdf's, in a different way. I'm not sure what help with that would look like.
- Q20 Interviewer:** In your opinion do you think the resources made a difference to your student's understanding, or ability to implement an online teaching practice, and how?
- Interviewee:** Well, of course, with the current content of these videos, they add another linear of expertise into the online teaching of theories and practice. And so I'm sure it does make a difference. Like I told — like I said before, I think it really supports the techniques that I have felt are important in online teaching and learning, and — I just lost my whole train of thought.
- Q21 Interviewer:** That's okay. That's alright. If you think of something in a second, we can come back if you like. But I'll keep moving along. Do you trust the information that's being communicated, and why, or why not?
- Interviewee:** Yes, I do trust it. A lot of it I have practiced myself, have discovered the research, and again, the experience that these instructors are sharing supports that those things are true, and especially with the case studies and what not. They do support that what everyone says is right, and true, and they agree. And so yeah, I do trust that information.
- Q22 Interviewer:** Okay. Excellent. And do you think that these resources would appeal to teachers in different disciplines and sectors to yours? And why would that be?
- Interviewee:** I think it would — they are relevant to any online instructor teaching in any discipline. Online teaching is, of course, overarching to all disciplines; all disciplines that are taught online which, I would say, the majority of them are now. So, of course, it would be relevant to anybody teaching an online course.

- Q23 Interviewer:** What do you think the lifecycle of this resource is, and why would that be?
- Interviewee:** Okay, I think the general online teaching content I would imagine being useful for quite a few years still. Some of the more focused videos on some of the specific technology applications, and what not, those may not be as relevant for as long because, of course, as we have emerging technologies, you'll need more videos, and those videos that you have, may need to be updated. And so I think, for the most part, the general ones will last quite a while because of the content and the focus of them.
- Q24 Interviewer:** Yep, okay. And how long do you plan to continue using these resources?
- Interviewee:** I will use these for quite some time, especially if we get more of them. But, yeah, I plan to continue to use these for as long as I am teaching online instructors, which hopefully will be quite some time still.
- Q25 Interviewer:** Excellent. And do you think yourself and your students could relate to the experiences and opinions of these people represented in the resource, and even if they were from different disciplines?
- Interviewee:** Yeah, sure, it's always good to hear different perspectives, and different points of view on how instructors from different disciplines may be using the same tools, and some of the strategies, and they can relate cross discipline, too. But I always think it's good to hear different perspectives.
- Q26 Interviewer:** Okay. And what, if you could wrap it up in a nutshell, kind of thing — what kind of value do you think that this project has actually brought to your own program?
- Interviewee:** I think, in a nutshell, yeah, the value — there's a tremendous value in these videos because of the experience of the opinions that are being presented and the information that's being transferred from these individuals in the videos.
- Interviewer:** Okay. And we're nearly there. Thank you for hanging on through all of that.
- Interviewee:** Sure.
- Q27 Interviewer:** Can you describe the context in which you've used these episodes? So, are they just an optional resource, do you have them directly related to any assessments, tasks, etc.?
- Interviewee:** I haven't had them related to an assessment task. They are part of required viewing. Mutually within each unit, I'll have some articles for them to read, and then some videos for them to view, and then they will usually have a discussion, or an activity, or something. But these videos are always part of the required viewing.
- Q28 Interviewer:** Okay, and do you think that the ideas or knowledge in this resource changed your own teaching practice related to e-learning in any way?
- Interviewee:** I don't think it changed the way I teach; it just validated the way I teach.
- Q29 Interviewer:** That's great. You covered this one before but I'll ask it again. Just for the record, was it valuable to hear opinions and information from outside of your immediate professional network, and why would that be, or not?

Interviewee: Yes, of course. Like I said, getting different perspectives, and to hear these things validated, and other experiences as they relate to other disciplines is always a good resource to have.

Q30 Interviewer: Okay. The other thing I'd like to ask is: Are there any other points that you'd like to add that I may not have covered?

Interviewee: Other than I really appreciate you putting this together, it's something I've actually wanted to do, and you beat me to it. But I think you have probably done it with much higher quality and focus than I probably could have done. So hats off to you.

[END]

5.3 University/High School B interview transcript

- Q1 Interviewer:** Well first of all, let's just start off with some simple ones. What discipline are you teaching in?
- Interviewee:** By discipline, I guess you're asking what course. I believe that the program that I was asked to teach in belongs to Computer Science or Master of Information Technology field in our department.
- Q2 Interviewer:** Okay, and what's the education sector? Is it higher education, vocational, etc.?
- Interviewee:** Well for this particular program it's under the post-graduate courses of the department in our university.
- Interviewer:** Okay, thank you. Sorry, I'm just jotting down notes as we're going.
- Interviewee:** Yeah, no problem.
- Q3 Interviewer:** I think you mentioned this just a second ago, but I'll ask it anyways — the name of the program in which the Learning to Teach Online episodes were used.
- Interviewee:** Okay, the course is called [...]. So that's the complete name of the program that I taught last semester.
- Q4 Interviewer:** Okay, great. And can you give me a quick overview of the program? Describe what it aims to do.
- Interviewee:** Well, basically, the goal of this particular course is to have the students go through the process of designing and developing instructional software. Although I sort of took over the program for that semester that I used your resources in, traditionally the program was more on the side of how to build computer-aided instruction.
- So it pretty much goes through the instructional design methodology up to a point where students will be asked to apply the methodology by actually creating an e-learning course. Although the kind of material that they create is stand alone, self-based kind of module, as opposed to the other more flexible type of e-learning programs, they can be synchronous or a video-based kind of implementation — so, yeah.
- Q5 Interviewer:** Okay, and can you describe the type of students that you have?
- Interviewee:** Well, for that particular...
- Interviewer:** And I was just going to say and, of course, students in this case may mean whoever you're instructing, whether they're teachers, or whatever.
- Interviewee:** Okay.
- Interviewer:** Sorry to confuse the issue there.
- Interviewee:** No problem. For the type of participants that I had for this particular course, last semester I had about 19 of them, it's a mix between mostly Masters in Computer Science and Master of Information Technology. What you call these students, and then I also had the opportunity to extend, or to share the class with four from the

MA Education Department. So that was the mix of the people that I taught to last semester.

Q6 Interviewer: Okay and how would you rate their level of skill in online learning and teaching before they undertook that class?

Interviewee: When I started the class, I asked them what their experience was when it came to both learning online and teaching online. Most of them were not very familiar with it yet. Even as they went through their respective Master of Programs, most of them were more used to the traditional face-to-face set up. So when it came to this particular course, they were really mostly interested to learn how it would be like to design and develop courses online.

Although I did try to ground them that I wouldn't be able to teach them how to create a full curriculum — a full e-learning curriculum, but more I tried to focus the objectives of the program are coming up with a single online module that they would create from scratch, so that they would have — or they would have the opportunity to go through the process of what it would be like to sort of translate learning objectives into a full [0:04:33.8] of base module that sort of — so I guess it puts in the difference that if you're used to teaching the usual face-to-face kind of classes, there's that sort of difference when you begin designing a material that's going to be totally self-paced and fully online.

Q7 Interviewer: Okay. And you mentioned there were 19 students participating in that last time. How many times does that run a year?

Interviewee: Well I think this program is an elective type of course, so for most of these students, they're not really required to take it unless their interest leads them to wanting to take the program. As far as I understand, it's usually offered during the second semester of the year. So maybe in a school year with two semesters, I guess it's offered at least once every year if there are enough students that subscribe to the program.

Q8 Interviewer: Okay, that makes sense, yep. And here's a tricky question. Not many people can remember this because it's usually a while ago, but can you remember which Learning to Teach Online episodes that you referred to?

Interviewee: Yep, sure. I used Why is Online Teaching Important, Engaging and Motivating Students, Teaching with Web 2.0 Technology, Photography with Flickr, and Online Discussions for Math Teachers Education. I think those were the five videos that I decided to borrow from you when I contacted you before.

Interviewer: Okay and could I just say you're the only person, so far, who's been able to remember all of those, so well done.

Interviewee: Oh, okay. Actually, I kept a log of everything I used for that class just in case I'd have to repeat it again then I'd have a record of what I used before.

Q27 Interviewer: Oh, okay, that's actually good planning. And can you tell me the context in which they were used? So what I mean by that, were they an optional resource on the side, or were they related to assessment tasks, or required viewing, or that sort of thing?

Interviewee: I guess for the first two videos that I used, Why is Online Teaching Important and

Engaging and Motivating Students, these ones I tried to use them more of optional resources students could watch after a face-to-face session that we just had so that they would have the opportunity to really appreciate why, they as teachers or maybe training practitioners, should consider teaching in an online environment.

So what I did with those two videos is that I posted them on Moodle, because that's the LMS that we use for the program, and then I asked them to comment on whatever the video was sharing, and I also asked if they had any other insights about teaching online that they would want share.

For Teaching with Web 2.0 Technology and Photography with Flickr, I basically shared the video with them, maybe around the second or third week of class already, just to show them possibilities in terms of what kind of online usage they could consider if they were ever thinking of how to integrate social media or all of these other websites into their teaching. So it's more like, again, another optional resource.

For the next one, Online Discussions for Math Teachers Education, this one I used it within class as a case study. So basically, along with this one, I had like four other videos that I divided among the participants of the class and then they take the time to watch it, and then afterwards they would have to report on the key strategies that were used for that particular online or e-learning facility that was assigned to them.

Interviewer: Okay, thank you. That's really thorough. I appreciate that.

Interviewee: Okay, alright.

Q9 Interviewer: And a couple of questions about how you found out about the resources. So how did you actually hear about the project? Can you remember where, from, or who told you about them first?

Interviewee: Oh, I think, when I was building the course — the program outline, I was basically also researching what online resources I could possibly use to supplement the different discussions that I was planning to have.

So I was, I think, mostly browsing both on YouTube and on the [0:09:27.9] I think I found your website first. Then I basically took a look at the different videos that you had there and selected ones that I think matched the teaching objectives that I've already listed down and had approved. Yeah, that's basically it.

Q10 Interviewer: Okay. And you talked about just then how you chose the ones that you thought would fit. How did you actually make that decision about why they would actually suit your program?

Interviewee: When I was reviewing my program outline, I already listed on key learning points that I wanted to emphasize on all of the program parts. What I did, when I found your website, I pretty much started looking at the titles first to see which ones, off the bat, would fit any of the objectives I listed down. When I shortlisted the ones that I was really interested in, I took time to watch them and validate if they really were appropriate for the purpose that I had in mind for them. So when I — they pretty much hit the mark, anyway, so the decision on whether to use them came very easy.

Q11 Interviewer: Okay, I'm glad. And have you told anyone else about these resources or promoted them to anyone else and if so, why?

- Interviewee:** Well, so most of my students had access to them, but at work I mentioned them to my immediate superior as well because I am a part-time lecturer in our university. They just call me to teach whenever there's a vacancy or some program of interest that they want me to take over.
- But, I'm already in my profession of a Learning Technology Officer in a local company here, so we're actually thinking of creating our own internal e-learning program for instructional design, probably having resources in e-learning as well, so I did mention to my immediate superior before that I did find these interesting set videos that we could possibly use as part of the program since we do have internal subject matter experts in the company that we would orient about how they could possibly start creating online programs for each area of expertise that they would have as an alternative to their mounting classroom or face-to-face training that usually take a lot of [0:12:18.4] working.
- Q13 Interviewer:** Okay, thank you. And what's your opinion about the format of the episodes, so the video and the pdf components?
- Interviewee:** For the video, I found it very well made. I mean, I wasn't really expecting that the production quality would be that high given that these were mostly just reference videos. Because if you look at YouTube, not everything, or most of those kind of videos are not very well made, especially if they're coming from very passionate teachers tackling e-learning.
- Regarding the pdf, I found that quite comprehensive, but in my particular class, I decided not to use pdfs and just focus on the videos, so that the students would really have to go through the process of extracting the learning from what they were listening to. But I did find the pdf quite comprehensive. Maybe if the intent for using those videos was more to really pose them as a stand-alone resource and they would need to really study it and then go through an assessment afterwards, the combination of the two would be very, very helpful.
- Q14 Interviewer:** Okay. And you mentioned the production quality a second ago, did that have any influence upon your decision to use these resources?
- Interviewee:** Most definitely, because when I started watching the videos, I saw that the quality was really – I mean high compared to the other resources that I was evaluating. So I definitely – that definitely helped my decision to use the videos into the program that I was teaching at that time.
- Q15 Interviewer:** Okay. And how would you describe the tone of the videos, and did it fit with your own program and your own sort of style of teaching?
- Interviewee:** When I was listening to the speakers in the videos, it felt like having practitioners or trainers share their experience of how to use e-learning resources or online resources.
- So for me it felt quite natural to be listening to them, and it also gives that sense of credibility in terms of whether the tips and the suggestions that they were giving were actually practical because you could really feel that they were talking from some point of experience. And I think when I used them into my program I think they fit my style of teaching in the sense that I was hoping more to share practical experience as practical tips that the students use when they need to design e-learning programs so, yeah.

- Q17 Interviewer:** Okay. And were you aware of the full range of episodes? There were 32 in total.
- Interviewee:** Yeah, because I think — well, I'm not so sure that I counted, but when I visited your website, I think most of them were already laid out there, and was just a matter of clicking which one you were really interested in, so maybe — I mean, I was pretty much aware that there were more out there, apart from the ones that I selected. But in YouTube, I guess it's not that obvious because we just chanced upon the video there. It doesn't necessarily immediately lead you to the rest of the 32.
- Q18 Interviewer:** Yep, that's a very good point, actually. And what do you think is the best aspect of the structure or the design of the resource?
- Interviewee:** I guess I was not very sure if the way that it was produced — I mean, in the way that you were interviewing these people if they ever like planned out what they wanted to say first, or whether it was spontaneous. I didn't really have a good sense of that, but I think I really appreciated the fact that when they start their discussions, they usually have a very, very coherent flow.
- I didn't see, at any point, that they were sort of digressing from the topic that they needed to cover. And the videos themselves were quite short, so it's easy to watch and get all of the inputs immediately, as opposed to maybe a video that was longer. In my experience of taking online courses like this, it's usually commonplace that the video resources that you put online shouldn't be longer than maybe 10 minutes because you don't want to bore or overexert a field that the learners overexerting in terms of watching the videos.
- Q19 Interviewer:** Okay, thank you. And any aspects you think could be improved for next time?
- Interviewee:** Well, as for the time being, none at the moment. I really think you did a very good job with this set of resources.
- Q20 Interviewer:** Okay, thank you, you're making me blush now. We're getting through them quite well so I'll keep going. In your opinion, do you think that the resources helped to make a difference to your student's understanding or ability to implement online teaching, and how if so?
- Interviewee:** Well, I think for the ones that I decided to at least. Maybe it gave the students a better sense of the potential of using online [0:18:28.4] Most of them were really used to that traditional set up even when they took their classes in the departments. Our teachers usually just use the learning management system to serve like a repository for all materials that they would use for the face-to-face sessions, but never really — it's very seldom for these teachers to use online in terms of being able to supplement what happens in the classroom or even extend the learning experience beyond the classroom.
- When I had them go through these videos I think, to some degree, it removed some of the doubts that they had about what it would really be like or would it be really easy implement teaching online. So I guess I could also see in the comments that they left behind after watching the videos, that they could really see the potential of leveraging online technologies for teaching.
- Q26 Interviewer:** Excellent. And do you think that using the resources added value to your program?

- Interviewee:** Yeah, most definitely, because I guess if I had not been able to find all of these resources, it would have been harder for me to like emphasize on the certain benefits, or the certain advantages that they would get from online teaching. Because of the videos that you had, after they got to watch them, some of them were teachers, actual teachers sharing their experiences of teaching online or using a particular web technology to supplement their teaching strategy.
- So it added more credibility on my part because of — when I came into the class, I told them that I was actually an e-learning developer from my company and not really a teacher, teacher like them. So at least by being able to at least show them that other people have been able to at least attempt teaching online and get actual feedback from them through the videos. Yeah, it's helpful that way.
- Q21 Interviewer:** Excellent. And you mentioned credibility a little while ago, so did you trust the information that was communicated in these, and why, or why not?
- Interviewee:** Yeah, I actually looked at who the speakers were, and when I saw that they were teachers from institutions, universities, schools in Australia, I was like okay, this should be pretty credible because Australia, as we know, is one of our first world countries and education there is very, very good.
- Even my sister left our country to take her masters in your country, so I guess I really have that high regard for education there. So when I saw that all of these teachers were coming from different schools there, I was quite confident that whatever things that they would share, would really be useful.
- Q22 Interviewer:** Okay. And do you think that these resources would appeal to teachers in different disciplines to the one that you're in, and why might that be, or might not that be?
- Interviewee:** Well, I think they would. Although I haven't really watched all of the other videos that you have, I have the chance when we do more in depth review for the instructional design course that we plan to develop. I think — well, I noticed that most of the teachers were from the academia, but I think in terms of principle, how you teach in the academia is not much different from how you teach in the corporate setting. So I don't think there would be a problem applying whatever things that these university teachers were sharing to the corporate setup.
- Q23 Interviewer:** Excellent, okay. What do you think that the lifecycle of this resource would be, and why would that be?
- Interviewee:** Okay. I'm not sure if I could give like an exact number, but I do understand that some of them might experience [0:23:04.9] at some point. Maybe if there comes a time, let's say, some of the social media sites that were mentioned like maybe Twitter, Facebook, or maybe even Flickr, if these sites sort of lose their popularity, then maybe the videos that were citing how to use these technologies in teaching might have to be updated.
- But for the others, like the ones citing maybe forums, charts, etc., all of these communication tools that have been on the web for a pretty long time, I don't see how they would be obsolete fairly quickly.
- Q24 Interviewer:** No, that's a really good answer, actually. And how long do you think that you'd continue to use the resource?

- Interviewee:** Well, I think if ever I have the chance to teach the class again, I think I would still be using [0:24:22.3]. Even as I've mentioned to you, if we also find other videos in your collection that would be good also integrating to our instructional design program. That one would pretty much be mainstay for our office training curriculum, so I think I'll be using them for quite a while.
- Q25 Interviewer:** Excellent. I'm happy to hear that. And do you think that yourself and your participants could related to the experiences and opinions of the people that were in the resource, and why do you think that is?
- Interviewee:** Yes, I think for myself, yeah, I could find myself relating to all of the things that they were sharing. When I was reviewing the videos at that point in time, I was also trying to think of how I could sort of use online to supplement our class discussion. So when some of the videos mentioned that you can hold online discussions, etc., etc., I tried to integrate those ideas into how my class would be delivered for that semester. For my students, I am not quite — based on the comments that they shared with me, they said that the videos really had very good ideas about how to use online. Although, I just haven't got feedback yet in terms of whether they decide to use these suggestions where they went after their [0:26:02.2] in the program. But I guess I could ask them.
- Interviewer:** No, no, that's okay. It's more your opinion, as well, of it. Sorry, I'm just skipping because I think you've answered some of the other questions in your previous answers, so I'm just skipping ahead a little bit.
- Interviewee:** Okay, yep.
- Q26 Interviewer:** I guess a broad sort of question — do you think that the resources have benefitted yourself and your students in a specific context in which you use them? Were they of use to the students, I guess, in the end?
- Interviewee:** Yeah, I think they were. I remember when they started developing their e-learning courses for that particular program. I kept reminding them about the different suggestions and the different tips that were found in the videos that I showcased in the earlier weeks of our program.
- I wanted them to really stretch their design hats when they starting working on their particular e-learning project because I wanted them to feel that they weren't restricted to just a particular type.
- In that sense, I think the videos helped because at least they were able to get a sense of what other possibilities they could use when they went on designing their e-learning courses. So I guess it would have been harder for them to come up with whatever projects they submitted had they not been able to get additional feedback from the resources that I used from you. Because I guess most of them, with not much experience, would just stick to whatever they already knew, as opposed to trying to look outside and get more ideas from other people.
- Q28 Interviewer:** Okay. And do you think this resource has changed your own teaching practice, related to online learning, in any way?
- Interviewee:** Well, I guess when I saw the videos, it sort of validated my — the direction that our — because internally, in our team — in my regular work as the learning technology

officer, we're trying to think of how else to deliver lectures and materials online to students, especially if they're very busy. Or generally, the kind of e-learning courses that we created were more self-paced [0:28:57.0] but when some of our bosses mentioned that maybe we should try to explore leveraging videos instead to sort of have online lectures that are more personal.

So when I saw the resources that you had, it sort of validated that suggestion that maybe we should look into being able to develop e-learning programs that weren't the usual self-paced reading type, but more leveraging maybe many different short videos, tackling key topics, and then coupling those with quizzes, or homework, or whatever to sort of complete like a fully online program. Does that make sense to you?

Q29 Interviewer: No, definitely it does. Nearly there — was it valuable to hear opinions and information from outside of your immediate professional network, and if so, why?

Interviewee: Yeah. In the way that I do my work, I like hearing opinions and information from people outside of the office because I want to know more about what's out there, as opposed to what we already know. I don't want to get stuck with the things that we are comfortable with.

I try to — in the way that we build our courses in the office, I try to like find ways to push our design capabilities into something new, so that at the end we could come up with an e-learning program that would really hit the spot for the target audience that we have. So I found it very, very nice that I had all of these different resources that I could get different inputs from.

Q30 Interviewer: Okay. And I guess the very, very last question would be do you have anything else that you'd like to add at all?

Interviewee: Well, not so much. I think I shared most of the thoughts that I had about your videos. Although, most definitely we're going to try to look into how else we can use the other videos that you have. Although, I've yet to really see if — because the subject matter experts that we have in the office are quite — not very tech savvy, so we're not really sure how comfortable they would be if they start finding out about these different ways to implement online programs. But I think it's better than not having them try at all, so in that sense, I'm very excited to share with them all of these things.

[END]

5.4 University C interview transcript

- Q1 Interviewer:** First of all, I just wanted to ask what discipline you teach.
- Interviewee:** Alright, my role is really — I'm building the staff capacity for teaching and learning. So my background is in Education, and at the moment, the role I have and have had for several years, at both [...] and now at the [...], is involved in what you might call building staff capacity around teaching and learning. So it's professional learning, professional development; academic development.
- Q2 Interviewer:** Okay, thanks. And I know this is a bit of a superfluous question, but just for the record, I'll ask it anyway. What education sector are you working in?
- Interviewee:** I work in the center at the University of [...] and it's a centralized unit called the [...].
- Q3 Interviewer:** Fantastic, thanks. And what's the name of the program in which you've used the Learning to Teach Online resources?
- Interviewee:** Right. I have been using mine in what's called the Graduate Certificate in [...]. So it's a certificate; it's a program for [...] staff and partner provider staff that we have introduced to build the capacity of our staff around learning and teaching to help them design curricular, align assessment to good curricular to deal with contemporary issues in tertiary education to understand this practice in tertiary — in teaching tertiary education.
- Q5 Interviewer:** Okay, excellent. And I think you took care of number four for me there, thank you. So could you describe your students to me? And students I'm using in this interview, obviously, that refers to the academics that are undergoing the program in this case.
- Interviewee:** Yes, it's always tricky. I call them participants. I consider them that so that I don't feel like — but they're learners, and they are staff at the University of [...], or they are staff at our — we have a number of private providers, who deliver University of [...] undergraduate and post-graduate degrees, both within Australia and in a number of international countries. And I provide the graduate certificate to — at the moment, it is staff that are based at the University of [...] in [...], in [...], and also partner provider staff in Melbourne, Adelaide, and Sydney.
- Q6 Interviewer:** Great, thanks. And how would you rate the level of experience in online teaching before they undertake this program?
- Interviewee:** Quite mixed, but basically very — this would be beyond starting to use Moodle as a learning management system, really more than anything. Some have a little wider experience, for example, we've now started to use Illuminate as a tool. We have eight portfolios more as a tool for them to be able to gather all of their information together and be able to track their progress, etc. In terms of their use of online in their teaching, it's quite limited.
- Q7 Interviewer:** Okay. So how many of these iterations of this class run per year, and what sort of numbers are we talking about?
- Interviewee:** The numbers are really surprising because the graduate certificate used to be offered through the School of Education, and the director and I had come from other

universities where we had introduced what I call refreshed or revitalized graduate certificate programs. So we felt that when it was in the School of Education, in the prior three years, I think I might have had one or two enrollments in the program. And we felt there was a need to provide professional development for the staff so we, I guess, negotiated, or had discussions about seeing if we could deliver the program; refresh it; renovate it, and deliver the program within our sector, bearing in mind that it would still be an award from the School of Education.

It's now the School of [...] because we didn't have the authority, in terms of the university's regulations, to actually give awards. So the graduate certificate resides in the School of [...], and is delivered by [0:05:04.8]. Now when we put our proposal together two years ago, we indicated that we thought we could get 20 and we did 100 on that; 20 per year and everyone sort of laughed at us and said, "Well, that's ridiculous. You'll never get 20." And we said, "Well, from our past experience, we think we might have a go at that." And besides, sort of 20 was almost the cut off that we needed to make this financially viable and win our argument. So I think we thought we were a bit ambitious as well, but we thought 20 was a reasonable target. Well, in the first 12 months, we had 100 enroll.

Interviewer: Wow.

Interviewee: Because they were just — and we didn't realize this as much, but people were thirsty for some professional development and for assistance. So the first group of about 25 have actually graduated and completed, so we still have around 70 to 75 at various stages throughout the program. There's another large group who will complete by the end of first semester next year. And we have interest from cohorts, or partner providers staff, lined up waiting to go. And we keep saying, "No, we just can't cope with anymore at the moment."

Interviewer: Wow.

Interviewee: In the meantime, we also won a state government grant to deliver the program to 180 TAFE teachers. Because in Victoria, TAFE is going through a really rough time, and one of the sweeteners, I suppose, is that the state government said, "Well, if we can build capacity of TAFE teachers to offer undergraduate degrees, that will be perhaps more of a molding of the VET Higher Ed sector into sort of a tertiary education sector. So we are now currently rolling out the graduate certificate to the first group, which is 80 of the 180 TAFE teachers, as well. So we've got a large number of participants that we're servicing at the moment.

Interviewer: That's fantastic. Well done, by the way.

Interviewee: Yes, and we're retaining them, and they are enjoying it very much. I mean, it's a program that is based on reality; it's experiential learning; it's around them taking responsibility for their learning with a lot of guidance and mentoring. Very seldom do we hold any sort of lectures, or such. We do have compulsory days where they have to be there and get involved in activities. We have a lot of online support work going on, but it's — I would say it's customized to the workplace that they're involved in. It's contextualized to what they're bringing to the learning situation, or I suppose I used those words the wrong way. It's contextualized for their work, and it's customized very much to what they're bringing already with their schools.

Q5 Interviewer: Many of our partner provider staff are international staff, and they've taught for

many years in Sri Lanka, in India, in the Middle East, and Japan, and China. So they bring a wealth of experience. And we then work with that knowledge and skills, rather than assuming everyone is the same. And the TAFE teachers, similarly, they have a wonderful background in, what I call experiential or active learning, but they lack the ability to articulate it in terms of what are the theoretical underpinnings here. So we work with what they know and then try and give them some frameworks and some theory that helps them understand a lot of what they've been doing and why they've been doing. Now, they can discuss it in more a higher education discourse.

Q8 Interviewer: Okay. Well, I'm really quite keen to see what roll our resources may have played in that actually. So here's a tricky question for you. Can you remember which episodes that you referred to within the program?

Interviewee: I might have to send those to you. Let me give you some sort of examples, if you like. And I could probably even send you the module. The course — I hope my answers are not too long winded. I'm trying to give you the bit of the context, as well.

Interviewer: No, that's okay.

Interviewee: Within the course, the first course is sort of really an introduction to learning and teaching where we cover lots of things starting with the learner. The nature of the learner; learning styles; how people learn, and we challenge them to sort of rethink about what's involved in learning and effective learning. And then we also, of course, look at well, what does that mean, effective teaching and our teaching practice? But the middle two courses are made up of a range of modules, and that's where I used the online material, on your side, quite extensively.

They're made up of modules, and they need to select four from a range of face-to-face and online modules. So they can choose if they've got a gap, or a real interesting technology in teaching, they can follow those. Others might be more interested in assessment, so they might do a couple of modules around assessment; maybe one on internationalization; maybe another on giving effective feedback. They select the modules that suit their interests; their gaps; their time. Some people make their judgments based on being realistic about how they might be able to fit those into their busy working life. So we have offered Learning to Teach Online module as one of those in one of the courses.

So that's how my people would have had the majority of the exposure to your side. And what I did was I looked through the site quite extensively, and then designed a series of probably about six or seven activities that had a lot of flexibility in them that encouraged them to go to that site and to browse it and to do specific tasks. So for example, the first one would be watch the Welcome to Learning — oh, wait a minute. Watch the following video on Engaging and Motivating students, and we would refer them to a particular video on your site, or it might be that we would, say, have a look at some of the interviews on this site, and in particular, they talk about importance of teacher presence.

What does this maintaining teacher presence in online learning — what does this mean and how do you think that this can be achieved effectively? So those sorts of questions; so we're starting to get them to think about how do you use the technology to keep the students engaged; to keep the learners engaged? And we're also encouraging them to see what other people, some of the experts in the field,

are saying. So that's one example.

Interviewer: Okay, no, that's really good, thank you for that. That's good detail.

Interviewee: Another example would be when I say, "Watch the following case study, and we'll give the link on integrating online resources into your teaching." So we get them to watch that, and then we have a series of questions around that. How might these strategies apply in your own course? Think about how you might use them. What other resources, in light of viewing that video, might you be able to develop, which will compliment your online teaching? That's another example.

Q9 Interviewer: No, excellent, thank you so much. I might move on to the discovery part. I was wondering how you heard about the project, and if you can be as specific as you can remember, in terms of a specific person, or a tweet account, or whatever it may have been would be really helpful.

Interviewee: Okay, I guess I heard about it because really of my role — I'm really active in learning and teaching circles. I attend the [...] meetings. [...] is the Council of [...]. So that's sort of a group of us that regularly meet, and because we have close links with the [...] — and I have had been in the leader for two major leadership programs in learning and teaching, and I've been involved in a number of others as a partner; participator. So I became very aware of all of these wonderful resources that were being developed, and projects that were being undertaken, as a result of the Australian Learning and Teaching Council grants.

So I was attuned to that and because of that involvement, regularly browse the ALTC site for new projects. That's almost my starting point for any sort of topic, okay? If it's about assessment, let's have a look, okay? Then I've gone onto [...] and his work. If it's about internationalization, then I'll look at the projects and I'll see that [...] [0:15:58.1] was doing a lot around internationalization, so I would follow her stream. So that's really how I came across it. Plus, I had a bit of exposure to [...] because he was also on some of the projects I was on. And I'm sure that — well, I can't remember a specific time, but I'm sure that through [...], I became aware of the project, as well.

Interviewer: Excellent, okay, thank you. And why did you make the decision to include it in your own program?

Interviewee: Why did I make the decision?

Q10 Interviewer: Or how did you make the decision to include it — to include these resources in what you were doing?

Interviewee: Well, as I was designing these modules, as I said, usually going to the ALTC projects was my starting point. So I would look to see who has got a project that we can sort of draw upon that would help inform the discussion. Because these are the projects that are looking at the current trends; they're usually quite detailed; they offer a lot of flexibility. So I would say that was one of the major reasons. All of the modules that I have designed are activity based, but usually are formed by the sort of work that's being done in a number of the projects.

Q11 Interviewer: Okay, alright, excellent. And apart from your participants, have you told anyone else, or promoted the project in any way, and if so, why?

- Interviewee:** I haven't directly, but what I have observed, which is something that — I mean, I suppose if I stopped and thought about it, I would have realized this would have happened, but — and the ripple effect of the 100 or so people that are doing the graduate certificate, is quite impressive, really, because they ask staff that are working in schools and departments across the university and partner provider staff. And what I'm finding is that a number of them are going back and are saying, "Oh, guess what I just learned in the grad cert," or "Guess what we just did."
- And they're teaching their supervisor to use some of the tools, or they're sharing with staff some of the sites, or ideas. So while it's not — I guess in a way you could say there was an intended — but it's not an exclusive part of what I'm doing. It is having impact. While I can't say to you, "I know now this school is using some of that material because I've helped them." That's not so. It's really that I've worked with the staff, and then they go back, and because they're having an enjoyable time and they're learning, they're sharing that information with their colleagues.
- Q13 Interviewer:** Yeah, great, thank you. Down to the next section, I think, because you covered the other questions there, I think, what's your opinion about the video and pdf format of the episodes?
- Interviewee:** What do you mean by that?
- Q13 Interviewer:** I guess, the actual choice of us creating videos and pdf's. Do you think that was suitable, or would it have been better as a website, or that sort of idea?
- Interviewee:** Well, I found it accessible and useful. I mean, I liked — let me say something about the videos that I liked were that they didn't look terribly scripted and that they were, what I would consider, sort of fairly conversational, and I liked that. And I think the participants liked that, too. They weren't highly structured; highly pretentious. They were just people chatting about their work and how they use these tools.
- Q14 Interviewer:** No, fantastic. I'm really happy to hear you say that, actually, because that's exactly what we intended. Just looking at the production quality, or the way that the resources were put together, do you think that that made or influenced your decision on using them in any way? Kind of like the finish or the polish, I guess
- Interviewee:** I don't know if I can answer that, I mean, I think what attracted me was the breadth of information. The fact that you would look at the videos, and someone would give you that idea, and then someone would have — not necessarily contradictory ideas, but a different take on it. And I just found they were terrific as starting points for discussion. That's how I used them and that's what I found valuable. And also, they enabled the participants — because I encouraged them with all of these sites, to get in and have a look at the resources that are there. Have a look at the ideas. How might you adapt them; utilize them? What do you think about them? And I just thought that was all just pretty accessible and there was plenty there.
- Q16 Interviewer:** Okay, no, excellent. And thanks for holding on. We're getting through. Where did you access the episodes for use in your program? Do you remember if it was from our website, from iTunes, or directly from YouTube?
- Interviewee:** I accessed it by going into the ALTC — no, I think I just typed in Learned — gee, I think Learning to Teach Online. Maybe I went through your university site.

- Interviewer:** Yep.
- Interviewee:** I'll have to check that at the moment, but — and it probably varied depending on what mood I was in and where I was. But I think I just typed in Learn to Teach Online website, or something like that.
- Q17 Interviewer:** Okay, that's fine, yep. And are you aware of the full range of episodes. I would say that you would be given our conversation. But were you aware...
- Interviewee:** I probably was — the full range of the what — the materials?
- Q17 Interviewer:** Yeah, because a lot of people have used one or two in their programs. And some of them weren't aware of the others. So I'm just sort of saying if you were aware that there was a whole scope there?
- Interviewee:** To some extent, but I'm sure there are things that — I mean, I was a bit selective. I went through and then I tended to direct the participants to have a look at this or that. Or, at times, I would say see what else you can find around such and such.
- So I was encouraging them to mind that site, as well, not just rely on — I mean, I gave them a little bit of structure to help focus some of the discussion, particularly around that concept of how do you maintain it? How do you maintain a teacher presence in online learning? And what are the key elements around that? Because I wanted them to be conscious of that because I thought that was a pretty big issue. But at other times, I encouraged them to look at the site themselves and see things that might be of value to them.
- Q18 Interviewer:** Okay, and what do you think was the best aspect of the structure, or the design of the resource for you?
- Interviewee:** The best aspect. Perhaps the videos — access to the videos.
- Q19 Interviewer:** Yep, okay. And do you think there's anything that could be improved about the resources?
- Interviewee:** Well, I suppose only that there is the potential — and I'm sure you're doing this, but there's a potential to keep updating it and keeping it a live site. And as we move forward, in terms of, use of technology, and discussions around the use of technology, and trains in teaching that — those ideas and resources get added to it; those debates.
- Q20 Interviewer:** We're definitely hoping to, yes. We've just got our funding proposal in now, so fingers crossed. So moving on, in your opinion, do you think the resources help to make a difference to your student's understanding or ability to implement online teaching, and how do you think?
- Interviewee:** Oh, well I certainly hope so. And I hope in a couple of ways in terms of their understanding of what online teaching is about. That's it's not just putting resources up on the site and using the same old style of delivery and presentation of materials. So, in terms of an understanding about what it means to teach online, I think it's widened their view and ideas on that, and then also given them lots of ideas of things to try.
- Q26 Interviewer:** Excellent, thank you. And do you think that the resources added a value to your

program, and if so, how?

Interviewee: Oh, absolutely, yeah. I mean, I wouldn't have had that as a module if I didn't think it was adding value. No, I thought they were — for all of the reasons I've discussed earlier, I think that they're wonderful starting points for discussion.

Interviewer: Excellent. And you've touched on this a little bit, but I'll ask it in a different way. Did you trust the information that was being communicated, and why, or why not?

Interviewee: I'm sorry, Simon, I missed that.

Q21 Interviewer: That's okay. Did you trust the information that was being communicated in the resource? Why did you, or why didn't you, trust what was being said?

Interviewee: Trust. I trust that it would because — I mean, I'm not so sure it was a matter of trust, or not trust, because so much of it was people giving their views, and people talking about how they're trying to work with an online environment, and the things that were important to them, and the ideas they had. So, I mean, I'm not sure — it wasn't like you were looking at the site in terms of here's a lot of medical knowledge or information that you need to remember and do it.

It was really, here are some ideas and things that are important ways you might try. So I find that question a little bit difficult to respond to because it wasn't so much trust, it was — yeah, I found them valuable and a useful starting point.

Interviewer: Okay. I guess it's more about — I could explain it a different way, in terms of, did you think that it was authentic information?

Interviewee: A lot of it was the people's stories, wasn't it? And the people's views and I think they sounded authentic to me.

Interviewer: Okay, no, that's fine. And do you think the — this is a tricky question, actually. I'll try it anyway. Do you think the pedagogical structure of the resource was effective? And what I mean by that, I guess, is the way that we try to structure the delivery of the information so that it was digestible and that kind of thing.

Interviewee: Well, I think the fact that you presented in several formats did acknowledge that people have different learning styles. Some people work better by listening to a video and then responding; others like to read an opinion piece, or an article, or read about — they like the text idea and, I guess to some extent, the pedagogy came to it in terms of how I used it. What I then sort of said was okay, going — have a look at this video and here are some issues and questions I want you to think about. And they were usually things like what's the main message that's coming through here? And what's your opinion of that? And how might you apply that to your teaching, or is this relevant to your teaching? So, to me the pedagogy, in some way, came through in terms of how I used the information and materials.

Interviewer: That's a very good point. And I think this a moot question in some ways because you said you have such a variety of teachers from different disciplines participating in your program. The question is do you think the resources appealed to educators in different disciplines, and why would that be?

Interviewee: Yes, we do have a mix of disciplines and a mix of, as I said, backgrounds. Staff that

— large numbers of international staff in our partner providers, who've taught all around the country. Some quite experienced in technology, maybe not so much online delivery, but certainly with familiar with technology, and quite happy to use videos, or use audio in their work, or whatever it might be. Now, your question was do you think that the material was relevant to all discipline areas. Well I think, once again, it's a question that I ask them, "How would you use this — how would you use these ideas, or this material, or this strategy in your teaching?" So, the challenge is then to look at whatever was being said. How do you create the teacher presence, or online assessment; whatever? How might this work in your discipline? So that was where we had our discussions.

Q23 Interviewer: Okay, and what do you think the lifecycle of the resource is?

Interviewee: Yeah, that's the tricky one, isn't it? Because that comes back to my earlier one about is there a linear side and if you can keep on refreshing it with the new debates and the new ideas that are coming through that will be really useful. I hope that it will be able to be maintained and be a living site that has a future, but it will depend, on some extent, on being able to keep up with the contemporary discussion around online teaching.

Q24 Interviewer: Okay, this is sort of a related question, as well. How long do you plan to continue using it?

Interviewee: Well, I haven't thought that through. I mean, we do keep modifying the sorts of ways we use it. So when we've developed a module, the next semester or two semesters later when it's offered again, we don't necessarily have it exactly the same. But I would hope that we would be able to draw upon it, and other resources, certainly, as the program keeps rolling over.

Q26 Interviewer: And do you think you could encapsulate, in a sense, in sort of to — what value you think the resources have brought to your program?

Interviewee: I can. One of the key things, as it's brought together a whole lot of information in a real accessible site, and compared to when I studied, you had to go to several reference books and journal [0:32:37.8] course, etc., to get all of your information. Now, with the busy staff — my way of thinking, it's marvelous for them to be able to go to a particular site and get such a range of information, diverse ideas, strategies there on the site. To me, that's one of the benefits. It's also that it does cover a range of ideas and it has a lot of different people, who are the sort of leaders in this area, giving ideas, and giving their opinions, and challenging people to think how they might improve and be more effective in their online teachings. So I think that's a great thing, as well.

Q10 Interviewer: Excellent, thank you. And, I guess, this comes back to — this question comes back to something you mentioned earlier about how you would go in and scout which episodes may be relevant. How did you analyze the content to actually determine how that would relate to your learning outcomes of your activities?

Interviewee: Intuitively.

Interviewer: No, that's fine, yep.

Interviewee: Yeah, I mean, I'm pretty experienced, so I am — but to be quite frank, it doesn't take

me long to just sort of look and say, “Nope, not relevant. Yes, that’s great. It will be terrific; I can work with that.”

Interviewer: Nope, that’s perfect.

Interviewee: I have to admit, that’s exactly how I did it.

Q28 Interviewer: That’s fine. That’s really good. And you’re not the only one to say that, so that’s fantastic. And you’ve answered that question before, so that’s fine. And I think you’ve actually answered — sorry, I’m just — we’ve actually covered a lot of these. So I’m just sort of skipping through. Okay, sorry. Do you think the project has changed your own teaching practice related to online learning in any way?

Interviewee: I actually do, yes, it has impacted upon me, of course, because I’m learning all of the time. I’m — and I’m using this example with you a couple of times, but when I first went to the site, the thing that jumped out at me was the importance of maintaining an online presence when you’re teaching — teacher presence when you’re teaching online. And I thought yes, yes, that’s right, and yet I hadn’t really — if you’d have asked before, I don’t think I would have come up with that as a reason why, or as an important element in effective engagement.

Maybe I would have scattered around it, but — so definitely all of the time. Every time I, sort of, look at things, it either confirms what I’d, sort of, been thinking, or it challenges what I was thinking, or it gives me some new ways and ideas of thinking. I’m sure that looking through the various materials and videos, etc., also helped inform the sort of questions that I actually wanted to ask.

Q29 Interviewer: Oh, excellent, thank you. A couple more — was it valuable to hear opinions and information from outside of your immediate professional network?

Interviewee: Yes, it always is because, as I said, my discipline is education, but I think it’s really interesting — it’s interesting for the staff to actually hear people from other professions talking about how they might utilize, whether it is about online learning, or if it’s about assessment, or approach to HDR’s [0:36:31.2] vision, whatever it might be, is always incredibly enlightening for people from other disciplines to hear the views and perspectives of people from another discipline. Knowing we often have quite heated debates when we get people who’ve got a little background talking to, say, the physicists, or the arts and the lawyers, etc. So I think that it really is valuable that we hear from the voices of a range of discipline areas.

Q30 Interviewer: Excellent, okay. Well, the last question is really do you have anything else that you’d like to add to this?

Interviewee: No, not really. I mean, as I’ve said, I’m very grateful that we found this resource and that we’ve been able to, sort of, build a module around it or using the resource and the ideas from it. I think that one of the strengths of what we do is then how do — how we use that resource for further discussion, and activities, and okay, what does this mean for your practice? And so far, it seems to be working really well.

Interviewer: No, excellent, thank you.

Interviewee: We also...

Interviewer: Oh, sorry.

Interviewee: One other thing I probably should add, too, we also have one online class as sort of an academic coach or a mediator, if you like, who responds to a lot of the participant's discussion or questions. We work through Moodle, so they might post some questions or ideas while they're doing that module, onto Moodle and then she will feedback. Her work is in Educational Design. She will feedback ideas, and discussions, and just keep the conversation going, so that's another strategy that we're using to extend and expand their learning.

[END]

5.5 Private Consultancy D interview transcript

Q1 Interviewer: I just wonder if you could start by just introducing yourself and just describing what institution you represent.

Interviewee: Sure, my name is [...]. I'm the Director of Pedagogy of an online consultancy group – group of consultants, and we teach online courses, basically. They're aimed specifically at in-practice or in-service language teachers; English as a foreign language teachers although, we do also teach teachers of other languages at times. The resource that we're looking at that is specifically related to one of our courses, though, so we have a suite of probably about nine courses. But the resource appears in one called the [...] course.

Interviewer: Okay, thank you. I think we've taken care of one, two, and three there, which is nice.

Interviewee: Okay, great.

Q4 Interviewer: Could you actually give me an overview of that particular course?

Interviewee: Sure, okay. It's a 30-hour program. It takes place over four weeks, so it has four modules, each week corresponding to one module. And the aims are basically to help practicing teachers, so they're already face-to-face teachers, become effective online teachers or online facilitators. It's very much focused on practice, so although we do look at some theory behind online learning, and your resource comes in there a little bit.

The focus on the course is very much that the teachers, who are taking the course, practice stuff. They put it into practice. So I can give you an example if you'd like, for things like synchronous video conferencing sessions. That's one skill that an online teacher needs to have. We run a couple of model sessions, if you like, with them, and then they are put into small groups. They have to run their own mini video conferencing session just in small groups of three or four teachers; just to try out their skills. So we always move from a little bit of theory, perhaps, but more directly into practice.

Interviewer: Actually, there's a very interesting point, I think, which I might come back to in a moment. I think you have described your students.

Interviewee: Yeah, they tend to be – yeah, they're experienced language teachers, so they have face-to-face teaching experience. I think that's important, yeah.

Interviewer: What sort of – just out of curiosity, what's the age range?

Interviewee: Probably youngest would be mid-20's, late 20's; all the way through to, yeah, 60.

Q6 Interviewer: Okay. And how would you rate their level of skill in online learning and teaching before undertaking that course?

Interviewee: 90% have never taught online – 95%. Yeah, some none, but they have face-to-face teaching skills.

Q7 Interviewer: And how many of these classes do you run a year, and how many students would you have in a typical class?

Interviewee: We run probably five a year, yeah, probably five. We started running three, but recently we've had more and more participants, so now we're offering about five. The average number is about 12 per class. Sometimes we'll have a group with eight or nine, and sometimes a group with 14 or 15. We have a maximum number of students per group and that's 15. We have one tutor for — the minimum number of people in a class is six, so we'll have one tutor for six to 10, and two tutors on the same course from 11 to 15. So it's very, very heavily tutor supported. There's a lot of interaction, group work, and pair work, and so on.

Q8 Interviewer: Okay, here's a tricky question. Can you remember which episodes you may have referred to?

Interviewee: Yeah, we've only referred to one, really. The task that I gave you; the one on motivation, although, I personally think that the other episodes were all very good, but the thing is, that for us; for the type of program that we run, as I said, we put more emphasis on practice and less on looking at other resources. So we do provide a range of resources and we think yours are very good because they're video and so on. But because of the content of our classes, our course, that one fits in particularly well with our syllabus if you like.

Interviewer: Okay.

Interviewee: So it's a motivation one. I don't know if I said that.

Interviewer: Yes, yes, okay. I think, again, you have answered this but maybe we could just recap quickly. If you could describe the context in which you used that.

Interviewee: Yeah, okay, so it's in one specific task. We have, as I said, four weeks, four modules — four weeks. In each module we'd have an average of six or seven tasks. So we're looking at one task, and I think it's in the second week of the course, early on in the week. And we start out looking for the basic things like group dynamics, and motivation, and designing tasks for interaction, and so on. And this is the kind of little task that focuses on motivation. The task, as I recall, has three stages. The first stage is we point them to your resource. Tell them to watch the video about motivation and just to kind of write down anything that's interesting to them, but they don't have to do anything with that.

The second stage with the task is they look at a case study of a student — this is a real case study that actually happened to one of us — one of our online courses, where we had a participant who was very demotivated, who refused to take part in group work. He basically wrote to the teacher saying, "Look, this is not for me. I'm not interested in what my colleagues have got to say. I just want to pass the exam." So we sort of present them with this case study, and then they need to discuss how they would handle this student, and what kind of solution they see.

It's a pretty difficult scenario and it's a true scenario. So that's the only time we use one of your videos, but as you can see, it's used really as a lead-in. As kind of a thinking point, and then we move into something more practical; more based on reality. Not that yours are not based on reality but you know what I mean. A kind of problem-solving scenario, let's say, that they need to come up with a solution to.

They could, in theory, not even look at the resource but I think they probably do. We get motivated people in our courses.

Interviewer: Actually, I can tell you that they do from YouTube stats.

Interviewee: They do, good, yeah, as they should.

Q9 Interviewer: Okay, well, if we move into the idea of discovery and dissemination, I guess, how did you hear about this project? And I'm trying to see if I can find specific links to things, or people, or...

Interviewee: Yeah, I know, I've looked at these questions before and I just can't remember. I'm pretty sure it was by one of my online networks and the chances are that it was either through an online Yahoo group called [...] — don't know if you know them.

They're a very — they're a fantastic online community of practice and they're language teachers. It's webheads.org. Somebody may have posted about that a few years back in the [...] group. The other possibility is that I read a tweet somewhere but I really can't remember. It was definitely through either the Yahoo group or through Twitter.

Interviewer: That's okay. It's a big ask, actually.

Interviewee: Yeah, it was a while ago. It was a couple of years ago.

Q10 Interviewer: Why did you make the decision to include it in your program?

Interviewee: Yeah, that's interesting because, I mean, I just said to you that we could have easily run that task; that we use it without the resource. We don't ask our participants to prove, in any way, that they've looked at it by transforming their knowledge into something else, for example.

But I like, first of all, the fact I think they're good; they're good quality, and we can talk in a minute why I think that. And it's just nice to have multi-media input so we get them to read stuff; we get them to read blog posts or articles, and also try to get them to look at videos, or to listen to podcasts, or interviews — that kind of thing. So I particularly like the fact that it's a — the multi-media format, I think, is particularly effective — provides variety, I think, for us. That's really the answer; the short answer.

Interviewer: Sorry, I lost my place there.

Interviewee: Okay, let's see, where are we?

Q11 Interviewer: Yeah, have you told anyone else about it or exposed it?

Interviewee: Yes. Yes, yes, I have. I mean — especially I think it's a really nice resource, so I've done my own personal blog, but it's not directly linked to our company. I did a post; I'm pretty sure it was last December. I can probably look up the link for you and send it to you.

Interviewer: You know what? I've already got the exact date right here in records.

Interviewee: Ah, okay. Oh, great. Okay. Well I recommended that along with another couple of multi-media resources. I'm pretty sure we've tweeted about it as well. Probably a

couple of times, yeah, and I think probably on Facebook. I can't really remember. Good stuff we do like to share.

Q12 Interviewer: Okay, thanks. This is a bit of a pie in the sky question, I guess, but — and you've described the first part is — how did you do it? But how many people do you think actually would have heard about it from...

Interviewee: Well, definitely the people in our courses and that's an average of whatever the math is for question seven. And I think we do have a pretty big online network, especially through Twitter. We have something like 5,000 people following us. Now I know 5,000 people don't read every tweet. And my blog has a much smaller following, probably about 300-400 readers a week. I'm not very good at math but I don't know. I think some people have heard about it, I think.

Interviewer: That's okay.

Interviewee: Sorry.

Interviewer: It's not the best question in the world, actually, because...

Interviewee: I think some of the people who do courses with us, though, they're practicing teachers. They then go on and set up teacher training programs in their institutions. And if they're running online programs, it's likely that they would have passed the word along because it is a nice resource. We do highlight that.

Q13 Interviewer: Okay, thank you. Practicalities of the project — so what's your opinion about the video and pdf format of the episodes?

Interviewee: Well, I have to admit I didn't even know about the pdf format. I didn't notice it. I think the videos are great, yeah, they're well put together; they're professionally produced. Yes, I think that they're good; they're excellent.

Q14 Interviewer: Did the production quality have an influence on your decision to use them?

Interviewee: Definitely. Definitely, yeah, as I said, it provided variety for us; another way of providing input in a multi-media format. I really like the way it's filmed. So this idea instead of having one — because you have, whatever it is, your five or six academics talking about online learning. But rather than having them one after the other, you've got the cuts. You have sound bites from each and then again from each — it's extremely engaging and nicely put together.

Q15 Interviewer: Okay, thank you. How would you describe the tone of the resource, and did that fit with your program and your style of teaching?

Interviewee: Yes. I thought, yeah, it's very informal. I like the way you've got your academics. They've got nice bookshelves behind them, and so they clearly know their jobs. But it's a very informal tone and that certainly does fit in with the way we run our program. I mean, we've got, as I've said, its practice based.

It's kind of a discussion-based group; a kind of flat hierarchy type thing. The teachers are all colleagues in there together. And it's based on experience, and on practice, and you can tell that with the tone of the resource. I mean, you haven't got actors doing this; you've got people who know about online learning and that also — the credibility is high.

- Interviewer:** Excellent. I can't wait to play this back to listen to this actually.
- Interviewee:** Yes. If you're thinking your funding is going to be cut, just mention this.
- Q16 Interviewer:** And I think I know the answer to this one as well. I'm just going to stop saying that actually. I'll just ask the question. From where did you access the episode for use in your program?
- Interviewee:** I'm pretty sure it's from the website. I think it is from the website. I don't think it's from the YouTube. Perhaps we embed the YouTube video in the task itself, but I originally went to the website. That's where I know it from.
- Q17 Interviewer:** Okay. And were you aware of the full range of episodes — 32.
- Interviewee:** I kind of was. I think the first time I found it I looked at the stuff that would be more connected to our programs, so things like motivation — the kind of general e-moderation topics if you like. And then, I gather, you've got quite a few which are more like tutorials on tool. But I never actually watched those. So just from the top of their list relevant directly to my needs so I kind of know they're there, but I haven't really checked them out.
- Q18 Interviewer:** And what do you think is the best aspect of the structure or the design?
- Interviewee:** Like I said before, I think the way you've put it into kind of spits — manageable chunks rather than long monologues, which is always a turnoff. The speakers themselves were quite engaging, I thought. They speak just face to camera, which I like as well, I think rather than zooming around the rooms and focusing on other stuff, which can be distracting, because they all say quite a lot; it's quite dense in a way; there's a lot of information in the series. And I think that's effective so it doesn't get boring, because a talking head can get boring because of the way that you've chunked it, I think.
- Q19 Interviewer:** Excellent. And any aspects you think could be improved?
- Interviewee:** I thought about that question and I can't really think of any, no.
- Interviewer:** I'm happy with that.
- Interviewee:** No, I can't. Good.
- Q20 Interviewer:** Excellent. Well, we're moving through quite well. Down to the pedagogy side of things, in your opinion do you think the resources make a positive difference to your student's perception of — this is a very long question — and their ability to adopt an online teaching practice? And this is your perception.
- Interviewee:** Yeah, I don't know. As I said, I think they could do — I'm not sure whether our course makes the most of the resources, in a way. As I've told you, it's only used as a kind of little icebreaker, almost, activity in one task. So we don't really focus that much on it. We could — I think you could design a whole course around those videos easily, by getting people to work on them, and then reflect on them, and then etc., etc. But that doesn't quite fit the way that we have designed our course.
- So in our specific case, because we don't send our students that much to the resources, or get them to do anything specific with the video, we do point them to —

I don't know. In our course, the way it's designed, they got a lot more from the actual practice.

The fact that's its very experiential and practice based. And I see your stuff as kind of a good, solid, interesting, well-produced resource. But it's a resource, and going to a resource doesn't translate automatically into learning unless there's some kind of application to practice, at some point, along the line.

Interviewer: Well, I have a feeling these questions are going to be more or less the same kind of answers you've given, but we'll run through, anyway, and see what you think.

Interviewee: Okay, fine, fine, yep, no problem.

Interviewer: Do you think that they have added value to your program?

Interviewee: Yep, hmm-hmm. Again, very small, as I say, we could have used more of them, but in terms — especially in terms of just multi-media resources, which were a bit more engaging.

Q21 Interviewer: Okay, and do you trust the information that's being communicated, and why would that be?

Interviewee: Yeah, I think because of the source, it comes from a university, and also the people talking in the video clearly know what they're talking about. So for me, as the course director, or at least the course designer, as well, in this case, because I already have probably 15 years of online teaching experience. When I heard the videos, immediately there was a rapport. I knew that these people knew what they were talking about. So, yes, the two elements: the fact that they do know what they're talking about and the fact it comes from a university, yeah.

Interviewer: Okay, and do you think the pedagogical structure — by that, I guess I mean the way we're trying to communicate the information — was that effective, and why, or why not?

Interviewee: I don't think you have a pedagogical structure really — well, let me rephrase that.

Interviewer: No, no, that's fine.

Interviewee: I see it as a very nicely packaged resource and I have to say I wasn't aware of the pdf's. Now that you've told me about the pdf's, I'm aware there's another dimension. I think that's great that you've summarized the information; further links; further reading, and so on. That's nice. That's an extra added thing. What was the question again, sorry? I've just lost my...

Interviewer: That's okay. It was more — I guess I used the phrase pedagogical structure where maybe I mean the way that we've actually structured and delivered the information. And I guess, not having seen the second half of that, that's fair enough. That will affect your answer as well.

Interviewee: Yeah, I mean, I think it's nicely done. I mean there are different things you could do. You could put yourselves — career as kind of a self-access type course with materials, and integrate them together, and have people doing tasks, and set up a community of practice around it, I mean, there are all sorts of ways you could take it, but I think the solid content is there.

There could be more of a structure put around it if you wanted to. But I like the fact that people like myself, and other organizations who run online training, they can just pick and choose and put things in, if they want to, in their own way as we do in a very minor way.

Q22 Interviewer: No, actually I'm smiling because that was part of the design philosophies, so that's fantastic to hear it coming back. Do you think this resource would appeal to teachers in different disciplines or educational sectors to you?

Interviewee: Yeah, I thought about that question. I'm not sure. I suppose, yes, I'm a language teacher and teacher trainer, so I can see working in humanities. I'm not sure about math or science. I don't know how those kinds of — what they look like online. I would hope that a course online, in any discipline, involved interaction and shared meaning and problem solving, and so on and so forth. So in theory, yes, there are a lot of common skills that are needed there. But I don't know in reality if that takes place in other disciplines, or whether other educators see it that way. But, yeah, from my point of view I would say it should do.

Interviewer: Excellent. Okay, it's a long list but we're getting there. I thank you for your patience.

Interviewee: Yeah, fine, fine, no problem.

Interviewer: Do you need a break?

Interviewee: No, I'm absolutely fine. I like talking about teaching. It's my thing.

Interviewer: Do you think that this is a relevant resource for your students and your discipline as well?

Interviewee: Yeah, definitely, yeah. I mean, for all of the reasons that we've talked before. And that's why I subsequently included it in a blog post, and after speaking to you when you got in touch with me I thought I must tweet that resource again. I don't know if I remembered then to do it, but it's the kind of thing I would like to put out there again and again. I do think it's relevant, yeah, definitely.

Q23 Interviewer: Okay, and what do you think the lifecycle of this is and why?

Interviewee: Yeah, that's a good question. Well, I think as long as formal online education is taking place in VLEs, in virtual learning environments, I think it has a place. As you know, there's a move now towards more informal learning, and network learning, and these MOOCs. You've probably heard of these multi-online open courses. We could have a whole separate conversation about those. So I still think they would have a role in those. I think they're a good solid resource so, yeah, fairly long shelf life. Instead of predicting what will come, you probably need some sort of mobile learning bit in there at some point — skills needed for mobile and things that come along with that.

Interviewer: That's actually the next grant application, which is being reviewed at the moment. But, yes.

Interviewee: Oh, really? How interesting. You'll need to tell me about that afterwards when you've turned this off.

Q24 Interviewer: Okay. And how do you plan to continue to use this?

- Interviewee:** Yeah, I mean as long as we run this course, probably. Yeah, we have no plans to drop it. After talking to you I'll probably go back through it and see whether we can integrate a bit more into our course.
- Interviewer:** Okay. That's interesting. I'm just looking at these questions and we've already covered them, but...
- Interviewee:** That's okay. That's fine.
- Interviewer:** Could you and your students, in your opinion, relate to the experiences and point of views of these people that are represented?
- Interviewee:** Definitely. I mean, I made some notes here and what I've written down here is Western Educational style. Yes, because it fits in with the kind of educational paradigm that we teach within Western Education, especially language education and, obviously, your style of education at the university. So for us it's not a problem. I always try and think what would it be like for a lecturer in China to take onboard all of that? I don't know the cultural — the educational culture is so different in some places that maybe it wouldn't be. But for us, certainly there's — we certainly relate to it. No problem, yeah.
- Interviewer:** Actually, it's interesting because that mapping that I was doing before, it very clearly shows Australia, New Zealand, U.S., UK, and a little bit of Europe in there as well, but otherwise, not much. So that's something else we'll be investigating as well. I shouldn't divert like that because now I have forgotten.
- Interviewee:** We're at number 30, we're [0:22:08.5] anyway.
- Interviewer:** No problem. What value do you think that this project has brought to your program and why?
- Interviewee:** On the one hand, the kind of technical value in that we have a multi-media resource, which is not an online article. And I think also showing that in other parts of the world that — but Australia also has quite a good reputation in online learning and has had for decades.
- So although we're based in Europe, and a lot of our teachers are based in Europe, we can point to other parts of the world where people know their stuff. So it's brought that kind of international — what would I call it? What's the word? Oh, I can't think of the word in English. It's like — validity is the word I'm thinking of. You know what I mean? Another perspective from another part of the world that backs up what we're saying.
- Interviewer:** Validation.
- Interviewee:** Validation, thank you.
- Q10 Interviewer:** Excellent, okay. Well, how did you analyze the content to determine if it was appropriate and relevant to your learning outcomes and your students?
- Interviewee:** Well, when I first heard about them, whether that was via tweet or via discussion group, I went along and had a look at them, and I immediately liked them. And I immediately thought how can we integrate this into the one course that this is specifically relevant to? Show I just watched them.

And I already know what our course looks like, what the syllabus looks like, and what we're doing — all the tasks, and I just found somewhere to slot them into an already operational course. But as I say, you could create an entire teacher training course just around these — around your videos.

Q27 Interviewer: Okay. And I'm not going to say that you've already answered this but I will — I just did say it. Do they align in any way to your assessment tasks?

Interviewee: Not really, no, no. Our assessment on this particular course, because it's not a university accredited degree that we run, it's kind of a practical teacher training course, we don't have exams or anything; there's no final essay that you need to write, or a final project you need to carry out. So all we ask is that our participants complete 80% of the course work to what we call an acceptable standard.

We have a few criteria for that. But, no — but with the function within the task is that they could not even look at the video and still successfully complete the task, but as I say, the kind of people that we get on our courses, because they usually are self-funded, or they're funded by universities or educational institutions that they then need to report back to the — they tend to be pretty self-motivated. And as you say, you can tell that they do look at them. That's great. I would have said they do.

Q28 Interviewer: Okay. And did you do any combination of ideas from the resource with your own in terms of how you're actually teaching those classes?

Interviewee: Not personally, although, I couldn't speak for the students on our courses. As I said for me, it was more — because I've been teaching online for a long time, it was a matter of hearing stuff that I thought okay, great, other people think that. It was more of a — yeah, recognition of having done things — to best practice.

Interviewer: And do you think that the resource benefitted your students in the context that it was used?

Interviewee: Yeah.

Interviewer: If they watched it.

Interviewee: Yeah, yeah, again, because I think it reflects best practice. And again, not just — the video isn't the only place that they're getting this message from. The whole course is, in fact, giving them a similar message through other means.

Q28 Interviewer: And has the project — the resources/project changed your own teaching practice related to e-learning in any way?

Interviewee: Not specifically. But again, the reason being was that I already was very experienced when I came across them. I think if I was completely new to online learning, yes, I think it would have helped a lot. Yeah.

Interviewer: Okay

Interviewee: But not personally.

Q29 Interviewer: Okay. That's alright. That's fine. Was it valuable to hear opinions and information from outside your immediate professional network?

Interviewee: Yep, yep, definitely. It's reaffirming and it's showing me that you're on the right track and that these things are applicable across multiple context, so yes.

Q30 Interviewer: And any other points?

Interviewee: Not really; just congratulations. It's a good project and that's why I was quite happy to meet you, because somebody gets in touch about something that you think is terrible, then you probably don't want to be interviewed. But, yeah, I think it's really useful to have out there and free of charge for educators, so congratulations. And I'm delighted to hear that you're carrying it a couple of steps further.

[END]

5.6 Private Higher and Vocational Education Institution E interview transcript

- Q1 Interviewer:** Okay. So, we'll start with a quick overview just to establish who you are and what you do. So the first question is what discipline do you teach? What area are you
- Interviewee:** Right. And the area that I am in is the professional development for staff. I've taught in multiple disciplines prior to that, mainly communication and education and technology related, but currently in professional development for staff.
- Q2 Interviewer:** Okay. Thanks. And what education sector are you currently working in?
- Interviewee:** Currently private dual sector, so Higher Ed and VET.
- Q3/4 Interviewer:** So what's the name of the program in which you've used the Learning to Teach online resources?
- Interviewee:** There are actually three programs that I've used the resources in. The first one was primarily the [...], which is a 12-week program, blended program, designed for our online staff so that they can teach better.
- The second is the [...] program where I have one of the COFA videos up on the staff portal side that accompanies that program, and then our primary program, which is Think Applied Tertiary Teaching. It's a six-week core program blended as well as teaching academics how to teach blended face-to-face and online, and there are two videos in that particular program.
- Interviewer:** Okay. Could I ask a clarification question then?
- Interviewee:** Hmm-hmm.
- Q5 Interviewer:** In the first program you mentioned, [...], you said that was for online teachers. So those teachers are not based on campus here?
- Interviewee:** Not necessarily. No. They're not teaching students on campus, predominantly. Some do have face-to-face classes, but most are teaching online.
- Interviewer:** Okay.
- Interviewee:** Whereas, the others are a mixture of it: Higher Ed, face-to-face, as well as online; as well as distance.
- Interviewer:** So quite a mixed bag.
- Interviewee:** Yes.
- Interviewer:** Now you may have touched on this; an overview of the program. Describe its aims. But I think you did touch on it. But is there anything you'd like to flush out.
- Interviewee:** What I might do on a couple of questions here is give you some additional information.
- Interviewer:** Yes, please.
- Interviewee:** That I'll forward after this interview that explains each of the programs; exactly what

they cover; their aims; their outcomes, so that you've got a bit more of an idea than me rattling them off.

Q4 Interviewer: Okay. But in a nutshell, could you say...

Interviewee: In a nutshell? So the [...] fall program is helping online staff to teach online effectively with engagement practices, assessment practices, feedback and retention practices, as well as a sound technical component to it. [...] program is for brand new academics, who've never been in front of a classroom before, and are scared, nervous, not sure what's going to be happening, so they get referred to some videos there. And then the Primary TET program, [...], great name; not my choice which is like your University of New South Wales FULT, but yours is five days face-to-face; ours is six weeks blended.

Interviewer: Okay, next one. Thank you and I think you kind of covered this a little bit as well. The students, in this case, were obviously referred to teaching staff when coming in.

Interviewee: Great. Yep, yep, yep.

Q6 Interviewer: Is there a big variation, a level of skill, in online teaching before they come and undertake these courses?

Interviewee: We have a range of — because we're an applied organization, we have a lot of staff who come in with discipline; specific skill from industry. And so depending on that industry, it depends on what level of expertise they have and whether they've been training within that industry or not. So there's a variety of skill levels from the novice right through to someone who's been, you know, running in their own restaurant and training, or whatever it might be. So there's a broad range there.

Q7 Interviewer: Okay. Well the next one's very straightforward. How many classes run per year, and what are the sizes of those?

Interviewee: Sure. I think [...]we run three times year, so that's three times twelve weeks. For [...], we've run twice in 2012 to date, but we will be running at least four times a year going forward. For [...], it will be at least a minimum of three times a year, probably more.

Interviewer: Okay. Can I add a little side question in there?

Interviewee: Sure.

Interviewer: When did you first start using the resources because, obviously, there's a high turnover here?

Interviewee: Yeah. The first program was , I think, [...] program and that was created in 2010 and had — first time it was taught was in January — end of January 2011. So that's the first time the resources were actually used.

Interviewer: Excellent. Thank you. Now this is a tricky one unless you've gone back and had a look.

Interviewee: No. I'm going to have to provide you with that level of detail through each of our websites.

Q8 Interviewer: Yes and just for the record, on say the tricky question what was and I'll have to look

- at this again, I think. Which Learning to Teach Online episodes have you actually used in these programs?
- Interviewee:** Yep. So I'll send you each program and the episodes that we've used. Okay?
- Interviewer:** Yep, and I think number nine, which was describing the context, I think you have covered in some good detail, but I might explain that question a little bit more.
- Interviewee:** Sure. Yep.
- Q27 Interviewer:** What I mean by that, for example, are they used as the basis of an activity, or are they used just as resources that students or teachers can actually link to if they want to, that kind of thing?
- Interviewee:** And the answer to that is: both. Particularly in the first program, [...], we might identify one of the videos, and put a discussion forum around it, and ask the staff to contribute their views on the particular video, and their responses to that. Other times there might be a number of them up there just for information only; what sort of technology ones that they haven't approached; kind of what figure is whatever, so some of those are in that little section for reference if that makes any sense.
- Interviewer:** Yep. That does. It's just good to determine whether they're linked to activities or as resources.
- Interviewee:** Not all of them are linked, so there is that mixture.
- Interviewer:** Alright if we move on to discovery?
- Interviewee:** Yep.
- Q9 Interviewer:** Probably know the answer to this, but first question is how did you hear about the project?
- Interviewee:** Actually it was from Professor [...], who was the Chair of the Working Party in 2010, to set up the first program, [...].
- Interviewer:** Yes, yes.
- Interviewee:** That was before my time. So yes, through the Working Party in 2010, and you then sharing at those meetings your progress, introducing the various ones as they came onboard, etc.
- Q10 Interviewer:** Well, I guess, question eleven about why did you make the decision — or did you make the decision?
- Interviewee:** I did evaluate — I did evaluate them because I thought, okay, I'm going to make sure that these are going to hit the spot, and some, because we were applied education, some I didn't use because they were too university centered and I thought no, that's going to put the staff off. So they had to have core teaching elements in them.
- If that makes sense, core practical bits and not talking about research because, as an organization, we don't have that as one of our underpinning mentors, or philosophies, or whatever you want to call it. Yes, so yes, before the decision was made to put them into the programs, they were evaluated.

- Interviewer:** See, that I have to note for myself; that is one of the gold answers.
- Interviewee:** Okay.
- Interviewer:** That's exactly the kind of interesting differences that I think I'm going to pick up as we go through talking a bit.
- Interviewee:** Okay.
- Q11/12 Interviewer:** So, have you actually told anyone else about, or promoted, these resources, and if so, why?
- Interviewee:** So I haven't presented a paper at a conference on our programs as yet. That is likely to happen, possibly next year, when I start creating them. But I have, internally, put the staff through these programs, and they are aware of it, and I've also reported back to our academic board on the use of the success of the programs and the use of the videos as part of that. And some of the data that we have from staff, because staff give us feedback at the end of each program, I mean, what was most useful; what was least useful, etc. The stats on the videos come through there as well. And the academic board has had access to that.
- Interviewer:** Okay. So we could sort of say that internally, within the organization?
- Interviewee:** Yeah, internally. Yep, yep, yep; that's right.
- Interviewer:** And I think you answered number 13 in that description unless you have anything to add to it.
- Interviewee:** Yep. Yeah, no [0:09:37.9] the programs. That's right.
- Interviewer:** Okay well, and remember, we'll keep it short.
- Interviewee:** Yep.
- Interviewer:** This is a dangerous question and it makes me sweat a little bit but...
- Interviewee:** That's alright, okay.
- Interviewer:** We talked about the practicalities of the project.
- Interviewee:** Yep, okay.
- Q13 Interviewer:** First of all, the format. What is your opinion about the video and the pdf format of the episodes?
- Interviewee:** Good. Good. That's the word I've got written down here. Initially, I couldn't see the pdf's. I don't know if I was missing something, but they weren't as visible, possibly in some of the earlier videos and — but I think now that they're — you know they're there, just underneath the video screen. But that first screen there, they're very easy to use so the relocation or the increased prominence, or whatever you've done to it, has been effective because I now use them a lot more.
- Interviewer:** That's good, yeah, bigger buttons was the answer to that.
- Interviewee:** Oh, was that what the answer...

- Interviewer:** Yes.
- Interviewee:** Okay. Perfect.
- Q14 Interviewer:** Okay. This is an interesting one, I think. Did the design or production quality of the resources have an influence on your decision to use them, and why?
- Interviewee:** I would not put anything on the site that wasn't good because I wanted to model for the staff the standard of resources that I wanted them to either use or create themselves. So I would not put anything up there, and I've reviewed other resources, as well, that I didn't think was giving an appropriate message to the staff about the standards they should be using. So there was one video I saw, I forget which one it was now, where I thought oh that staff member looks very flushed, and was talking very loudly, and I thought hmm. So I thought twice about that one because I wondered if that was sending a, you know, different message.
- Interviewer:** What one? I'm sorry to interrupt.
- Interviewee:** One of yours.
- Interviewer:** One of ours.
- Interviewee:** I forget — I can find out which one it was if you'd like, but...
- Interviewer:** Yeah, that would be interesting.
- Interviewee:** Yeah, yeah. I thought oh, okay, she's obviously not comfortable, or getting too excitable, something; so I thought hmm. So, yes — so the answer is yes. Keep it short.
- Q15 Interviewer:** No, that's fine. This is actually all the really interesting aspects of it. What about the tone? How would you describe the tone of the resource, and do you think that that fit with your own program?
- Interviewee:** I liked the conversational nature of the resources. The fact that you had practitioners, who were experts in their field, reflecting on what they've done, and why they've done it, and sharing good things and bad things; there could have been a few more bad things because people often learn from what goes wrong, as well as, what goes right. But no, the overall tone was being part of a community of practice, so that was very good.
- Q16 Interviewer:** Okay. And I love all the little — there could have been more bad things - excellent feedback. Where were we? From where did you access the episodes that you used in your program?
- Interviewee:** I just went to the COFA site and just copied the link and stuck it in.
- Q17 Interviewer:** Yep, no, that's fine, yep. That's a very easy one. And were you aware of the full range of episodes?
- Interviewee:** Yes, at the end, yes, because I was aware of them through — as they were progressing. I didn't know there were 32 'til I read it.
- Q18 Interviewer:** What do you think the best aspect of the structure or design of the resource would

- be?
- Interviewee:** Best aspect of the structure.
- Q18 Interviewer:** So from a practical point of view. Not necessarily talking about the content or anything here, but more how they were made; how they were cut up; that sort of thing.
- Interviewee:** Okay, alright. Timing was good. You weren't excessively long; no one's going to watch anything longer than eight minutes, so that was important. The fact that you always identified the person who was talking; where they came from; that was important. You gave credibility to what was being talked about. The fact that you grouped, obviously, the respondents together when you were talking about — so the other thing was good; the compilation of putting people together to answer the same question was good.
- Interviewer:** Hmm-hmm. Yeah, okay.
- Interviewee:** Okay.
- Q19 Interviewer:** And, yes, what do you think could be improved about it from your point of view?
- Interviewee:** I don't know if we covered this or that more topics. I think we do later on, don't we? I've written down here in my notes I wanted more on blended learning and probably you've done one or two on — one on that I think.
- But because I've got a range of programs, and a range of staff that are face-to-face and fully online, and a bit in the middle — the distance, the blended — I wanted a little something that would cater for that as well. So that was one area, in addition to copyright, I thought has to be addressed at some stage. Intellectual property — more on use of images, more on use of little things like PowerPoint, stuff like that that we've got to get right, so additional topics rather than improvements, per se, was the — the quality of the audio was good, the visuals were good, the links were good, the Power — the pdf's were good, so just more...
- Interviewer:** Okay, no that's good. We'll hopefully — off the record kind of thing — rightfully, we've applied for more funding, so we shall see. And interesting, it's just — not really doing the interview protocol very well right now but...
- Interviewee:** That's alright.
- Interviewer:** Just a little feedback to that question — it's interesting and I might have to investigate that with you further because pretty much all of the case studies were blended. That's the interesting thing, so it might be about bringing that to the fore a little bit more.
- Interviewee:** Yes, yes. Possibly then it's the tags, or the labeling, or the links, or the words underneath that might jump out a bit more. All right?
- Interviewer:** Okay. That's really, really helpful. Okay pedagogical merit. Now do you think you're — and again, when I say the word student, you understand what I mean?
- Interviewee:** Yep, yep.

- Q20 Interviewer:** Do you think your student skills and understanding of online teaching have changed after your program?
- Interviewee:** I would hope so. I put a lot of time and energy into it. I — we do post surveys; we do evaluations. They've all been very positive. So after each program, in the feedback sessions, the staff have spoken about how much they've learned during the [...] program. For example, just take that one, I haven't actually gone through and looked at their teaching sites since then.
- So I haven't done a qualitative, quantitative survey about — to see whether their before and after their teaching has improved, but that could be done, I suppose. But based on anecdotal feedback, and I'll get the feedback off the managers — they've also been very pleased because there's a lot of excitement now amongst the staff to teach online, and some realize that they like it better than teaching face-to-face, which I thought was very good.
- Q20 Interviewer:** Excellent. Now that building up to — do you think the resources contributed in some way to this? So — and that's a very long question here, but I guess could you identify for me, if you think that they did, ways in which you think that they did contribute?
- Interviewee:** I mentioned before that we do the post survey and we've also had at the end of each module — and the videos are in module form or modules during the [...] program. There's a "what did you learn, what do you still need to know" question at the end of each one. Lots of student comments on "I love learning from the videos; more videos, please." They were the exact words.
- And then in the survey at the end — the post survey — the response was very strongly in favor of all of the videos and the support that they gave. Whether that's improved their teaching practice, I can only hope so. I haven't got the evidence for that, and I'm not really in a position to get that because I'm not in the colleges. I have to leave that to the online managers as it were. Does that make sense?
- Interviewer:** It does and I should sharpen that question up because really it is about your perception of that; because that's as much as I could reasonably ask of you.
- Interviewee:** Yes, yes.
- Q21 Interviewer:** Do you trust the information being communicated, and why, and why not, or why not?
- Interviewee:** This is back to the videos now?
- Interviewer:** Yes.
- Interviewee:** Do I trust the information being communicated in the videos? I'd have to say yes because of the credentials of the presenters, and because I've read their research papers. Now, my lecturers, my staff, read the research from [...], for example. I just choose him more; someone like that, so they're trusting me to get it right for them. So it's important that when I'm selecting it, I actually know who the person is and the research that they've done — is one of my selection criteria. I probably should have mentioned that before.
- Interviewer:** No, that's fine. I'm glad we caught that; excellent. Okay, so it's really about the

- credibility of the speakers for you, number one?
- Interviewee:** Yep.
- Interviewer:** Okay.
- Interviewee:** Didn't know the next question. I've got a question about next to that. That would benefit the design of the management of future professional development...
- Q13 Interviewer:** I think now — reading that again, it's probably asking a bit much of you. That's probably a question I'm asking in some ways. So myself — I'll try and explain it anyway. I guess is there anything you've seen in the way this project was designed, both in terms of its practical aspects, the way it was delivered, and also the content that you think would be a good idea to carry forward into new professional development initiatives? If it's too crazy, you can skip it.
- Interviewee:** In my own professional development initiatives, or yours?
- Q13 Interviewer:** In a general, sort of, sense. Like if you imagine — yes, this is a question I'm definitely coming back to. But if you imagine you go out there and you look for resources about something; so freely available resources. Is there any one feature of this that you think would be beneficial to see in others?
- Interviewee:** Got you. Okay. So for example, there've been some resources that were released — oh, I don't know when — from if I've created commons. Is it disc, or is it someone in England, recently, and they're on disciplined threshold learning, whatever it might be. And they've got a Word document, a PowerPoint, but no video, and I think that they would really benefit from having captured some talking heads talking about some of the experiences.
- So the video works because it's the coffee break moment for someone who's been working all day at a job not teaching; teaches online, squeezes everything in around family and everything else, and is doing my program — professional development program — asks to watch these things, make a cup of coffee, I've got to watch two videos now. Got it; got an idea; got a concept, whereas, that could benefit other resources.
- Interviewer:** No, no; that's really good. I'm definitely coming back to that, so I'm sorry I put you through the question, but that is a really good answer; very valuable for me.
- Interviewee:** Okay, cool.
- Q25 Interviewer:** Okay, this is a simpler one. Do you think the project — and by that, I mean a learning search online project, would appeal to teachers in different disciplines and sectors to yours? So do you think it's universal?
- Interviewee:** Well, you've covered most disciplines, I think, in the videos. There wasn't much VET stuff. I'd like a bit because I'm half VET and I think you've got a growth area in VET if you do something there. So if I can say anything, I'd say it would — it more could appeal to the VET sector because that's an area that is — that needs professional development, and given the governments — and this is contextual this week, obviously, but given the tough decisions this week axing professional development units, you've got an opportunity as well.

- Q25 Interviewer:** Why do you think — well okay, do you and why, think this was a relevant resource for your students and discipline?
- Interviewee:** Okay, so discipline, it doesn't matter to me because I'm all disciplines. So for my students, yes, I thought it was relevant because they got to get a quick insight into current issues other people were talking about and learn from; so that was the most relevant thing.
- Q23 Interviewer:** Hmm-hmm. Well, that's interesting you say relevant there because that leads nicely into the next question is — and current I should say — what do you think the lifecycle of this resource might be?
- Interviewee:** Three years.
- Q23 Interviewer:** And why would that be?
- Interviewee:** Turn of research; turn of ideas; technology usage. I'm putting that third because I think the research and the ideas will change more because technology changes all of the time. But if you've got strong research, and strong principles and ideas, I reckon three years you should be updating.
- Q24 Interviewer:** Hmm-hmm. Excellent. That leads to the next question as well. How long do you plan to use...
- Interviewee:** Three years.
- Interviewer:** Okay.
- Interviewee:** At least three years. I'm hoping that they'll be updated during that time as well.
- Q25 Interviewer:** Yes, okay, and I think you've answered this, but I'll ask it anyway. Could you and your students relate to the experiences and opinions of the people represented in the resource, and why?
- Interviewee:** Really speaking for myself, probably, more than the students there, I didn't ask them that question in the evaluation. So from my own perspective, I understood that they felt that they weren't alone in how they were thinking about things because some of them are new, and they wanted to learn how to do something, and ahh yes, this is a nice gentle way to learn from someone. And I'm not alone because I'm learning this and everyone else is learning this as well. Alright?
- Q26 Interviewer:** Okay, well what value do you think these resources brought to your own program?
- Interviewee:** It added the depth to the pedagogy, and added credibility to the discussions around why we do things, and moved away from the how and to the why. So that was very important to me.
- Q10 Interviewer:** Excellent. Thank you. Okay, well last set of questions. Thank you very much for hanging in there. Making many adoption and contextualization is the heading I've got for this, so I guess it's really about this was a broad resource. It was designed definitely broad, and I just want to get an understanding of how you have made that specific to your own context. So, okay, that might be a repeat, but I'll ask it anyway. How did you analyze the content in the resource to determine if it was appropriate and relevant to your learning outcomes?

- Interviewee:** I watched all of the videos. I knew my program because I was intimately designing it as we were going through looking at the videos. I eliminated the ones that I thought would not fit with my content and my staff, so focusing, really, on the most relevant ones that fit in with the program.
- Q10 Interviewer:** And how did you, if I can just expand that a little bit, how did you determine that they were relevant?
- Interviewee:** I put myself into either a new lecturer, online lecturer's shoes, or a beginning teacher's shoes, and I thought okay, that's a message there that was important that I didn't know. So I had to imagine myself in these roles and to see whether they linked. Plus, I was using underpinning pedagogy of constructive alignment, deep-surface learning in the programs, scaffolding, and all those sorts of key theories, and I wanted to make sure that the videos didn't negate those theories. All right? I didn't want to cause conflict with what the key principles were that I was trying to get through because they were hard to do in a blended environment with staff, and you only get to see them once, and the rest is online. You know you've got to work to get the theories and an understanding through, so I didn't want anything else that would detract from that.
- Interviewer:** Oh, good. Thank you.
- Interviewee:** Okay?
- Interviewer:** Yep. Do the resources align, in any way, to your assessment tasks?
- Q27 Interviewee:** Apart from supporting the theories, no, I haven't actually incorporated them into an assessment, as such. All right?
- Interviewer:** That's okay. And how did you combine the ideas and knowledge that were presented in these resources with your own ideas? And when I say your own ideas, I guess I mean the way that you constructed your program and the other things you were bringing in.
- Interviewee:** How did I combine the ideas and knowledge? I made sure that the, for example, if I talk about the engagement module, which is the third module in the Think Flexible program, as an example, I made sure that I chose a video that foreshadowed something around engagement in the online environment and how you get students engaged before a discussion forum, or before we ran a chat sequence, or something like that, or before we had another reading. So it was scaffolding the videos into how I thought the whole content fit in together.
- Q28 Interviewer:** Okay, so skip that one and go to — yeah, well has being exposed to or using this resource changed your own teaching practice related to e-learning?
- Interviewee:** I've now made my own videos. Well, one video, I shouldn't say videos. It's only been one. But in preparation for — because we encourage as a benchmark for our online lecturers to have a work video for their students that I've got through — and so I thought I have to do it as well. And I thought that, right, modeling on the COFA ones, that's what we'll do. It was a lot shorter and a lot simpler but, yes, so I've drawn on some ideas from that and adopted them into the program.
- Q29 Interviewer:** Alright, that's good, excellent. This does relate back to — you have brought in a lot of

things that sort of answer this question in earlier answers, but was it valuable to hear opinions and information from outside your immediate professional network, and why would that be?

Interviewee: Through these videos?

Interviewer: Yes.

Interviewee: Yes, okay, the answer is yes. It was valuable. Reason why, it makes you feel as if you're not alone, alright, that there are other people out there looking at the same issues, and deciding to do something one way, and then have a reason for that way, and you think yeah, I can do that. Or hang on, what about this? So it's presenting ideas to make you think and you don't get that — you get that at conferences, but quite often you don't get to conferences all of the time. So this is a nice way to, sort of, be in a virtual conference.

Q30 Interviewer: So are there any other comments, or opinions, or anything you'd like to throw in there?

Interviewee: The only one I noted here was, and we covered this already, was to look at the students who are not necessarily in the higher education sector and the staff who are teaching in other sectors. And I think if you've got a broader audience there, I don't know — I think when I was at the conference the other day, I was sitting at the table and there was a teacher there from a high school who'd used a video, or something like that of yours, as well, for her PD. So you've got high schools, you've got the various sectors in the community all adopting and wanting to learn about how to adopt appropriate technology for their teaching. So I think by broadening it out, it would be more

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