

**EXAMINING THE EFFECT OF TECHNOLOGY ENHANCED LEARNING
(TEL) SUPPORT MODELS AND ORGANISATIONAL CULTURE ON THE
ADOPTION OF TEL IN UK HIGHER EDUCATION**

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Examining the effect of technology enhanced learning (TEL) support models and organisational culture on the adoption of TEL in United Kingdom (UK) higher education.

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This thesis results entirely from my own work and has not been offered previously for any other degree or diploma.

I declare that the word-length of this thesis 49,882 words, conforms to the permitted maximum.

Signature

A handwritten signature in black ink, appearing to read 'Julie Voce', is written over a horizontal dotted line. The signature is stylized and cursive.

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Examining the effect of technology enhanced learning (TEL) support models and organisational culture on the adoption of TEL in United Kingdom (UK) higher education.

Doctor of Philosophy, December 2018

Abstract

Using a three-stage explanatory sequential design approach, this thesis examined the effectiveness of support for technology enhanced learning (TEL) within United Kingdom (UK) higher education (HE) institutions and the role of organisational culture on successful adoption of TEL. The research is framed within the perspective of institutional heads of TEL. Data were collected via a survey of 33 institutional representatives from the Heads of e-Learning Forum, followed up by in-depth interviews with five heads of TEL. The initial findings were discussed and verified via an open TweetChat with 24 participants in TEL support roles, including heads of TEL, and through a directed content analysis of the Universities and Colleges Information Systems Association (UCISA) TEL Case Studies.

The findings identified a predominant TEL support model within UK HE as having a primary TEL team based in a central department, often working in conjunction with other central teams supporting TEL and alongside some local TEL support, typically unconnected from the primary TEL team. TEL support

initially evolved organically within institutions; more recently there has been a shift towards planned re-organisation of TEL support. The research identified three key factors relevant to successful adoption of TEL: 1. size and location of TEL support teams; 2. how institutions identify and support local needs, and 3. governance structures for TEL. The findings also discussed the role of organisational culture on the successful adoption of TEL and identified two key factors relating to discipline specific needs and the role of influential people.

One output of this thesis is the development of a draft Framework for Action, which is a set of self-reflexive, evaluative questions based on the factors identified in the research to enable heads of TEL or senior managers to reflect on their TEL support model and identify areas for change.

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List of Abbreviations

ALT	Association for Learning Technology
ALT-C	Association for Learning Technology Conference
BOS	Bristol Online Surveys
CMALT	Certified Membership of the Association for Learning Technology
EDU	Educational Development Unit
ELTI	Embedding Learning Technologies Institutionally
eMM	e-learning Maturity Model
FTE	Full time equivalent
HE	Higher Education
HEA	Higher Education Academy
HEFCE	Higher Education Funding Council for England
HEI	Higher Education Institution
HeLF	Heads of e-Learning Forum
HESA	Higher Education Statistics Agency
IT	Information Technology
LMS	Learning Management System
LT	Learning Technologist
LTSU	Learning Technology Support Unit
MIT	Massachusetts Institute of Technology
MMR	Mixed-methods research
MP3	Moving Picture Experts Group Layer-3 Audio
MS	Microsoft
PVC	Pro-Vice Chancellor
RSQ	Research sub-question
SWOT	Strengths Weaknesses Opportunities Threats
TEL	Technology Enhanced Learning
UCISA	Universities and Colleges Information Systems Association

UK	United Kingdom
US	United States
VLE	Virtual Learning Environment

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Publications derived from work on the Doctoral Programme

Conference presentations

Voce, J. (2016). [*TweetChatting about institutional models for supporting Technology Enhanced Learning*](#). Association for Learning Technology 2016 Online Winter Conference.

Voce, J. (2017). [*Beyond islands of innovation - supporting TEL within UK Higher Education*](#). Association for Learning Technology Conference (ALT-C) 2017, Liverpool, UK.

Chapter 1 Introduction

This chapter introduces the aim and rationale for the research, followed by a description of the research questions and a summary of the research design. It concludes by providing an overview of the thesis structure.

1.1 Context and motivations

“How do you structure your technology enhanced learning (TEL) support?” is a common question on the United Kingdom (UK) Heads of E-learning Forum (HeLF) and other TEL-related email lists. Heads of TEL are keen to understand how other institutions structure TEL support in terms of the location of the TEL support (e.g. centralised versus decentralised) and number and types of staff employed. Having worked in three UK higher education (HE) institutions with three different TEL support models and having analysed TEL support data for four iterations of the UCISA TEL Survey (Browne et al., 2010; Walker, Voce, & Ahmed, 2012; Walker et al., 2014; Walker, Voce, Swift, et al., 2016), this has been a long-standing area of interest for me and therefore made a natural choice for my research topic.

Seminal work in this area includes Beetham, Jones and Gornall’s (2001) study on career development for learning technology staff, which reviewed institutional support models for the deployment of TEL. Several of the issues they identified, such as the overlap between local and central support, still seem to be prevalent today. The field of TEL has changed significantly since 2001, as tracked by the UCISA TEL Surveys (Browne et al., 2010; Walker et

al., 2012; Walker et al., 2014; Walker, Voce, Swift, et al., 2016), which have demonstrated the growth in TEL from the provision of an institutional virtual learning environment to a wide range of technologies to support teaching and learning. Since the 2010 UCISA TEL Survey, the availability of TEL support staff has been considered a key enabler for the development of TEL and the surveys have reported on the growing changes in TEL support since 2001, in particular noting a shift towards provision of local TEL support (Walker, Voce, & Jenkins, 2016). In addition, the survey has reported that re-organisation of TEL support is happening in almost half of institutions surveyed and this has been observed anecdotally through job adverts for TEL support staff.

Whilst the UCISA data provides an overview of the sector, it does not drill down in to the specifics of how TEL support is organised, as it typically presents the averages across the sector, e.g. mean number of TEL support units in 2016 was 2.97. The UCISA Case Studies do provide some examples of TEL support, but it is neither clear how effective the TEL support model is nor how it helps or hinders the successful adoption of TEL. In addition, the UCISA data identifies both institutional and departmental culture as barriers to TEL adoption, but with little explanation of what is meant by culture or how it acts as a barrier.

This research therefore aims to provide a better understanding from the perspective of a head of TEL of the different ways in which TEL is supported, the effectiveness of the support model and the perceived role of culture in the successful adoption of TEL.

1.2 Research questions

This research focuses on the effectiveness of TEL support within UK higher education institutions (HEIs) and the perceived role of organisational culture on successful adoption of TEL; it is framed within the perspective of institutional heads of TEL. Heads of TEL, or those in equivalent roles, are defined by the Heads of e-Learning Forum (HeLF) as “senior staff engaged in promoting, supporting and developing technology enhanced learning” (HeLF, n.d.) and would typically manage a TEL support team within the institution. As part of their role, they would be expected to report on TEL adoption and be able to review the effectiveness of TEL support within their institution. They are therefore best placed to provide an institutional overview of TEL support and adoption.

The research aimed to answer the following overarching research question:

From the perspective of a head of TEL, how does an institution’s TEL support model and its organisational culture help or hinder the successful adoption of TEL?

To answer this question, it was broken down into four sub-questions which were investigated using a three-stage explanatory sequential design approach. The four research sub-questions (RSQ) are:

RSQ1. What TEL support models exist within UK HE institutions and how have they evolved with the increased use of TEL?

RSQ2. From the perspective of a head of TEL, which factors of a particular TEL support model help or hinder the successful adoption of TEL?

RSQ3. From the perspective of a head of TEL, to what degree is successful adoption of TEL influenced by organisational culture?

RSQ4. Which factors should heads of TEL consider when changing their existing TEL support model?

The first sub-question aimed to establish the different types of TEL support models that exist within UK HE, by considering the three key components that comprise a TEL support model:

1. organisational structure of TEL support units or teams
2. formal and informal relationships between those units or teams
3. governance and co-ordination of TEL, such as the representation of TEL within institutional committee structures and the role of senior management.

It also reviewed the evolution of TEL support, in particular whether there are any critical incidents (Butterfield, Borgen, Amundson, & Maglio, 2005) that have occurred to change the structure of TEL support.

Having established the types of TEL support models existing in UK HE, the second research sub-question focussed on understanding, from the

perspective of a head of TEL, which factors of a TEL support model help or hinder the successful adoption of TEL. 'Successful adoption' of TEL is mentioned in several studies relating to the adoption of TEL (Czerniewicz & Brown, 2009; Graham, Woodfield, & Harrison, 2013; King & Boyatt, 2014; Kirkwood & Price, 2016; Thanaraj & Williams, 2016), but is not defined and is used interchangeably with 'adoption' and 'effective adoption'. Rogers's (2003) diffusion of innovation has been cited as a model for determining the phases of adoption of TEL (Graham et al., 2013; Singh & Hardaker, 2017) which helps institutions move from individual use of TEL to a more institutional use and alludes to success being deemed to relate to 'widespread adoption' of technology. This study defines 'successful adoption' as the widespread effective use of TEL across a department, school or institution where use goes beyond simply the provision of information or resources. When considering what might help or hinder the adoption, this study is looking at the critical success factors which enable greater or more effective adoption of TEL ('help') or prevent or slow down the adoption of TEL ('hinder').

The third research sub-question also considered the perspective of a head of TEL, this time in relation to the role of organisational culture on the successful adoption of TEL, specifically culture at institutional and departmental levels, as well as the role of influential people such as senior managers and heads of department.

The fourth research sub-question drew on the findings in order to produce a practical output from the research in the form of a Framework for Action

(Bamber, Trowler, Saunders, & Knight, 2009; Trowler & Trowler, 2010). The aim of the framework is to enable heads of TEL, or other senior managers, to effectively review their existing TEL support model with a view to identifying areas for improvement, based upon this research.

1.3 Research approach

This study used a mixed methods research (MMR) approach using three-stage explanatory sequential design to review TEL support within UK higher education institutions, primarily from the perspective of heads of TEL or those in equivalent roles. Stage 1 surveyed 33 heads of TEL from UK HEIs who were contacted via the Heads of e-Learning Forum (HeLF). The survey contained a mix of quantitative and qualitative questions which focussed on the types of TEL support units and their functions, the numbers and roles of staff within each unit and the perceived advantages and disadvantages of the TEL support models currently employed. It also asked respondents to identify the dominant organisational culture from an institutional perspective (using the McNay (1995) model) and the type of TEL support model (using the Hughes, Hewson and Nightingale model (as cited in McNaught (2002)) in order to understand how they might influence TEL adoption and support. The qualitative aspects of the survey were useful in identifying common themes that would form the basis of the next stage.

Stage 2 consisted of semi-structured interviews with five heads of TEL and was used to develop a set of interpretive case studies which would explore

the survey findings in more depth. The interviews focussed on the evolution of TEL support within the institutions, the current TEL support model and the factors affecting the adoption of TEL, and the influence of institutional and departmental culture on the adoption of TEL.

Stage 3 consisted of two parallel components with the intention of validating the initial findings against the literature and with a wider audience. Stage 3a involved a directed content analysis of the UCISA TEL Case Studies (Browne et al., 2010; UCISA, 2012, 2014, 2016); the case studies provide the results of interviews with heads of TEL or other TEL support staff at 30 UK HEIs and have a focus on TEL support models, governance of TEL and the role of institutional culture. Five institutions had been interviewed on more than one occasion, which provides a longitudinal view of how their TEL support models had changed over time.

Stage 3b utilised a TweetChat held at the Association for Learning Technology Online Winter Conference to validate the findings from the first two stages with a wider audience, consisting of both heads of TEL and others in TEL-related roles. It also enabled further probing on how central teams understand and meet local needs as well as areas that would benefit from a perspective beyond that of the Head of TEL such as the role of local TEL support staff and developing and maintaining good relationships between TEL support teams.

1.4 Overview of the thesis structure

The thesis is composed of seven chapters, which are described below:

- **Chapter 1 Introduction** – Introduces the research, starting with the aim and rationale for the study, followed by the research questions, a summary of the research design, and an overview of the thesis structure.
- **Chapter 2 Literature Review** – Reviews the literature in relation to the institutional support for TEL and the influence of organisational culture on the structure of TEL support and the adoption of TEL.
- **Chapter 3 Research Design** – Describes the three-stage explanatory sequential design approach adopted for this research, the context within which the research has been designed and considers the robustness of the research using Tashakkori and Teddlie's (2008) integrative framework.
- **Chapter 4 Survey Findings** – Presents the findings from the survey stage of the research, which involved participants from 33 UK HEIs, and identifies key themes which were fed into the interview design stage.
- **Chapter 5 Interview and TweetChat Findings** – Presents the findings from the interview stage of the research involving five case study institutions. The findings include an analysis of the interviews

themselves plus secondary data in the form of documents relating to the support of TEL. In addition, this chapter also incorporates the results from a TweetChat used to gain further insight into key themes from the initial analysis of both the survey and interview findings.

- **Chapter 6 Discussion** – Analyses and discusses the findings from Chapters 4 and 5 within the context of the literature and with reference to the first three research sub-questions.
- **Chapter 7 Conclusion** – Answers each of the research sub-questions and responds to the overarching research question. This chapter also introduces the development of a Framework for Action (Bamber et al., 2009) as a practical output of the thesis and sets out the claims of the research.

1.5 Summary

This chapter introduced the aims of the research and identified both the overarching research question and the corresponding sub-questions within the context of the literature. It has provided an overview of the research approach and the choices made, then identified the purpose of the research and described the layout of the thesis on a chapter by chapter basis.

The next chapter introduces the literature in the areas of support for TEL and organisational culture in relation to its influence on the adoption of TEL.

Chapter 2 Literature Review

This chapter provides a critical review of the literature in relation to the areas of institutional support for technology enhanced learning (TEL) and organisational culture in relation to its influence on the adoption of TEL. As noted by Kirkwood and Price (2014), there is no single, shared definition of TEL in use within the literature. Kirkwood and Price defined TEL as “the application of information and communication technologies to teaching and learning” (2004, p. 2), whilst the UCISA TEL Surveys defined it as “Any online facility or system that directly supports learning and teaching” (Walker, Voce, Swift, et al., 2016, p. 1). The term has evolved from the previously used term of ‘e-learning’, which was defined by Jisc (2004) as “learning facilitated and supported through the use of information and communications technology”. For the purpose of this research, the Jisc definition has been adapted such that TEL is defined as the facilitation and support of teaching, learning and assessment activities through the use of information and communication technologies.

The chapter follows the structure of the first three research sub-questions by considering the types of institutional TEL support models identified in the literature, primarily within higher education, with a review of the effectiveness of those support models. This is followed by an introduction to organisational culture within higher education and a review of the literature on the influence of culture on TEL adoption and the structure of TEL support.

The review was initially carried out using institutional databases, such as Lancaster's OneSearch, and Google Scholar, using key words relating to TEL, support structures, adoption of TEL and organisational culture. Due to the differences in terminology to describe TEL both in the UK and other countries (Guri-Rosenblit & Gros, 2011; Moore, Dickson-Deane, & Galyen, 2011), other common key words, such as 'e-learning', 'learning technology' and 'online learning', were used to ensure that the search was as wide as possible. Following this initial collection of sources, a snowball approach (Wohlin, 2014) was used to identify further relevant works from the references of the initial set of sources. This proved a useful way to identify additional key words, including variants for the key search terms. The initial search was repeated several times during the research to ensure that new sources were identified.

2.1 Institutional support for TEL within higher education

The literature on institutional support for TEL within HE is fairly limited from a UK perspective with the two main studies identified being the longitudinal review of TEL provided by the UCISA TEL Surveys (Browne et al., 2010; Browne, Hewitt, Jenkins, & Walker, 2008; Walker et al., 2012; Walker et al., 2014; Walker, Voce, Swift, et al., 2016) and a study into career progression of learning technologists by Beetham, Jones and Gornall (2001) which involved an audit of TEL support within 22 higher education institutions (HEIs). Whilst both these studies have relevance here, in particular providing a historical

perspective of TEL support, it was necessary to widen the review to consider institutional support for TEL in other countries. The majority of papers identified related to TEL support within the United States of America (USA) and Australia, which are often considered as comparators for the UK in the field of TEL; however, relevant examples from South Africa, Canada and Malaysia have also been incorporated.

Based on a study of TEL support at HEIs in the USA, Arabasz and Baker (2003) noted that “various factors—including size, location, academic programs, and culture—combine to create a unique central organizational structure at each institution. As a result, each institution organizes its e-learning support model differently.” (p. 4) This quote reflects the findings from this research such that there exist many different support models, often dependent on where in the institution TEL started and the overall view of TEL in terms of whether it is a technology, and therefore placed in an IT department, or a teaching aid and therefore located in a more academic-focussed department, such as an educational development unit (Zellweger Moser, 2007).

In addition, Zellweger Moser’s (2007) study of TEL support in eight USA HEIs stated that “organisation structures are not an outcome of a rational and strategic management process but have rather grown over time and are often influenced by political constellations” (p. 48-49). She also noted that two of her study institutions had identified a link between the establishment of TEL

and an overall institutional strategy; however, these were smaller, more specialised institutions. Whilst her sample size was very small in comparison to the total number of US universities, her findings do reflect the findings from this research about how TEL support structures have initially evolved organically within UK HE. However, as reported by the 2016 UCISA TEL Survey (Walker, Voce, Swift, et al., 2016), a growing number of UK HEIs are now changing their TEL support as a result of a planned re-organisation, typically as part of a wider departmental or institutional review, suggesting that now TEL is becoming more embedded within HE there is a move towards a more rational and strategic organisation of TEL support. This means it is more important than before to understand how TEL support could be structured to ensure successful adoption of TEL. This research and its outputs contribute to the knowledge in this area by providing an overview of the types of TEL support structures and guidance to assist heads of TEL with making a more strategic re-organisation of their TEL support.

This section considers some of the attempts from the literature to classify TEL support models and provides an analysis of the effectiveness of TEL support, consisting of a review of three aspects of TEL support, identified from the literature, which are perceived to affect the effectiveness of a particular support model.

2.1.1 Classifying TEL support models

Any attempt to classify “TEL support models” must be underpinned by a clear definition of what that term means in order to set the parameters for the classification. This study therefore considers a TEL support model to incorporate the organisational structures that exist within an institution to support the advancement of TEL. This is primarily the organisation of the various units which have a role in supporting TEL, typically captured in an organisation chart, but also covering the “linking mechanisms between the roles, the co-ordinating structures of the organisation” (Handy, 1999, p. 253). Handy (1999) utilises the metaphor of a body such that the organisation chart defines the skeleton and the linkages between the different components are the muscles, nerves and flesh. For the purposes of this study, a TEL support model is therefore defined as:

- the basic organisational structures in terms of the departments, units or teams involved in supporting TEL
- the formal and informal relationships between those units
- the role of formal governance structures, such as TEL-related committees, and informal networks that provide the linking mechanisms.

Arabasz, Pirani and Fawcett (2003) note that “no single model describes how e-learning is adopted” (p. 87), but, in common with other studies (Almpanis,

2015b; Russell, 2005; Zellweger Moser, 2007), they do refer to a simplistic classification of whether TEL support is centralised or decentralised. But what does centralisation and decentralisation mean in this context?

Hall (1991) suggested that organisations have either high or low centralisation, such that in institutions with high centralisation the “decision-making power is retained at or near the top of the organisation” (p. 49). Using this description, the degree of centralisation is based primarily on the distribution of power within the organisation. Handy (1999) expands this further with the notion that organisations sit on a continuum between uniformity (centralisation) and diversity (decentralisation) and considers power, or rather the desire for central control, as only one element behind a drive for centralisation. Other elements include economies of scale in the form of standardisation, the need for interchangeability in terms of common procedures and the need for specialisation in terms of pooling key expertise. At the opposite end, a desire for decentralisation, in the form of diversity, is chosen based upon organisational pressures such as the need to operate in different geographical areas (regional diversity), to meet different sets of goals (goal diversity) or to cater for different markets (market diversity). Considering this continuum for universities, there are parallels in terms of the need for decentralisation for institutions with multiple campuses (regional diversity) and strongly defined disciplines (goal diversity). It is these factors that may influence the type of TEL support model in place within an institution and the effectiveness of that model in supporting the successful adoption of TEL.

Bray (2003) identified two main types of centralisation: territorial – describing how control is distributed throughout the tiers of an organisation; and functional – describing how certain functions may sit in different tiers or groups within an organisation. He further divides the notion of territorial centralisation into three sub-types:

- Deconcentration – a central authority which may have local units with staff from a central team.
- Delegation – delegation of some decision-making power at a local level, but with overall control remaining with the central authority.
- Devolution – power is held at the local level with the role of the centre being the collection and exchange of information.

These sub-types are similar to the classification suggested by Hughes, Hewson and Nightingale (as cited in McNaught (2002)), who identified three main approaches within Australian universities for supporting the use of information technology in teaching:

- Integrated – top-down approach with either one central unit or strong links between units supporting TEL.
- Parallel – separate units for general teaching and learning and TEL, with possible overlap and issues with co-ordination.

- Distributed – bottom-up approach with a range of units located centrally or in faculties/schools, with no or little overall co-ordination.

In this case, the main focus is around where TEL is co-ordinated from, with the implication that co-ordination relates to decision-making power. Haughey (2006) referred to this model in her analysis of the structures of six Canadian universities, yet in her discussion reverted back to using terms relating to centralisation and decentralisation. She reported that the majority of universities in her study had a combination of centralised and decentralised units, known as a 'hybrid model' (Obexer & Giardina, 2016).

Zellweger Moser (2007) expands this hybrid concept with the suggestion of the 'Network Approach', favoured by the elite US institutions in her study, such that there may be a number of centralised and decentralised units, but with a designated unit or advisory board providing an overall co-ordination mechanism. This correlates back to Haughey's findings that the "most common structure was a central unit that co-ordinated the work of several service units" (Haughey, 2006, p. 29).

Arabasz and Baker (2003) also reported that a central campus support model was the most common amongst US higher education institutions. It was also reported that 40% of those with central support also had some form of additional support in "present in academic areas", which is understood to mean support at a local department or school level.

These studies have highlighted that in several countries TEL support models are typically thought about in terms of the level of centralisation of the teams or units supporting TEL; this correlates with the literature representing the UK perspective (Beetham et al., 2001; Walker, Voce, Swift, et al., 2016). There has been some attempt to classify TEL support models into categories based upon the level of co-ordination from the centre, with terms such as 'integrated' and 'deconcentration' having the greatest level of co-ordination. In addition, Zellweger Moser (2007) alluded to a co-ordination role for TEL governance structures (discussed further in Section 2.1.4). There is an acknowledgement that support may also be based locally in departments or schools; however, this support seems to be uncoordinated and often separate from the central support teams. This seems to reflect the UK perspective, such that there is a move towards more local support staff (Walker, Voce, & Jenkins, 2016), but none of these articles address the concerns about how sustainable local support is, especially given there are recognised issues around duplication of effort and conflicting priorities (Beetham et al., 2001) as a result of uncoordinated local support staff.

2.1.2 Effectiveness of TEL support

In terms of reviewing the effectiveness of TEL support, benchmarking methodologies, such as the e-learning Maturity Model (eMM) (Marshall, 2006), ELTI – Embedding Learning Technologies Institutionally (Jisc, 2014), MIT90s (Coen & Nicol, 2007; Mistry, 2008) and ACODE (Sankey et al., 2014;

Sankey & Padró, 2016), have enabled institutions to review their organisational approach to TEL in terms of strategy, organisational structures, technology and management processes. From 2005-2008, the Higher Education Academy (HEA) led an e-learning benchmarking programme with 81 UK HEIs utilising five different benchmarking methodologies (Higher Education Academy, 2008); however, the analysis of the effectiveness of TEL support models within these methodologies was limited. For example, the ELTI methodology included a section focussed on learning technology (LT) support; however, institutions were simply expected to respond to a Likert scale from 1-5 indicating how true each statement was; for example, statement 6(e) asked 'LT support is available both centrally and locally'. There was no indication as to whether TEL support is more effective if it is both central and local, or any mention about the co-ordination of TEL support. Similarly, the ACODE benchmarks (Sankey et al., 2014) reflect on several key areas of TEL support, such as level of co-ordination of support between services and governance of TEL, with the assumption that the higher up the rating scale you are the better, but there is no justification for this assumption.

McPherson and Baptista Nunes (2006) carried out a holistic review of TEL implementation in order to identify the organisational critical success factors for TEL in higher education. They identified four areas where issues could arise that would affect TEL implementation: 1. leadership, structural and cultural issues; 2. design issues; 3. technological issues; and 4. delivery issues. The most relevant here are those factors relating to 'leadership,

structural and cultural issues' where they highlighted that success is dependent on institutional buy-in from key stakeholders and the presence of strong champions for TEL. These are areas that were discussed in the interview stage of the research, in particular around the role of influential people.

The most comprehensive review of the effectiveness of TEL support so far was the work carried out by Beetham, Jones and Gornall (2001) who reviewed institutional models for the deployment of TEL support staff as part of a review of career development of those staff. Through an audit carried out by learning technology specialists within 22 sample institutions, they identified common issues such as having a range of central support services and committees with overlapping responsibilities for TEL, conflicts between central and local priorities, restructuring of TEL support units and a lack of a central strategy for teaching and learning. They identified several areas which could impede an institution's ability to make effective use of TEL, which can be grouped as follows: 1. structure, function and location of TEL support; and 2. co-ordination and governance of TEL.

However, this study took place over 15 years ago, so does it still have relevance today? Back in 2001, UK HEIs were expanding their use of TEL in response to the global increase in the use of communication and information technologies. This was echoed by national drivers for the use of TEL, which were supported by the availability of pump-priming funding for technology-

related initiatives from funding bodies such as HEFCE and Jisc (Beetham et al., 2001; White, 2006). To support this expansion, new specialist roles, in the form of learning technologists, emerged (Armitage et al., 2004; Gornall, 1999) along with the formation of specialist units to support TEL (Jenkins, Browne, & Walker, 2005). The field has grown dramatically since then moving from a 'cottage industry' often reliant on pump-priming funding to more mainstream support and embedding of TEL funded by the universities themselves with supporting infrastructures in the form of systems and staff (Shurville, Browne, & Whitaker, 2008; Walker, Voce, & Jenkins, 2016).

Despite this mainstreaming of TEL, the common issues identified by Beetham, Jones and Gornall (2001) still seem prevalent today and have been reflected in the findings from this research. It provides a useful longitudinal comparison point and as such can be used as a basis for exploring how TEL support models have changed in relation to the two areas identified above. These areas are now explored in further detail alongside other studies from the literature.

2.1.3 Structure, function and location of TEL support

As discussed, the literature review has identified that the most popular model of TEL support is a hybrid model of centralised and decentralised units.

Beetham et al. (2001) reported that it was common for institutions to have “a range of central services with overlapping responsibilities for learning technologies” (p. 46), but noted that those institutions with a greater degree of

success in embedding TEL tended to have a central TEL unit (or equivalent) with a “clear coordinating role across the institution with respect to learning technology development, support and use” (p. 48). Bichsel (2013) expands on the role of a central TEL unit with the finding that institutions with a dedicated centre for TEL were “more mature in their e-learning initiatives” (p. 13) and tended to see themselves as innovators in TEL. Nichols (2008) also identified that “institutions that had e-learning represented or endorsed in centres of real power were without exception more effective in their diffusion” (p. 603) and explained that this power typically related to budgetary decisions. However, unlike Beetham et al. (2001) and Bichsel (2013), he suggested that this centre of power did not necessarily have to be a dedicated TEL department, as two of the more successful institutions in his study had TEL supported by departments with a wider remit, such as an IT department.

Where there exist local or decentralised teams, the implementation of TEL can be affected by competing central and local priorities caused by departmental autonomy in decentralised structures (Beetham et al., 2001). Walker, Voce and Jenkins (2016) highlighted an increase in the availability of local TEL support to assist with embedding TEL within an institution; however, greater local support may exacerbate the potential for conflict between central and local priorities, especially where local staff sit separate to other TEL support teams. Some degree of co-ordination is therefore required, but it must not be at the cost of innovation which can be stifled when all the control comes from the centre (Nichols & Anderson, 2005). It is therefore important to

find a balance between central co-ordination and economies of scale versus ensuring the needs of the individual departments are met (Zellweger Moser, 2007).

Bichsel (2013) reported that the type of TEL support model can have a bearing here, such that a centralised model is more successful for large-scale implementation of TEL as it provides greater efficiencies and more seamless integration of TEL services, whilst a more distributed model “allows for greater innovation and individualization for specific programs” (Bichsel, 2013, p. 3); however, she makes no reference to the effectiveness of mixed-mode models with both centralised and distributed teams. Zellweger Moser (2007) discussed a mixed-mode model in place at Massachusetts Institute of Technology (MIT) for their OpenCourseware development, with a small central team and departmental liaisons who have loyalty to both the central team and the academic departments within which they sit. This has relevance here as Zellweger Moser (2007) suggests that this model is more suited to highly decentralised institutions by changing the support model from reactive to more proactive and therefore better accommodating the needs of the departments. However, whilst she raised concerns about the cost of this type of model, she did not discuss potential concerns about competing priorities of local and central staff and the dual loyalty of the department-based TEL support staff.

When considering where in an institution TEL support is located, the UCISA TEL surveys (Browne et al., 2010; Browne et al., 2008; Walker et al., 2012; Walker et al., 2014; Walker, Voce, Swift, et al., 2016) identified five main locations for TEL support:

- Information technology support unit
- Educational development unit
- Learning technology support unit
- Local support (devolved to faculty, school, department)
- Library

The UCISA TEL surveys reported that TEL support within UK HE is primarily located in IT support units; however, the survey did not define which of these was the main unit for TEL and reported that institutions tended to have more than one unit supporting TEL, with around 2-3 units per institution. The role of the IT department was also prominent in US institutions; a survey by Educause (Bichsel, 2013) reported that 35% of institutions manage TEL through central IT departments and that IT was involved in the management of TEL in nearly two-thirds of US institutions. However, there is no indicator in either survey as to whether IT is the best location for TEL support or to what level of involvement the IT department have in supporting TEL. It is therefore

important to understand what each type of unit does in relation to TEL support.

Steeple and Zenios (2005) investigated the role of 'e-learning centres' as part of the E-LEN project. An e-learning centre is described by the project as "a unit within a larger organisation (such as a university or a company) that has the role of helping the members of the organisation to create e-learning opportunities (courses, resources, learning communities, tools, etc)" (E-LEN, n.d.). They identified four key roles for an 'e-learning centre':

- A. Providing support for the use of TEL
- B. Supporting innovation of TEL
- C. Undertaking TEL course development
- D. Undertaking research into TEL

They reported that these roles may exist in separate units or be combined within the same centre and may be located inside or outside of the institution, e.g. a course development unit may be a third-party provider. The UCISA TEL Surveys (Browne et al., 2010; Browne et al., 2008; Walker et al., 2012; Walker et al., 2014; Walker, Voce, Swift, et al., 2016) undertook a qualitative analysis of the function of each of the main TEL support units and found that learning technology support units had the broadest remit for TEL support, typically supporting both technical and pedagogical aspects of TEL. As one might

expect, TEL support based in an educational development unit was primarily pedagogical, whilst TEL support within an IT support unit was primarily technical. Very few institutions reported outsourcing aspects of their TEL support, which indicates that the majority of TEL support is currently done in-house. As noted previously, the differences in remit can be an area of conflict where there exist overlapping responsibilities (Beetham et al., 2001). In addition, the function of TEL support units within an institution could have a bearing on how TEL is promoted, supported and embedded.

Considering the location of TEL support within the institutional hierarchy, there are typically two ways to incorporate TEL support into an institution – either as part of re-organising an existing unit or department or through the establishment of a new unit, such as a dedicated centre for TEL (Shurville et al., 2008; Zellweger Moser, 2007). But does the location of TEL support help or hinder the adoption of TEL? The literature (Shurville et al., 2008; Steeples & Zenios, 2005; Zellweger Moser, 2007) suggests that the location of TEL support can influence the perception of TEL within the institution, specifically whether there is a perceived bias towards pedagogy or technology, which can lead to issues of credibility for TEL teams. This is backed up by Land (2006) who notes that “many learning technologists find themselves located in organisational spaces that are not seen to have educational agency, or to be ‘academic’” (p. 107). Drawing parallels with educational development, Jones and Wisker (2012) reported on the effect of restructuring educational development centres (EDCs) and suggested that this has “often led to a shift

in location and identity for EDCs, which is a matter of concern for several interview participants, who feel they will lose their credibility” (p. 20). Beetham et al. (2001) noted that the institutions with greater success in TEL implementation had the majority of TEL staff located centrally alongside teaching and learning services, but this success is not explained by the authors so it is unclear as to whether it relates to perception/credibility or due to being better connected with similar services. They suggested that staff in central units without a primary learning and teaching focus (e.g. IT departments, registry) may feel isolated from other learning and teaching professionals.

Another aspect of location identified by Czerniewicz (2008) and discussed further by Reed (2015) relates to the influences that those working in the field of TEL are exposed to and therefore value. This suggestion could imply that those in IT departments may become more focussed on the technology rather than the more educational side of TEL, but more likely it relates back to the issues of perception and credibility. However, where locational influences are most prominent will be in the types of activities TEL teams might be involved with which will shape the remit and direction of TEL within an organisation and within strategies. For example, TEL staff in IT departments may not be as heavily involved in developing education strategies or contributing to decisions around programme design compared to those in education-focussed departments.

The literature has identified that where TEL sits within the structure of the organisation can have a bearing on both perception of TEL within the institution as well as the team's credibility and outlook on TEL itself. This was explored further in the interview stage of the research.

2.1.4 Co-ordination and governance of TEL

Nichols (2008) suggested that a lack of strategic ownership of TEL was a barrier to successful adoption and this is evidenced in the UCISA surveys (Walker, Voce, Swift, et al., 2016) as a barrier, but with much less importance than other factors such as institutional culture, lack of support staff and lack of academic staff commitment. Nichols indicated that there needs to be co-ordination of decision-making relating to technology and policy and to ensure that any change is supported by the appropriate resources. The literature (Arabasz et al., 2003; Boezerooij, 2006; Chang & Uden, 2008; Gramp, 2013; Kirkwood & Price, 2016; Zhu & Engels, 2014) identifies two key ways in which this co-ordination and governance of TEL can be established: 1. committees or working groups; and 2. senior management commitment and involvement; both of these forms of governance have a role to play in the effective adoption of TEL.

Starting with committees and working groups, the 2016 UCISA TEL survey (Walker, Voce, Swift, et al., 2016) introduced a new question asking about the committees or working groups responsible for overseeing TEL at an institutional level. The majority of responding institutions reported having

some form of TEL governance in place, primarily learning and teaching committees and/or TEL committees. Other governance mechanisms reported included having a senior manager with responsibility for TEL, such as a pro-vice chancellor for education. It was notable that 20% of institutions reported having no institutional TEL governance. This reflects a study into TEL governance within Malaysian HEIs (Wahab, Embi, & Nordin, 2011), where 19.2% of 26 HEIs reported having no TEL committee. The authors questioned the reason for the challenges of TEL governance citing manpower and a lack of incentives as the key issues, although it is unclear from the study why these are classed as governance issues. What are correctly highlighted as governance issues are challenges around the lack of a clear TEL policy, the absence of a governance structure and the lack of responsibility for planning and implementing TEL. They also explored the effectiveness of TEL governance, with only 50% of respondents reporting that their governance structure was effective; however, the study does not explore the reasons as to why the structure was not felt to be effective. Beetham et al. (2001) reported that issues can arise when there are too many committees with influence over policy decisions and suggested that gaps between central strategy and local implementation could be bridged through having committees with representation from both academics and professional services staff. A key recommendation they made was the inclusion of TEL staff on institutional committees and working parties. This research explored the value of direct representation on committees for heads of TEL.

The second aspect of governance that can influence the adoption of TEL relates to the support from senior management and other influential people. Several studies emphasise the importance of senior management support for TEL (Armitage & O’Leary, 2003; Czerniewicz & Brown, 2009; Luckin, Shurville, & Browne, 2007; Nichols, 2008; Schneckenberg, 2009), but what role do they play? Almpanis (2015a) reported that there is a key role for senior managers in defining a vision for TEL to ensure there are incentives and opportunities for staff development that would lead to more consistent and widespread adoption of TEL. This reflects the data from the UCISA TEL Surveys (Walker, Voce, Swift, et al., 2016) whereby a lack of incentives has been a top ten barrier to the adoption of TEL since the 2003 survey. This senior management support is typically evidenced in institutional strategies and policies which can be used to set the strategic direction, in the form of an institution-wide approach for TEL, to outline expectations for staff and students and to demonstrate the commitment of the leadership team (King & Boyatt, 2014). Zenios and Steeples (2004) stated that having ‘an institutional strategy for e-learning is critical’ (Action Points, para. 3) and this is reflected in practice by the UCISA TEL Surveys (Browne et al., 2010; Browne et al., 2008; Walker et al., 2012; Walker et al., 2014; Walker, Voce, Swift, et al., 2016) which have consistently reported the importance of an institutional teaching, learning and assessment Strategy for informing the development of TEL with almost all responding institutions reporting a link between strategies and the implementation of TEL tools. Underpinning all of this is the need to ensure

that senior managers understand how technology can be used to enhance learning and teaching (Steeple & Zenios, 2005).

Alongside senior management buy-in, there is also a role for other influential people within the institution, such as academics and students, to become champions or leads for TEL (Armitage & O’Leary, 2003; Gramp, 2013; Luckin et al., 2007). TEL ‘Champions’ are defined as staff within academic schools or departments who have a formal responsibility for promoting the use of TEL (White, 2006). One example from a UK HEI is reported by Gramp (2013) whereby a network of TEL champions was established with the intention to improve the quality of TEL provision. Whilst she reports on improved communication between the schools/departments and the TEL support team and noted an increase in the level of TEL activity in several departments, she also acknowledges that the network was still in its infancy and so it is not clear what the longer-term benefits of a champions network are and how long the network could function effectively. A key factor in the role of influential people is their level of credibility (Luckin et al., 2007; Thanaraj & Williams, 2016), such as the pro-vice chancellor for teaching and learning cited by Luckin et al. (2007) who established an e-learning advisory group and a consultation exercise which was more successful than previous “bottom-up” consultations.

2.1.5 Relevance to this study

This literature review has identified a hybrid model of TEL support in the form of centralised and decentralised units, with varying forms of co-ordination or

governance of TEL. The role of this research is to provide an updated view of TEL support within UK HE, building on the initial findings from Beetham, Jones and Gornall (2001).

To respond to the first research sub-question in this study, an adapted version of the classification by Hughes, Hewson and Nightingale (as cited in McNaught (2002)) has been used to investigate the types of TEL support models present in UK HEIs. The research also focused on the evolution of TEL support models, which has been alluded to in previous studies (Zellweger Moser, 2007), but does not seem to have been studied in any depth. This could be because the field is still fairly young, with most institutions starting to establish more formal TEL support structures in the late 1990s/early 2000s in line with the arrival of virtual learning environments. Schein (2010) recommended taking a historical approach to understanding organisational structures, specifically in relation to organisational culture, as simply looking at an existing structure does not enable the researcher to “decipher what underlying assumptions initially led to that structure” (p. 180). He also suggested that the “same structure could result from different sets of underlying assumptions” (Schein, 2010, p. 180). For example, a centralised TEL model could have either been the result of a conscious decision to ensure consistency of support across an institution or simply based upon the location in the institution where TEL support was originally conceived or funded. Given the first research sub-question has an emphasis on the evolution of TEL support, it seems appropriate to adopt Schein’s historical

approach. This thesis therefore takes a historical perspective on how the TEL support model has developed within an institution, what decisions, if any, were taken regarding the most appropriate organisational structure and which factors positively or negatively influenced that decision.

For the second research sub-question, the literature review identified several aspects of a TEL support model that might help or hinder the effectiveness of the TEL support in relation to the adoption of TEL. The study therefore examined the structure, function and location of TEL support alongside the role of governance in the form of committees or working groups and the role of influential people, such as heads of departments and senior managers.

2.2 Organisational culture and TEL adoption

When studying a particular organisation, the term 'culture' will inevitably come up as a factor in how the organisation works. Alvesson (2002) states that culture "is central in governing the understanding of behaviour, social events, institutions and processes" (p. 4), therefore in order to understand an institution it is important to consider the cultural aspects which underpin the structures and processes in place. But what does this mean?

Hofstede, Hofstede and Minkov (2010) define organisational culture as "the collective programming of the mind that distinguishes the members of one organisation from others" (p. 344). They suggest that organisational cultures

are acquired when an individual enters an organisation and are based on the organisational practices, rather than inherent values.

When it comes to defining what is meant by organisational culture, within the context of higher education, several papers (Beytekin, Yalçinkaya, Doğan, & Karakoç; Lacatus, 2013; J. Thomas & Willcoxson, 1998) base their definition on that of Schein (2010) such that organisational culture is defined as a shared set of basic, unconscious, assumptions about the world, encapsulated in rituals, structures, values and underlying beliefs that determine how and what people within a group think, feel, value and act. These studies take a functionalist perspective, such that an organisation is viewed as having a single organisational reality which is perceived to be similar by all within the organisation (Kezar, 2001). This perspective can be valuable when comparing institutions as a whole or understanding the perceived organisational approach and has led to the development of categories of institutional culture which are discussed further in Section 2.2.1. The functionalist approach, however, does not necessarily consider the complexities of sub-cultures at a school or departmental level and their influence on institutional approaches. An understanding of the sub-cultures within an institution is valuable for understanding the adoption of TEL, which is known to be patchy and often differs by discipline (Walker et al., 2016) and so this is discussed further in Section 2.2.2.

This thesis therefore uses the Schein definition of culture, such that there is a shared set of basic, unconscious, assumptions about the world, encapsulated in rituals, structures, values and underlying beliefs that determine how and what people within a group think, feel, value and act, but notes that institutions are not mono-cultural and there may exist cultural differences within the institution, in particular at school or department levels, that could influence the adoption of TEL.

2.2.1 Categorising organisations – a nomothetic approach to organisational culture

There have been several attempts to categorise organisational culture within higher education institutions (Bergquist, 1992; Birnbaum, 1991; McNay, 1995) whereby institutions typically sit within one of four or more distinct categories. Bergquist's (1992) work "The Four Cultures of the Academy" identified four distinct cultures within US higher education – collegial, managerial, developmental and negotiating. Considering the UK perspective, McNay (1995) linked organisational culture to policy and suggested that universities sit within a continuum from loose to tight, based on the control of implementation and the level of policy definition. By doing this he defined four organisational characteristics (Figure 2.1) which are similar to those suggested by Bergquist (1992).

		Policy definition	
		Loose	Tight
Control of implementation	Loose	Collegium	Bureaucracy
	Tight	Enterprise	Corporation

Figure 2.1: Adaptation of McNay's model of universities as organisations

The four cultures identified by McNay (1995) can be described as:

- Collegium – the dominant units are the departments or individuals and the role of the central authorities is permissive such that change occurs organically over a fairly long period of time.
- Bureaucracy – committees are the dominant units and the role of the central authorities is regulatory. Change tends to be a reactive adaptation and is cyclical in nature.
- Corporation – strong senior management team, with an equivalent of a chief executive, who take a directive role. This is a political environment with decision making done by the senior management team in consultation with working parties.
- Enterprise – sub-units or project teams are the dominant units, with devolved leadership. The institution acts more like a business and responds instantly yet flexibly.

This type of categorisation is described by Trowler (2008) as taking a nomothetic approach, such that a set of universal, general laws are established which imply a causal relationship between culture and change. Whilst McNay's (1995) framework is useful for providing a general overview of the types of organisational culture within universities, it assumes that behaviours, values and attitudes are common throughout an organisation and it does not address the various subcultures that might exist within an institution and its constituent parts. Saffold (1988) argued against the use of simplified frameworks which assume a unitary culture. Kezar and Eckel (2002) recommended using multiple frameworks in conjunction to help provide a more powerful lens for analysis, and in their study of institutional culture and change they combined the categories identified by Bergquist (1992) with Tierney's (1988) framework of organisational culture. Tierney's (1988) framework is based on six key areas that he considers are important for the study of culture within a college or university. For each area, a set of questions has been developed to help understand the culture of the institution. Three areas are suggested to be relevant for understanding the adoption of TEL:

- Mission - How is it defined? How is it articulated?
- Strategy – How are decisions arrived at? Who makes the decisions?
- Leadership – Who are the leaders? Are there formal and informal leaders?

For this study, McNay's (1995) simplified framework will be used when asking survey respondents to classify their institutions at a broad level to identify the perceived dominant culture, whilst still acknowledging that the institution may be composed of two or more cultures. This will be useful in ensuring that a mix of perceived cultural types is present when selecting institutions for the interview stage. Questions from three areas of Tierney's (1988) framework will be incorporated into the interview questions, specifically around the mission, strategy and leadership aspects of TEL to help understand the culture of the institution.

2.2.2 Understanding the sub-cultures – a multiple cultural configuration approach

A weakness of the type of categorisation discussed in the previous section is that it can lead to an oversimplification of the complexities of culture and "limits our perspective by prematurely focussing on just a few dimensions" (Schein, 2010, p. 175). This is backed up by Trowler and Knight (2002) who argued that a "university possesses a unique and dynamic multiple cultural configuration which renders depiction difficult and simple depiction wildly erroneous" (p. 145-146).

Considering sub-cultures within institutions, seminal works by Becher (1989) and Becher and Trowler (2001) have explored differences at a disciplinary and sub-disciplinary level using the idea that academia is composed of tribes and their 'knowledge territories', such that beliefs, behaviour and knowledge

are all influenced by the territories within which an academic resides.

Alvesson (2002) suggested that organisations can be understood according to a multiple cultural configuration view, such that an organisation is neither viewed as having a unitary culture, nor individual subcultures, but various configurations at different levels. Hofstede, Hofstede and Minkov (2010) identified several ways in which organisations could be culturally divided; for example, along hierarchical lines, by functional area or by country of operation. Relating this to a university setting, this could be a cultural divide between different levels of management, between organisational units (such as schools and professional services), between different academic disciplines or between different locations in institutions with multiple campuses. As this study focuses on the perspective of heads of TEL, it would be expected that they might perceive different cultural challenges compared with staff in other parts of the institution.

2.2.3 Effect of organisational culture on TEL

McPherson and Baptista Nunes (2006) advised that “it is essential that those wishing to implement e-learning should, at the very least, become familiar with their own organisational culture, structure and corresponding and potentially conflicting strategies” (p. 552). Previous research has also identified a link between organisational culture and the successful or unsuccessful adoption of educational innovations, such as the use of TEL (Schneckenberg, 2009; Zhu, 2013; Zhu & Engels, 2014). This is evidenced in the UCISA TEL Survey

(2016) where it was reported that departmental/school culture and institutional culture were two of the top five barriers to adoption of TEL, ranked second and fifth respectively. However, the survey authors neither expand on what is meant by culture in this context nor was there an understanding of how culture acts as a barrier to adoption. Other studies have also acknowledged organisational and departmental culture as being key barriers to the implementation of TEL, providing examples such as the conflict between perceived priority of teaching and research activities (Adamy & Heinecke, 2005; Schneckenberg, 2009; Zellweger Moser, 2007; Zhu, 2013), the influence of the discipline on pedagogic practice (Russell, 2005; Walker, Voce, & Jenkins, 2016) and the need for a supportive culture offering time and space to develop TEL expertise (Adamy & Heinecke, 2005; King & Boyatt, 2014).

Whilst the literature suggests there is a link between organisational culture and the adoption of TEL, is there evidence that a specific type of organisational culture (Bergquist, 1992; McNay, 1995) is more conducive to the successful adoption of TEL? Beetham et al. (2001) used McNay's (1995) four cultural types to classify those institutions that scored highest and lowest in their study of the institutional management of TEL and suggested that greater use of TEL is likely to be associated with an 'Enterprise-style' university, who benefit from flexible decision making and small project teams, rather than a collegial approach, where discipline-based departments had greater autonomy. Their findings were based on identifying common

characteristics of the most successful institutions when it came to the adoption of TEL and relating those commonalities to the four types of organisational cultures. Despite this suggestion, they did acknowledge that there might not be a causal relationship between the cultural type of the institution and the successful adoption of TEL. This study will therefore consider whether there are any commonalities between the perceived cultural type and the structure of the TEL support as well as the influence on adoption of TEL.

Taking this a step further, Czerniewicz and Brown (2009) reviewed the role of organisational culture in relation to TEL policy and identified the importance of organisational culture in mediating the relationship between TEL policy and use of TEL. Their research investigated the role of TEL policy and culture in four South African universities and used McNay's (1995) framework for organisational culture alongside the notion that institutions are either:

- **Structured** – TEL policy document exists, centralised support unit, institutionally supported Learning Management System (LMS)
- **Unstructured**– No TEL policy document, no formal support unit, no (or ad hoc) online Learning Management System (LMS)

In their findings, none of the institutions they studied were felt to be an 'ideal type' for the effective adoption of TEL; however, they suggested that there were two institutional types – structured collegium and structured enterprise –

that were most effective for “sustained effective e-learning use and innovation in support of learning and teaching in higher education” (Czerniewicz & Brown, 2009, p. 130), but these types were not present in the institutions they studied. It is also interesting to note that their research identified that unstructured collegium types were more successful at fostering innovation, with evidence of a wider variety of use of TEL; however, they suggested that a more structured type would be required to scale up these small innovations. This reflects the findings of Bichsel (2013) who identified that innovation was most likely to occur at a local, distributed level, and that scalability of TEL required a more centralised model.

Considering organisational culture, might it be possible that institutions with a common management culture would establish a similar organisational TEL structure? Boezerooij (2006) suggests this might be unlikely as each institution will have reacted differently to external constraints, such as the introduction of TEL, according to their own “unique combination of activities, access to various resources and local environment” (p. 59). In addition, linking back to perceived cultural types means that the perceptions of the head of TEL or senior managers establishing the TEL support may also influence how TEL has been structured. Considering both McNay’s (1995) cultural framework and the TEL support classification of Hughes, Hewson and Nightingale (as cited in McNaught (2002)), there are parallels between the collegium characteristic and the distributed approach, whereby the academic departments or faculties are the dominant units. In a similar vein, there are

commonalities that an integrated approach is more likely to evolve from an institution with a corporation characteristic.

2.2.4 Establishing a TEL culture?

Another aspect of culture relates to the individuals involved in TEL support. Oliver (2012) suggested that learning technologists could be considered a separate tribe whose role is to “cross the boundaries of disciplinary ‘tribes’” (p. 222). This may be true of central TEL teams, but anecdotal evidence suggests that learning technologists based in the schools or departments may align themselves more closely with the disciplinary tribe where they are located.

Zellweger Moser (2007) suggested that there was potential for a cultural conflict between the different support cultures within an institution, in particular between IT and TEL teams, citing a conflict around the proactive, creative and innovative nature of TEL teams compared to the IT focus on stability, security and scalability. This links back to the suggestion by Czerniewicz (2008) that the field within which TEL sits might influence the outlook of the teams and thus the ways of working, which could also bring about conflict where there are multiple teams supporting TEL.

2.2.5 Relevance to this study

This study therefore views culture through two different lenses based on perceptions of culture from an individual viewpoint. Using McNay’s (1995)

classification as a means to identify an overall perceived institutional cultural type, the study examined the perceived effect of culture on the successful adoption of TEL from the perspective of a head of TEL, or equivalent. However, this does not address why there might be patchy take-up of TEL across an institution and so culture is also viewed from the perspective of sub-cultures which might affect adoption at a departmental or school level.

Finally, the study explored Oliver's (2012) notion of a TEL support culture and whether this exists within institutions; for example, whether multiple TEL support units within an institution considered themselves as a unitary tribe, or if there exist different tribes within TEL, e.g. technical support versus pedagogic support, or central versus local support. The interviews also looked at how a TEL support identity, and the credibility of TEL support staff, might be developed and supported. In addition, there was a focus on whether there were areas of conflict between different parts of the institution in relation to differences in culture, e.g. academic culture versus support culture.

2.3 Summary

This chapter highlighted the difficulty of identifying one model for the support of TEL and presented several ways in which TEL support models could be classified, primarily based around using a continuum of centralisation focussed on both the distribution of co-ordination and decision making for TEL. The literature identified several models for evaluating the effectiveness of TEL but found these models lacked guidance on best practice for TEL

support. Two areas of focus for effectiveness were identified and related to the following aspects:

- Structure, function and location of TEL support
- Co-ordination and governance of TEL

The second half of the chapter focussed on organisational culture and the role of culture in the adoption of TEL. Several institutional cultural types were identified as being conducive to the adoption of TEL; however, sub-cultures were found to have a role in uneven adoption at a local level. This research therefore aims to add to the current literature on the effects of culture on the adoption of TEL.

The final part introduced the concept of a TEL culture that may sit separately to the academic disciplines within the institution and the potential for cultural conflict between different teams supporting TEL. This research will explore this area further to see whether a TEL culture exists within institutions.

The conceptual framework for this study brings together the two aspects discussed in this chapter by examining how the successful adoption of TEL is influenced by the institutional support for TEL and perceptions of organisational culture. This is visualised in

Figure 2.2.

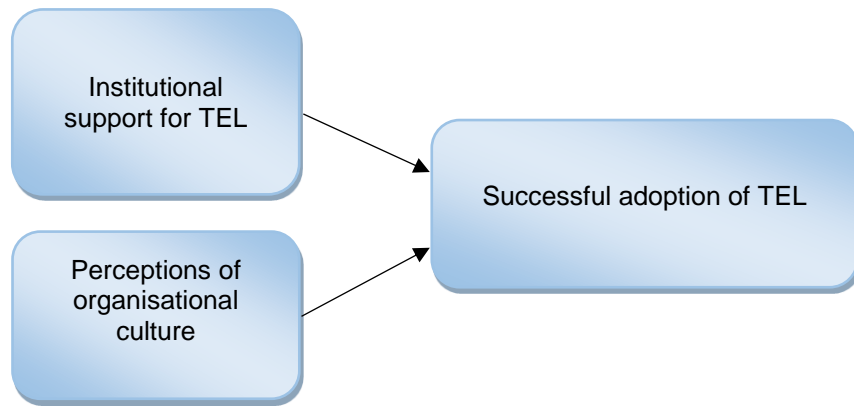


Figure 2.2: Conceptual framework

The next chapter introduces the research questions and describes how the research has been designed and carried out.

Chapter 3 Research Design

This chapter presents an overview of the research design, based on a three-stage mixed-methods approach, and describes the context within which the research has been designed. This is followed by a more detailed description of the design of each stage, including the sample, how the stage was conducted, the role of secondary data and how the data have been analysed. The chapter concludes by considering the robustness of the research based on Tashakkori and Teddlie's (2008) concept of inference quality and utilises their framework to review the research design quality, interpretive rigour and inference transferability.

3.1 Overview

This research was originally based on a two-stage explanatory sequential design approach (Figure 3.1) whereby the results of the first stage inform the design of the second stage through the identification of themes and variables (Creswell & Plano Clark, 2011).

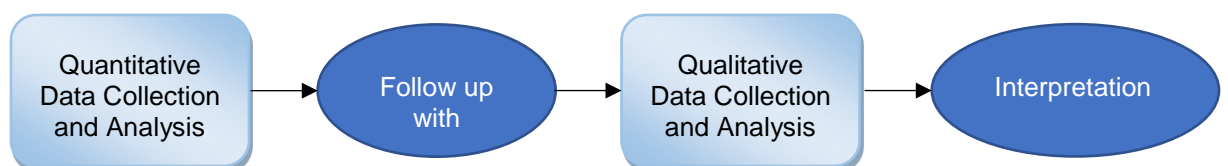


Figure 3.1: Overview of Explanatory Sequential Design approach. Adapted from Creswell & Plano Clark (2011, p. 69)

The original plan to use a two-stage design used mixed-methods in the form of a survey with follow-up interviews; however, the opportunity to present findings in an interactive setting led to the development of a third stage of the research, in the form of a TweetChat, which fed-back into the data analysis of the interviews and the interpretation of the data from all three stages. In addition, data from the UCISA TEL Survey Case Studies (Browne et al., 2010; UCISA, 2012, 2014, 2016) was also incorporated into the interpretation stage to provide comparison and contrast to the case studies from the interview stage. Figure 3.2 provides a visual overview of the three-stage explanatory sequential design.

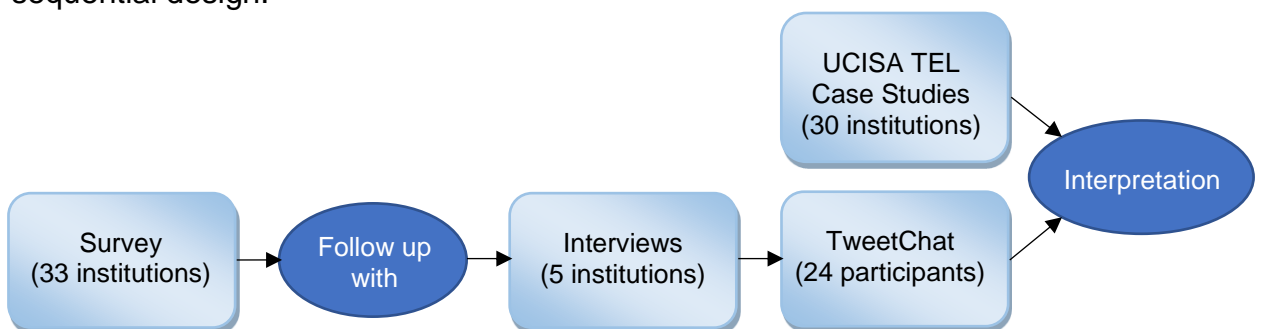


Figure 3.2: Diagram showing three-stage explanatory design

Stage 1 involved the collection of both quantitative and qualitative data from 33 heads of technology enhanced learning (TEL) within UK higher education institutions (HEIs), representing all four countries of the UK. The questions in the survey were based around the first three research sub-questions:

- RSQ1.** What TEL support models exist within UK HE institutions and how have they evolved with the increased use of TEL?

RSQ2. From the perspective of a head of TEL, which factors of a particular TEL support model help or hinder the successful adoption of TEL?

RSQ3. From the perspective of a head of TEL, to what degree is successful adoption of TEL influenced by organisational culture?

Stage 2 involved the collection of qualitative data by interviewing five heads of TEL in order to explore the first three research sub-questions in greater depth. Themes from Stage 1 were used to inform the interview questions used in Stage 2.

Stage 3 consisted of two parallel components with the intention of validating the initial findings against the literature and with a wider audience. Stage 3a involved a directed content analysis of the UCISA TEL Case Studies (Browne et al., 2010; UCISA, 2012, 2014, 2016) whereby the themes identified from the first two stages were used as the basis for the analysis. Stage 3b involved the presentation of findings combined with the collection of qualitative data as part of a TweetChat with delegates at the 2016 Association for Learning Technology (ALT) Online Winter Conference (Voce, 2016). The findings presented in Chapters 4 and 5 were based on the analysis from the first two stages and the data collected and analysed in Stage 3 were incorporated back into the analysis of findings from the previous stages.

3.2 Framing the approach

Before describing the research design and methodology in greater detail, it is important to situate the research in order to understand its influence on the research design, data collection, analysis and discussion.

The focus of this research was to understand how TEL is supported within higher education institutions, viewed from the perspective of a head of TEL or equivalent role. The overarching research question aimed to evaluate the effectiveness of TEL support models and establish how organisational culture is perceived to influence the adoption of TEL. In this study, culture is therefore viewed primarily as a variable and as such the research focussed on “understanding and demonstrating the applied value of the concept (e.g. how an organisation’s culture influences performance outcomes in the organisation)” (Kummerow & Kirby, 2013, p. 283).

The aim of the research was to understand how organisational culture, at both the institutional and departmental levels, is perceived to affect the adoption of TEL. This research has been framed within the perspective of a head of TEL and so culture in this context is related to an individual’s perceptions of culture within their institution, rather than a definition of institutional culture aggregated from multiple perspectives. Perceptions of culture is an interesting area of study and seems to be underrepresented in the literature when it comes to organisational culture within higher education. Drawing on the field of sociological theory, the Thomas Theorem states that “if men define

situations as real, they are real in their consequences” (W. Thomas & Thomas, 1928, p. 572). In the context of this research, this implies that a head of TEL’s actions and potentially how TEL support is structured could be affected by their perception of institutional culture. For example, if they perceive the institution to have a highly collegiate culture, they could shy away from top-down approaches in favour of more devolved measures. This perspective has relevance as the head of TEL is typically the link between the strategic and operational aspects of TEL support and would be the key person in driving forward adoption of TEL. Their cultural perceptions at both an institutional and departmental level may determine how TEL is approached and developed within the institution.

Considering the design of the research, Kummerow and Kirby (2013) note that researchers with a variable-based cultural focus typically use quantitative approaches and this aligns well with using the structured frameworks for describing culture (Bergquist, 1992; McNay, 1995) discussed in Chapter 2, which also take a quantitative view of culture. Ashkanasy, Broadfoot and Falkus (2000) reported a general acceptance amongst researchers of the use of questionnaires for understanding culture at a shallow level, in this case providing an initial view of how a particular perceived cultural type might impact the adoption of TEL. However, a questionnaire does not necessarily enable the researcher to study the effects of culture at a greater depth, which typically requires a qualitative approach, such as intensive observation or focussed interviews.

Utilising more than one method, such as a survey followed by interviews, is classed as mixed-methods research (MMR) and this study uses the definition that mixed methods research is where “the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study” (R. B. Johnson & Onwuegbuzie, 2004, p. 17).

Creswell and Plano Clark (2011) suggest using a mixed-methods approach where there is a need to explain initial results and to provide more complete or corroborated results. This certainly fits the need of this research to provide an initial overview of results to establish common themes before drilling down into further detail for specific examples. The choice of research method is, therefore, dictated in part by the needs of the research questions. Plano Clark and Badiie (2010) note the advantage in taking a pragmatic approach to using a design that utilises the best approach for answering the research questions and reduces complications related to mixing worldviews, paradigms and methods. This reflects the author’s view on research such that the choice of methodology and methods are driven by the research question as well as the author’s own experience and expertise. In addition, an explanatory sequential mixed methods approach has been used to good effect by other similar studies involving heads of service within higher education, such as heads of TEL (Almpanis, 2015b) and heads of educational development (Gosling, 2008; Jones & Wisker, 2012).

The following sections discuss the research design in more detail, presenting each stage of the research, the ethical considerations and finishing by reviewing the robustness of the research design.

3.3 Stage 1 – Survey

Stage 1 utilised a questionnaire to survey heads of TEL within UK higher education institutions about their TEL support models. Questionnaires are a common tool for collecting survey data and are particularly useful for numerical data and surveying large numbers of respondents without the need for the researcher to be present (Cohen, Manion, & Morrison, 2011). With over 160 public-funded HEIs in the UK (Universities UK, n.d.), where heads of TEL are typically represented via the Heads of e-Learning Forum (HeLF)¹, a questionnaire was felt to be the easiest way to gather data from as many institutions as possible in order to identify key themes that could feed into the Stage 2 interviews with a smaller number of participants.

3.3.1 Survey design

The survey asked respondents about the types of TEL support units and their functions, the numbers and roles of staff within each unit and the perceived advantages and disadvantages of the TEL support models currently employed. It also asked respondents to identify the dominant organisational

¹ Heads of e-Learning Forum - <https://helfuk.blogspot.co.uk/p/about-helf.html>

culture from an institutional perspective (using the McNay (1995) model) and the type of TEL support model (using the Hughes, Hewson and Nightingale model (as cited in McNaught (2002)) in order to understand how they might influence TEL adoption and support. Described by Ashkanasy, Broadfoot and Falkus (2000) as a 'Typing survey', this type of categorisation of cultural type can be useful for helping respondents to consider the cultural environment within which they reside when responding to the questions about culture. Limitations of this approach include the assumption that "all organizations of a particular type are similar, or should be similar, neglecting the unique nature of cultures" (Ashkanasy et al., 2000, p. 134) and that institutions do not necessarily conform to one type, but may appear to be a mixture of types (Alvesson, 2002). The purpose of using cultural type in this survey is therefore to help the respondents consider their own cultural setting when responding to the open questions and for identifying institutions with different perceived cultural types for the second stage of the research. To overcome the limitation regarding conforming to one type and to identify multiple cultural configurations, one approach is to assign points to a series of statements which determine a particular cultural type (Jung et al., 2009; Smart & St. John, 1996). In a simplified version of this approach, respondents were asked to assign 10 points amongst the four cultural types (McNay, 1995), which enabled them to assign all 10 points to one dominant type or to split the points across two or more types to show a variation across the institution.

The survey questions are provided in Appendix 1. Table 3.1 provides a high-level mapping of the main survey questions against the four research sub-questions.

	RSQ1 TEL support model and evolution	RSQ2 Factors which help or hinder TEL adoption	RSQ3 Influence of organisational culture	RSQ4 Factors for changing TEL support model
How would you describe the dominant culture of your institution?			✓	
How would you describe your institution's provision of support for TEL?	✓			
Which of the following types of TEL support unit do you have, what is the FTE of each unit and what type of activities do they undertake?	✓			
Who is responsible for co-ordinating TEL within your institution and what type of co-ordination are they responsible for?	✓			
Has your TEL support model changed in the last five years?	✓			
In your opinion, what are the strengths of your existing TEL support model?		✓		✓
In your opinion, what are the weaknesses of your existing TEL support model?		✓		✓
Would you like to change your existing TEL support model?				✓

	RSQ1 TEL support model and evolution	RSQ2 Factors which help or hinder TEL adoption	RSQ3 Influence of organisational culture	RSQ4 Factors for changing TEL support model
In your institution, do you feel that institutional culture affects the adoption of TEL and structure of TEL support?			✓	✓
In your institution, do you feel that departmental culture affects the adoption of TEL and the structure of TEL support?			✓	✓

Table 3.1: Mapping of survey questions to the four research sub-questions (RSQ)

3.3.2 Survey deployment

For ease of distributing the survey, and because heads of TEL would be expected to be conversant with technology, an online survey tool was chosen as the best delivery method for the survey. Two online survey tools were considered – Bristol Online Surveys (BOS) and Qualtrics.

Bristol Online Surveys (BOS) tool² is an online survey tool that was run by the University of Bristol at the time but has since been taken over by Jisc. This tool was considered because Lancaster University had a licence and the author had prior experience of its use. The survey was initially created using this tool and whilst it was able to cope with straightforward question types, such as multiple choice/response and free text entry, it was not able to present more complex question types. For example, question 1, which looked at perceived organisational culture, was redesigned to ask participants to assign ten points across four categories and this could not be achieved using BOS.

Qualtrics³ is a commercial online survey tool. This tool was considered because the institution where the author was employed had a licence and she had prior experience of its use. Qualtrics was chosen as the delivery mechanism due to the greater flexibility of question types and the advanced validation features.

² Bristol Online Surveys tool - <https://www.survey.bris.ac.uk/>

³ Qualtrics - <https://www.qualtrics.com/>

To distribute the survey to the HeLF representatives, an open link was circulated by email to the HeLF Jiscmail list. This meant that anyone with the link could complete the survey and did not require the compilation of a list of HeLF member email addresses in order to send individual invitations, which would have been time consuming as there is no readily available list of heads of TEL. Participants could only submit the survey once, based on validation using browser cookies. Question validation was used to ensure that key questions were completed and that the responses were valid according to the question type, for example, numeric responses were required for question 1 and they had to total 10.

3.3.3 Survey pilot

The survey was piloted with a small group of peers to review both the question design and the usability of the survey within Qualtrics. Feedback was incorporated into the re-design of the survey which involved adapting several questions to ensure that a greater number of response options were catered for. For example, it was suggested by the pilot group that the three types of TEL unit proposed by Hughes, Hewson and Nightingale (as cited in McNaught (2002)) were too restrictive, and based on feedback from the group these response options were adapted to incorporate other types as well as the addition of an option for respondents to add details about an 'Other' type.

3.3.4 Sample

The survey was sent to the Heads of e-Learning Forum (HeLF)⁴ – a network of TEL-related representatives from UK HE institutions. At the date of the survey (January 2015) there were 137 institutions listed on the member's page of the HeLF website. Each institution is only allowed to have one HeLF representative; however, it was neither known how up-to-date the contact details were nor how active each representative was on the HeLF mailing list. The HeLF representatives are typically the people responsible for TEL within an institution and would either lead one of the support units within an institution or be knowledgeable about their institution's TEL support model.

There was no obligation on the members of the mailing list to respond and so the sample was fairly random within the membership as members self-selected to complete the survey. In addition, there may be only a subset of active users of the HeLF mailing list, which could reduce the total population size.

Respondents were asked to provide one response per institution and were encouraged to consult with their colleagues on their response. This was to avoid duplication and conflicting responses.

⁴ Heads of e-Learning Forum (HeLF) - <http://w01.helfcms.wf.ulcc.ac.uk/>

In total, 33 heads of TEL provided a complete response to the survey giving a response rate of 24%. There was representation from all UK countries; a full breakdown of the responses by country is provided in Figure 3.3.

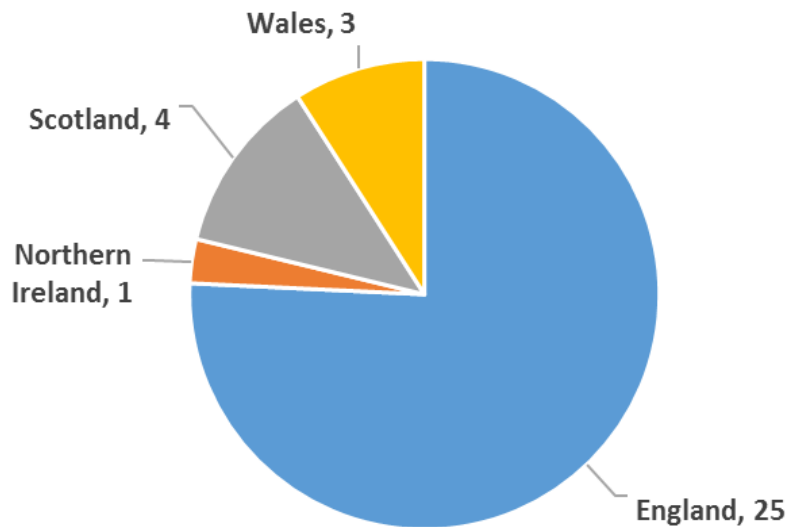


Figure 3.3: Number of UK HE institutions who responded to the survey, breakdown by country

Table 3.2 compares the respondent data for each country against the HeLF population and shows there are a higher proportion of institutions from Wales and Northern Ireland responding; however, the population sizes here are much smaller to begin with. The response rate from institutions in England and Scotland corresponds to the overall response rate.

Country	Number of HeLF institutions	Number of survey respondents	Response rate
England	112	25	22%
Northern Ireland	2	1	50%
Scotland	16	4	25%
Wales	7	3	43%

Table 3.2: Comparison of respondent data against the HeLF population, by country

Institutions have been categorised according to the pre- and post-1992 classification used by the Higher Education Statistics Agency (HESA) and in the UCISA TEL Surveys (Browne et al., 2010; Browne et al., 2008; Walker et al., 2012; Walker et al., 2014; Walker, Voce, Swift, et al., 2016), whereby an institution is classified according to its status before or after the Further and Higher Education Act 1992 ("Further and Higher Education Act," 1992) to grant university status to a number of institutions, including former polytechnics. Following the UCISA approach, a further category of 'Other' was used to describe smaller HE colleges and specialist institutions. Figure 3.4 shows the number of institutions represented by institution type; no 'Other' institutions responded to the survey.

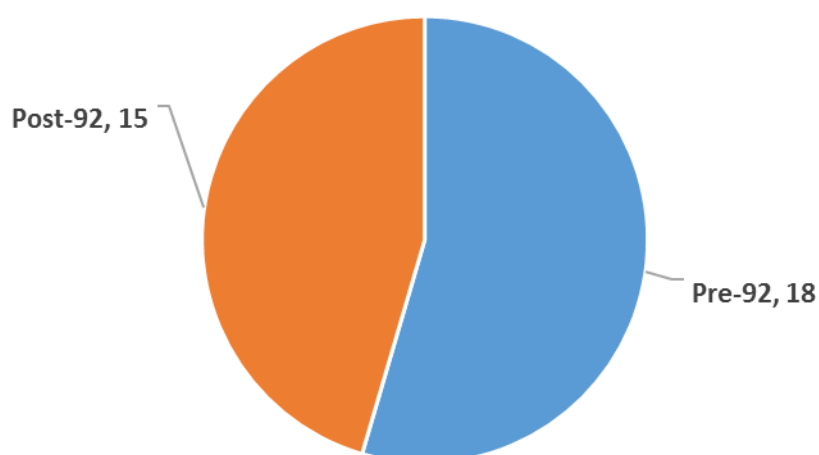


Figure 3.4: Number of UK HE institutions who responded to the survey, breakdown by institution type

Table 3.3 compares the respondent data for each institution type against the HeLF population. There is a slightly higher proportion of pre-92 institutions compared to post-92.

Institution type	Number of HeLF institutions	Number of survey respondents	Response rate
Pre-92	60	18	30%
Post-92	70	15	21%
Other	7	0	0%

Table 3.3: Comparison of respondent data against the HeLF population, by institution type

The Qualtrics software stored unsubmitted responses to enable respondents to save the survey and continue later, which meant it was possible to identify when people had opened the survey but not submitted a response. There were 21 unsubmitted responses. Figure 3.5 shows the breakdown of these unsubmitted responses into four categories:

- **No response provided** – No data were entered into the system.
- **Institution name only** – The respondent had entered their institution's name but had not provided any further data.
- **Partial completion** – The respondent had provided the institution's name and responded to some of the questions; however, as the survey had not been submitted, the respondent was deemed not to have provided consent.
- **Submitted** – The respondent had started a new survey for submitting their response, rather than resuming the previous one.

Data from the unsubmitted responses were deleted and were therefore not incorporated into the final data analysis.

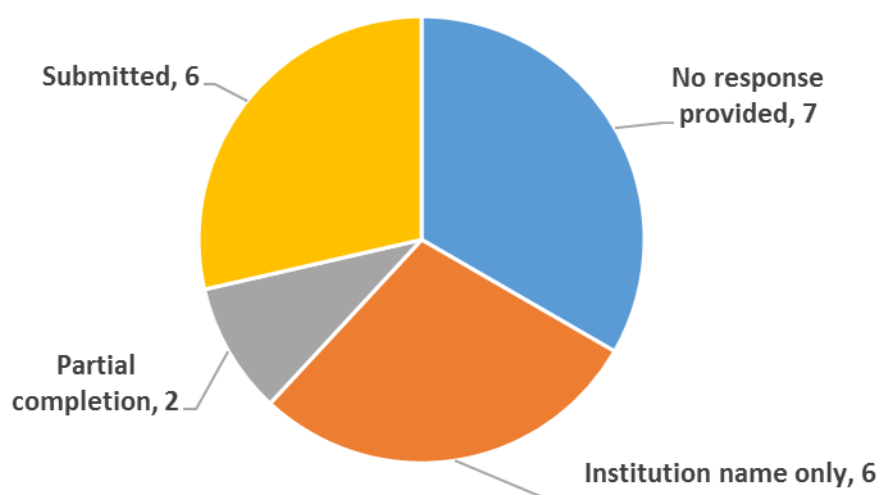


Figure 3.5: Number of unsubmitted responses by category

3.3.5 Timescales

The survey was sent out on 9 January 2015 via the HeLF Jiscmail mailing list and respondents were initially given three weeks to respond. The response rate was monitored on a twice-weekly basis and follow-up emails were sent to specific contacts within institutions where the details of the Head of TEL were known.

A reminder email was sent to the HeLF Jiscmail list on 27 January 2015 to thank respondents and provide a prompt for more people to respond. In addition, the deadline was extended by five days to provide additional opportunity for respondents to complete their submissions. This helped to double the response rate; however, at 24% it was still lower than anticipated. Based on the data from the unsubmitted responses, there were eight identifiable institutions who opened the survey but did not submit their response. The survey tool indicated that some respondents viewed all the questions; however, it is unclear as to why they did not continue. It is possible

that they felt they needed to consult others to complete the survey and forgot to return, or they felt that the survey was too long.

3.3.6 Survey analysis

The quantitative data were analysed using SPSS (Version 23.0, 2015), which was used to create frequency tables and cross-tabulations between various questions. The qualitative data were analysed using the software package NVivo (Version 10, 2012), for which Lancaster University provided a licence, starting with open coding and where necessary, axial coding to further categorise the responses per question. Coding was iterative such that the responses were reviewed when a new code was added. Memos were used throughout the coding and statistical analysis stages to identify the main concepts emerging from the data.

3.4 Stage 2 – Interviews

The second stage used interviews to develop interpretive case studies, such that the case studies aimed to ‘move past description to the translation of key concepts and the development of theories’ (Savin-Baden & Howell Major, 2013, pp. 155-156). The aim of the case studies was to probe further into the themes that had emerged during the survey stage.

Patton (2002) identified three types of interview for collecting qualitative data: informal conversational; general interview guide approach; and standardised open-ended interview. This study used the general interview guide approach whereby participants were given a set of discussion points in advance of the interview. The

interview utilised these discussion points as a checklist to ensure that each item was covered whilst keeping the interview conversational. The advantage of this approach was that further topics could be discussed based on the flow of the conversation, whilst ensuring that each interview covered the key points.

3.4.1 Interview design

The interviews drew on the themes that had emerged from the survey stage, with the intention of probing for more information to gain a deeper understanding and identify examples. It was therefore necessary to repeat some of the questions from the survey to ensure the relevant background information was acquired and could be expanded upon, especially as not every interview participant had completed the survey.

The interview questions (Appendix 2) were split into five different sections as follows, with the first three based on the first three research sub-questions (RSQ):

1. **TEL support model and evolution (RSQ1)** – to gain an understanding of the existing institutional TEL support model and the historical background to the choice of model and any changes that had taken place. This section utilised Flanagan's (1954) Critical Incident Technique to identify critical events, incidents or factors that have shaped the evolution of the TEL support model.

2. **Factors affecting adoption of TEL (RSQ2)** – drawing on themes identified from the survey findings, such as how central co-ordination meets local needs.
3. **Influence of culture on adoption of TEL (RSQ3)** – providing specific examples from the survey, in particular the possible effects of perceived institutional and departmental culture on TEL adoption.
4. **Future** – to identify possible changes to the TEL support model in the future.
5. **Finally** – to provide participants with the opportunity to say anything else that they felt would be relevant and to ask participants to identify any other institutions they thought would be a valuable case study.

The interview questions were sent to three peers for review to ensure they made sense and would elicit useful responses. Changes were made to the questions following this feedback phase. For example, Section 1 was modified to take a more narrative approach to the evolution of TEL, so rather than simply asking how the structure evolved, there were more specific prompts to lead the participant to consider how and where TEL started, the initial drivers, the role of TEL support teams and any changes over time.

The interview was then piloted with two further peers to test the timings and once again to check whether the questions were clear and understandable. The pilot interviews identified some difficulties in understanding what was meant by culture and TEL support identity. Cameron and Freeman (1991) suggest that the researcher should “provide a stimulus to organization members which encourages them to

interpret their organization's culture" (p. 31). As a result of the feedback, scenarios were taken from the survey results in order to prompt discussion, for example:

The survey results identified several areas where institutional culture affected/influenced the adoption of TEL, such as value of teaching versus other activities, top-down versus bottom-up developments. Could you describe the effect of institutional culture on the adoption of TEL at your institution?

The interviews were designed to take between 60-90 minutes, which seemed feasible in terms of covering the topics in enough detail, ensuring the participants would have time to take part and not take too long to transcribe. The pilot interviews confirmed that 60-90 minutes would be adequate to cover all the topics.

3.4.2 Sample

In-depth interviews were undertaken with five heads of TEL each representing a UK HEI with three from England, one from Wales and one from Scotland. Four of the interviewees had responded to the survey and expressed interest in taking part in interview stage. They were selected based upon the type of support model they had identified as (e.g. Central, Distributed) and the perceived dominant culture of their institution (Table 3.4). For analysis of the data, the responding institutions have been anonymised and assigned a number from 1 to 5.

Institution No.	Support Structure	Perceived Dominant Culture
I01	Parallel	Collegial
I02	Centralised	N/A
I03	Centralised	Mixed
I04	Centralised	Bureaucratic
I05	Distributed	Corporate

Table 3.4: Details for the case study institutions

The fifth interviewee [I02] was chosen by utilising a snowball sampling approach (T. P. Johnson, 2014). In this approach the participants were asked to make a recommendation of other institutions they felt had an interesting or enviable TEL support model. An advantage of this approach is to identify hidden populations; in this case it was to identify institutions that were perceived to be of interest that had not responded to the survey. This was to counteract concerns mentioned in Section 3.3.4 about how up-to-date the HeLF members list was and the number of active HeLF members. This approach generated a list of nine institutions, of which only three had responded to the survey; one of these had already been selected for interview. Of the remaining six, one institution had taken part in several iterations of the UCISA TEL Case Studies (Browne et al., 2010; UCISA, 2012, 2014, 2016), so adequate data were already available about their TEL support model. Three

institutions were approached to participate in the interview stage, but only one agreed [I02].

3.4.3 Conducting the interviews

The interviews took place between February and April 2016. Interview participants were contacted by email to invite them to take part in the interview stage and were given suggested dates for the interview and a copy of the Participant Information Sheet. On acceptance of the interview, participants were sent a copy of the interview questions (Appendix 2) and were asked to complete and send back a copy of the Interview Consent Form.

In addition, they were asked to provide secondary data, in the form of organisation charts or strategy documents relating to TEL within their institution. The intention was that these documents would provide useful background information in advance of the interview, be a reference point during the interview and could contribute to the data analysis afterwards. All participants provided documents or links to relevant webpages.

In terms of location, two interviews were carried out in person due to the proximity to the author, whilst the remaining three were conducted using Skype. All interviews were recorded using the AudioNote™ application⁵ on an iPad and converted to Moving Picture Experts Group Layer-3 Audio (MP3) format. Typed notes were also

⁵ AudioNote™ - <https://itunes.apple.com/gb/app/audionote/id369820957>

taken during the interview using the AudioNote™ application in case of an issue with the recording and to provide a quick reference point for referring back to the audio recording, as the typed notes were synchronised with the audio.

3.4.4 Interview analysis

The interviews were transcribed manually by the author, before being imported into the NVivo (Version 11, 2015) software for analysis. The transcripts were analysed using a grounded-theory approach. Grounded theory is an inductive method whereby theory is generated from the systematic analysis of data (Glaser & Strauss, 1967). It differs from theories generated by logical deduction whereby analysis is used to verify a hypothesis. This study focussed on the use of constructivist grounded theory (Charmaz, 2000) whereby “researchers and participants construct their own realities” (Savin-Baden & Howell Major, 2013, p. 184). Due to the author’s professional position as TEL specialist and direct experience of several different institutional TEL support models, the aim of the interviews was to enable mutual construction of meaning and it was found to be important to provide examples to enable reflection on the TEL support models being discussed.

A text-based, comparative analysis of the interview transcripts was carried out using NVivo (Version 11, 2015). The process of constant comparison was used to carry out the initial coding such that transcripts were re-coded with new codes that emerged from the most recent interview. Once the interview stage was completed, axial coding was used to refine the initial codes developed in order to identify relationships between the codes and to categorise them. Memos were used

throughout the coding stages to identify the main concepts emerging from the data and to identify themes that might be useful as reference points in the subsequent interviews. Appendix 4 provides an extract from one of the interviews to demonstrate how the themes have been identified in the text.

Whilst most participants had provided organisation charts in advance of the interview, these charts typically only covered the TEL unit where the participant was located and occasionally the wider department. To get a better picture of the TEL support model across the institution, it was necessary to draw up an institutional TEL organisation chart that captured the relationships between all the teams supporting TEL as well as the links with governance structures with oversight of TEL. This served as a useful visual reminder of the structure and was used alongside the textual analysis.

Quotes are used in Chapter 5 to provide illustrative examples to support the narrative. For each quote, an identifier of the form IXX, e.g. [I01], is positioned at the end of the quoted text to identify the responding institution. Any identifying descriptors, e.g. names of individuals or organisational units have either been removed or made more generic and enclosed in square brackets, e.g. [teaching and learning].

3.5 Stage 3a – UCISA Technology Enhanced Learning Case Studies

As part of validating the findings from the first two stages and to respond to the small sample sizes for the previous stages, it was decided to carry out a directed content

analysis of the UCISA TEL Case Studies using the themes identified during the survey and interview stages.

Since 2010, the Universities and Colleges Information Systems Association (UCISA) have carried out case studies to accompany and complement their biennial TEL survey. The case studies are the result of interviews with institutions who have responded to the UCISA TEL Survey in order to “probe themes in the data and shed light on TEL trends through the eyes of representative institutions, offering context to the findings” (UCISA, 2014, p. 1). Whilst the case study themes have varied each time, there have been consistent questions around the areas of TEL support models, TEL governance and institutional culture. The following are the questions from the case studies which are most relevant to this study:

- To what extent does departmental or institutional culture affect uptake?
- How are TEL services organised and supported within your institution? How does TEL support relate organisationally to IT/library/information management support to educational development?
- Please explain the roles of the different TEL units within your institution; what systems do they support?; how are they supported?; what are the roles of the different staff?
- What governance structures are in place for TEL? (Who provides strategic steer/oversight for TEL services?)

- How did the current organisational structure for TEL services emerge? (Was it deliberately planned, or has it emerged organically over recent years? Have there been any significant changes in organisational structure over the last two years?)

3.5.1 Sample

In total 30 institutions have been interviewed by the UCISA TEL Survey team. Five institutions have been interviewed as case studies on more than one occasion, with one institution appearing in all four years. Table 3.5 shows the number of case study institutions for each year.

Year	2010	2012	2014	2016
Number of case study institutions	6	10	13	9

Table 3.5: Number of case study institutions for each UCISA TEL Survey

The breakdown by country is shown in Figure 3.6. No institutions from Northern Ireland have been interviewed, which corresponds to the low response rate from Northern Ireland in the UCISA TEL Surveys – typically only one institution. The breakdown by type of institutions is shown in Figure 3.7 and shows a pre-dominance of post-92 institutions amongst the case studies.

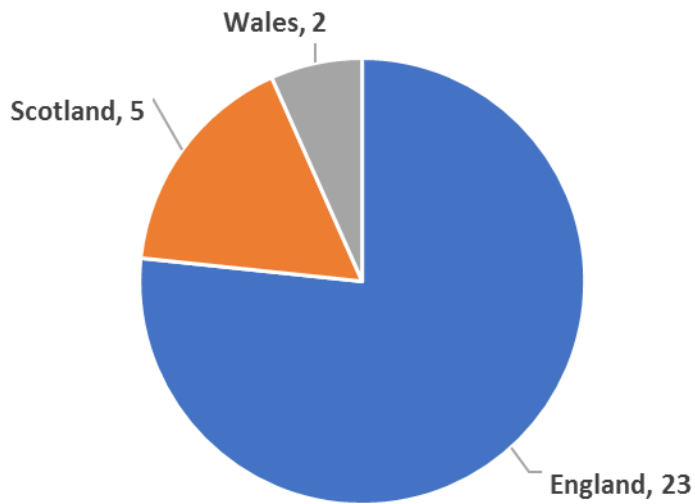


Figure 3.6: Number of UK HE institutions interviewed for the UCISA Case Studies, breakdown by country

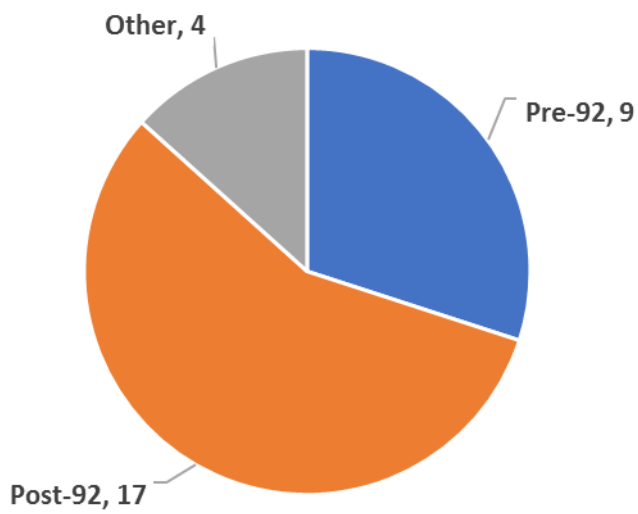


Figure 3.7: Number of UK HE institutions interviewed for the UCISA Case Studies, breakdown by institution type

3.5.2 UCISA Case Studies analysis

A directed content analysis approach involves analysing text based on a set of pre-determined categories obtained from theory or prior research with the purpose of validating an existing theory or conceptual framework (Hsieh & Shannon, 2005). Its use here was to enable the analysis of the UCISA TEL Case Studies considering the findings from the survey and interview stages in order to identify similarities and differences. The analysis involved importing the case study documents into NVivo (Version 11, 2015) and categorising against the themes that had emerged from Stages 1 and 2.

The results of the analysis have been incorporated into the discussion in Chapter 6 by providing further examples to compare and contrast with.

3.6 Stage 3b – TweetChat

A TweetChat is a public conversation using Twitter that is typically based around a single hashtag. An opportunity arose to undertake a TweetChat at the Association for Learning Technology's (ALT) 2016 Online Winter Conference (Voce, 2016) and it was felt to be a useful opportunity to engage with the TEL community around the findings that had arisen from the survey and interview stages.

3.6.1 TweetChat Design

The TweetChat was designed to be an interactive session that would present findings from the survey and interview stages with a view to probing further on key areas such as how central teams understand and meet local needs, the role of local

TEL support staff and developing and maintaining good relationships between TEL support teams. The TweetChat followed a common format used by other TweetChats, for example the Learning and Teaching in Higher Education (LTHEchat)⁶, such that there would be initial Tweets to introduce the session and the format of the TweetChat followed by a series of questions every five minutes. Several questions came in two parts in order to introduce a finding from the research, followed by the question itself. For example:

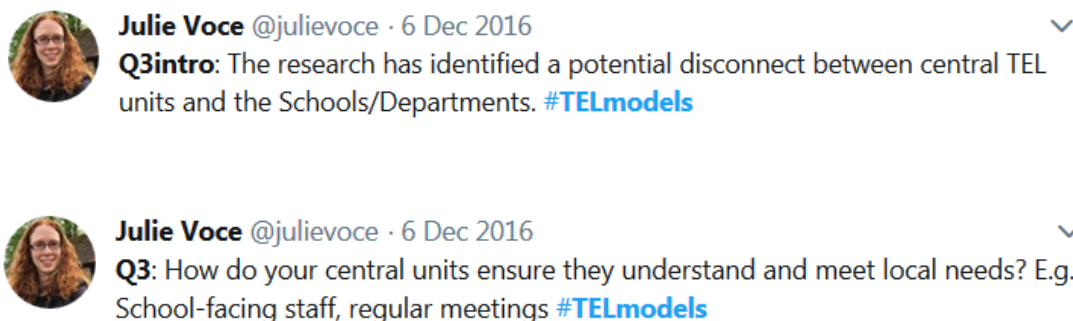


Figure 3.8: Example of two Tweets presenting findings followed by a question

One question relating to isolation of non-central learning technologists was split into two separate questions so that participants could respond based on their location in the institution (i.e. as a central learning technologist or as a locally-based learning technologist).

The TweetChat schedule and questions were verified with a peer in advance of the session to ensure they made sense and were modified based on the feedback

⁶ LTHEChat <https://lthechat.com/>

provided. The complete schedule of Tweets, including the questions asked, is provided in Appendix 3.

3.6.2 Conducting the TweetChat

The TweetChat was advertised as part of the ALT Online Winter Conference programme as well as via Twitter using the #altc hashtag. It took place on 6 December 2016 and lasted one hour. The session used the hashtag #TELmodels, which was chosen as it related to the topic and there had been no recent Tweets using this hashtag.

During the session, participants were asked to respond to eight questions that had been developed in advance of the session. In order to establish the background of the participants, they were asked to introduce themselves and their institutional support model for TEL. The questions then presented key themes from the research and asked participants to share what was done in their own institutions. Additional questions were directed to specific individuals based on their responses, for example to probe for further information. To help keep track of the different comments and conversations, a colleague helped with the TweetChat to retweet the questions and respond to participants.

One potential issue with using a public forum is that participants may be subject to the Hawthorne effect (McCambridge, Witton, & Elbourne, 2014), whereby their behaviour is influenced by being part of the study in a public forum, and as such not feel comfortable commenting negatively about their current institution or TEL support

model. To ensure this was not an issue, most questions tended to ask for factual information, as part of setting the scene, or asking how institutions do something, for example how central teams identify and meet local needs and how they develop good working relationships. Only one question, Question 5a, might have been influenced by this effect as it asked locally-based TEL support staff about whether they felt isolated from the centre. To mitigate against this, participants were not obliged to answer every question and so where someone felt uncomfortable, they could opt not to respond.

Eight questions within an hour proved to be ambitious; in addition, some participants joined the chat after it had started and so not everyone responded to every question.

3.6.3 Sample

In total, 32 people took part in the TweetChat. Participants were asked to complete an online consent form so that their responses could be included in this analysis; 24 people did this. Where participants had not completed the consent form during or after the TweetChat, a follow up Tweet was sent directly to them asking them to complete the form.

Whilst the primary focus of this research has been the perspective of a head of TEL, or equivalent, the TweetChat was not restricted and was open to all delegates at the conference. This provided a valuable opportunity to present the key themes from the research in order to verify whether the perspective of a head of TEL reflected the views of others working within TEL support. In addition, heads of TEL had identified

some potential themes around local TEL support, but due to their central role were not always aware of the views of local TEL staff. The TweetChat enabled the researcher to explore the views of locally-based TEL support staff around areas such as TEL communities and isolation.

TweetChat participants were all in TEL-related roles, predominantly heads of TEL and learning technologists (3 of which were based in school/department TEL teams). Those who identified as lecturers stated an involvement with TEL, such as being a champion for TEL within their department or school. Table 3.6 provides a breakdown of the roles held by the participants.

Role	Number of participants
Learning Technologist	10
Head of TEL	7
Lecturer	3
E-learning Developer	2
Academic Developer	2
Self-employed	1
IT Developer	1

Table 3.6: Roles represented by participants of the TweetChat

Excluding the self-employed participant, who was not affiliated to an institution, all participants represented higher education institutions, with only one person from outside of the UK. Table 3.7 provides a breakdown of the institutions by country. In some cases, there were two people from the same institution, which meant there were 21 institutions represented.

Country	Number of participants
England	18
Wales	3
Scotland	2
Australia	1
Northern Ireland	1

Table 3.7: Countries represented by participants of the TweetChat

3.6.4 TweetChat Analysis

In total, 411 Tweets were captured using the TAGS Google Docs plug-in (Hawksey, n.d.), which automatically collects and stores any Tweets using a particular hashtag, in this case all Tweets which used the #TELmodels hashtag. These data were exported into Microsoft (MS) Excel 2016 for analysis. An initial clean-up of the data took place to remove direct retweets, as they just repeated the same information as a previous Tweet, and to remove data from participants who did not consent. This left 357 Tweets remaining for analysis.

The data were then tagged with the correct question number (where possible) to make analysis of the responses to each question easier. Table 3.8 shows the breakdown of Tweets based on the tagging process. Tweets classified here as 'Question' were those taken from the Twitter schedule which asked the questions. 'Other Tweets' were those that could not be associated with a question, for example Tweets to welcome latecomers to the chat, those where the discussion had gone off topic or where it was not clear which previous Tweet was being responded to.

Tweet type	Number of Tweets
Question	21
Response to Question 1	38
Response to Question 2	34
Response to Question 3	34
Response to Question 4	44
Response to Question 5	19
Response to Question 6	19
Response to Question 7	9
Response to Question 8	16
Other Tweets	123
Total Tweets	357

Table 3.8: Number of Tweets per type based on tagging of Tweets

Each participant's Twitter ID was anonymised and replaced with a code of the form TCXX (where XX indicates a number, e.g. TC01) throughout the data to ensure that where responses quoted a Twitter ID the conversation between participants could be identified. Data analysis of the text of the Tweet was then carried out in MS Excel 2016 using filters and key-word analysis and the findings were incorporated into Chapter 5 alongside the data from the interview findings. MS Excel was chosen for the textual analysis primarily due to the short nature of the responses (up to 140 characters) and because the data were already in MS Excel format. As the TweetChat questions were aligned to the themes under analysis, it was easy to use filters to identify the relevant responses for each theme. Additional columns were used to categorise data; for example, identifying the type of TEL support model for each respondent. Appendix 4 provides an example of how the data for questions 1 and 2 of the TweetChat have been analysed.

Where quotes are used in Chapter 5, an identifier of the form TCXX, e.g. [TC01], is positioned at the end of the quoted text. Where a response from an individual was sent via multiple Tweets, these have been combined for ease of reading.

3.7 Research ethics

This study was considered to be low-risk from an ethical perspective as it did not include vulnerable participants or carry out medical or psychological experiments. Participants were able to choose whether to take part in each stage of the research and had the option to withdraw within a set period of time with no penalty for doing so. For the survey and interview stages, participants were asked to provide

institutional information and their own opinions but were not asked for any personal information, other than to self-declare themselves as being in a head of TEL or equivalent position within the institution. For the TweetChat, participants were asked to provide details about their role to help with understanding their viewpoint in the discussion as the TweetChat was open to all, rather than specifically heads of TEL.

The main ethical consideration for this study was the confidentiality of the data, stored in the form of MS Word documents (transcripts and secondary data files) and audio recordings (MP3). A section about protecting data and participant identity was included in the Participant Information Sheets provided to participants of the survey, interviews and TweetChat. This referenced the UK Data Protection Act (1988) and described the types of documents/files that would be kept, how long they would be kept for and where they would be stored, including the security aspects of the storage. Participants for the interviews and TweetChat were asked to complete consent forms which confirmed anonymity of the data and specifically requested permission to use quotations using a pseudonym. Anonymity was ensured by assigning a number to each respondent (e.g. I01 for Institution 1) and using this during both the data analysis phase and where direct quotes are provided in the thesis. In addition, identifying descriptors, such as names of committees or senior members of staff have either been removed or made more generic and enclosed in square brackets, e.g. [Teaching and Learning Committee].

For the survey stage, the institution name was collected to avoid duplicate entries and was removed before data were analysed. Participants were asked to provide

their name and contact details if they were interested in taking part in the interview stage; these data were also removed before analysis took place.

For the interview stage, the interviews were audio-recorded, with permission from the participants granted via the consent form. The audio files were stored initially on a password-protected device during the recording and transcription phase and then moved to secure, encrypted online storage provided by Lancaster University.

For the TweetChat, confidentiality was difficult to ensure for direct quotes due to the public nature of Tweets and the ease of searching within Twitter based on specific wording. Advice was taken on how to deal with this issue from an ethical perspective and it was agreed that this would be highlighted on the TweetChat consent form by noting that anonymity could not be guaranteed where Tweets had not been deleted by the author or where deleted Tweets had been retweeted with comments or quoted. For this reason, there was minimal inclusion of TweetChat quotes within the findings.

Ethical approval for this research was granted by the Research Support Office at Lancaster University. No ethical issues or concerns were raised during the course of the research.

3.8 Robustness of the research

Trowler (2012) suggests that when considering the robustness of the research one should look at “how well-designed it is to achieve its goals and how securely it was carried out” (p. 478). In a quantitative world, terms such as validity and reliability

would be commonplace in this part of the thesis; however, validity is a fairly contentious term in the Mixed Methods Research (MMR) community, with researchers favouring terms such as quality (Tashakkori & Teddlie, 2008) and legitimation (Onwuegbuzie & Johnson, 2006) or terms associated with qualitative research, such as trustworthiness and authenticity (Lincoln & Guba, 1985). Long (2017) states that the discussion around validity in MMR is still its infancy; however, there has been some work towards the development of frameworks to evaluate the quality of MMR (Dellinger & Leech, 2007; O’Cathain, 2010; Tashakkori & Teddlie, 2008).

The ‘integrative framework’ developed by Tashakkori and Teddlie (2008) has been chosen to evaluate the robustness of this research as their framework is recognised as the “most comprehensive approach to assessing the quality of mixed methods research” (O’Cathain, 2010, p. 536), has undergone several iterations since its inception and forms the basis of other frameworks for evaluating MMR. This framework is based on two key constructs:

- **Inference quality** – corresponding to validity this is the evaluation of the quality of the conclusions made and is composed of two aspects – design quality and interpretive rigour.
- **Inference transferability** – corresponding to generalisability, this indicates “the degree to which these conclusions may be applied to other *specific* settings, people, time periods, contexts, and so forth.” (Tashakkori & Teddlie, 2008, p. 105)

These constructs are now explored in the context of this research by looking at the design quality, interpretive rigour and inference transferability.

3.8.1 Design quality

Design quality “refers to the degree to which the investigators have utilised the most appropriate procedures for answering the research question(s), and implemented them effectively” (Tashakkori & Teddlie, 2008, p. 114). The areas considered here include the suitability of the design in relation to the research questions, whether the techniques and procedures chosen (e.g. sampling, data collection, data analysis) are appropriate, have been implemented adequately and that they fit together in a seamless manner.

In terms of the suitability of the design, the two-stage approach of a survey followed by interviews is a common approach within MMR and correlates to other similar studies in the field of educational research (Almpanis, 2015b; Fox & Sumner, 2014; Ivankova & Stick, 2007; Jones & Wisker, 2012). The incorporation of a TweetChat and the inclusion of data from the UCISA TEL Case Studies (Browne et al., 2010; UCISA, 2012, 2014, 2016) adds an additional element to the interpretation and enables some validation of findings with the community and the literature.

The sample for the survey and TweetChat were self-selecting which potentially introduces some level of self-selection bias; however, given the many different TEL support models identified in both the research and literature, the findings here are illustrative rather than representative, so this bias is less of a concern.

The sample chosen for the interviews was primarily a subset of the participants from the survey. This approach is recommended by Creswell and Plano Clark (2011) for an explanatory sequential design as the intention is to expand on the results from the first stage in the second stage and so the participants who contributed to the quantitative phase are best suited to provide more details for the qualitative phase. The participants were selected based on their perceived cultural type and dominant TEL support model to ensure a good mix of TEL support models and cultural types were represented. To reduce the potential effect of self-selection in the survey, a snowball sampling approach (T. P. Johnson, 2014) was used to identify institutions that the interview participants thought might be of interest. One institution from the five chosen for the interviews came from this approach. The number of participants in the interview stage was limited primarily due to author workload and time constraints. The iterative analysis phase was producing themes that were common across several cases, so the sample size was felt to be adequate given the aim of the research was to be illustrative. In addition, the incorporation of the analysis of the UCISA TEL Case Studies added further breadth to the sample.

For the data collection, the author has prior experience of running both surveys and interviews. Delivering a TweetChat was a new experience; however, the author has previously participated in several TweetChat sessions so had an understanding of the approach and referred to guidelines on how to run a TweetChat (Mathison, 2017). In all stages, the questions were piloted in advance to validate and refine the question sets.

One of the limitations of the UCISA case studies is that they have been written by several authors and so the coverage of the questions under consideration here varies in terms of the presence of a response and the descriptive quality/quantity. For example, only 13 of the 30 institutions reference the effect of culture on the uptake of TEL. In addition, the question around culture is fairly closed and in several cases the response is that TEL uptake is affected by culture, with little explanation of what the effect is. Despite this, the analysis has provided further explanation and verified the key themes emerging from this research.

Data analysis was carried out using industry-standard tools, in this instance SPSS (Version 23.0, 2015) and NVivo (Version 10, 2012; Version 11, 2015), for which the author attended training on best use of the software. The use of constant comparison and memos meant that key themes were captured as they emerged and could feed into the subsequent interviews.

3.8.2 Interpretive rigour

Interpretive rigour considers the credibility of the interpretations made from the results of the research and is described by Tashakkori and Teddlie (2008) as meeting the following five criteria: 1) interpretive consistency; 2) theoretical consistency; 3) interpretive agreement; 4) interpretive distinctiveness; and 5) integrative efficacy. This research is therefore reviewed in line with these criteria.

Considering the criterion for theoretical consistency, the findings are consistent in part with the literature, and the correlation with specific studies is highlighted in the

discussion chapter. Where there are differences, such as the finding relating to committee structures for TEL governance, these have been highlighted in line with the literature.

As discussed further in Section 5.6, in order to provide an initial validation of the findings and linking to the criterion for interpretive consistency, this research was presented as part of an interactive workshop at the 2017 Association for Learning Technology Conference (ALT-C) (Voce, 2017b). The workshop asked participants to relate their own institution's support for TEL against the findings relating to the predominant TEL support model, the means of understanding and supporting local needs and the role of TEL governance. The outputs from the workshop suggested that the conclusions drawn were comparable with the views of those attending the workshop, who represented around 20-25 different institutions from UK HE.

3.8.3 Inference transferability

As described previously, inference transferability relates to the degree to which “conclusions may be applied to other *specific* settings, people, time periods, contexts, and so forth” (Tashakkori & Teddlie, 2008, p. 105). Due to the small sample size for the survey (23%) and the number of interviews (5), the findings presented here were not expected to be transferable to the whole UK HE sector, but to provide an illustrative overview of some of the TEL support models in place within UK HE and identify the issues surrounding adoption in relation to TEL support and perceived organisational culture. Validation of findings from the first two stages with the analysis of the UCISA TEL Case Studies has demonstrated clear similarities and

differences with other institutions. Initial presentation of findings via the TweetChat (Voce, 2016) and at ALT-C 2017 (Voce, 2017b) found some resonance with practitioners in the sector and as such they serve primarily as a starting point for heads of TEL to consider their own TEL support model. To enable them to do this, the Framework for Action presented in Appendix 5 provides a self-reflective, evaluative tool for heads of TEL to consider specific areas of their support model based on the three key areas highlighted in the findings: 1) size and location of TEL support; 2) identifying and supporting local needs; and 3) TEL governance. The Framework for Action was trialled with three peers, who completed it based on their current or previous institution. Their feedback indicated that the Framework would be a useful tool for reflecting on TEL support; however, further testing would be required to evaluate the framework's effectiveness in supporting a review and re-organisation of TEL support.

3.9 Summary

This chapter introduced the context for the research and the rationale behind the choice of a mixed methods approach which led to the use of a three-stage explanatory sequential design. It described the various components of each stage of the research design, such as the design, deployment, sample and analysis. Ethical considerations for the research were highlighted and focussed primarily on the confidentiality of the data. The chapter concluded by considering the robustness of the research by using Tashakkori and Teddlie's (2008) 'integrative framework' to review the design quality, interpretive rigour and inference transferability.

The following two chapters present the findings from the data collection stages of the research: survey, interviews and TweetChat. The findings are then combined and discussed in Chapter 6 alongside the analysis of the UCISA TEL Case Studies.

Chapter 4 Survey Findings

4.1 Introduction

This chapter reports on the results of the survey, which consisted of ten questions (Appendix 1) and was sent to representatives of the Heads of E-learning Forum. In total, 33 heads of TEL or equivalent responded to the survey. Section 3.3.4 provides a breakdown of the respondents by institutional type and country. As part of the data analysis, the 33 responding institutions were anonymised and assigned a number from 1 to 33. Where quotes are used an identifier of the form IXX, e.g. (I33), is positioned at the end of the quote. Any identifying descriptors, e.g. names of individuals or organisational units have either been removed or made more generic and enclosed in square brackets, e.g. [Teaching and Learning].

The results are presented according to the different themes from the survey, considering first the types of TEL support model, followed by the effectiveness of existing support models, how the support models have changed, and finally the effect of the perceived organisational culture on the adoption of TEL and the structure of TEL support.

4.2 Types of TEL support model

Question 2 asked respondents to describe their institution's support model for TEL based on the following four categories, which were adapted from the Hughes, Hewson and Nightingale model (as cited in McNaught (2002)):

- **Centralised** – a single, central unit combining a number of different support areas for TEL.
- **Integrated/"hub and spoke"** – a central unit which co-ordinates school/faculty-based TEL staff/units.
- **Parallel** – separate units located centrally or in faculties/schools, with some co-ordination.
- **Distributed** – a range of units located centrally or in faculties/schools, with no or little overall co-ordination

Where a category was not relevant, respondents could choose 'Other' with the facility to provide further information.

Type	No.	Percentage
Centralised	16	48%
Integrated/Hub and Spoke	3	9%
Parallel	7	21%
Distributed	1	3%
Other	6	18%

Table 4.1: Types of institutional support model

The respondents who selected 'Other' tended to report a central unit with some local elements, although these local elements were either not closely associated enough or consistent across the institution to be considered a fully integrated/hub and spoke

model. For example, I33 reported 'Mainly centralised but with one distributed unit (in the Business school)'. One institution reported they were undergoing a transition from a distributed to an integrated model.

Question 3 asked respondents to provide some information about their TEL support model by identifying the units involved, the numbers of staff and the type of support provided by each unit. The number of TEL support units per institution ranged from one to six, with an average of around three units per institution. Of 16 respondents who selected a centralised structure, only three had a single TEL support unit. For those with more than one TEL support unit, this contradicts the definition for centralised TEL support which states "a single, central unit"; this was explored further in the interview stage.

The number of full time equivalent (FTE) staff supporting TEL ranged from 2 to 31, with the average around 13 FTE. The majority of centralised teams had 10 or fewer FTE.

The categories provided for the type of support were adapted from those suggested by Steeples and Zenios (2005) and were defined as:

- A. General Support** – Service role – Providing support for the use of existing centrally or locally-provided TEL tools

- B. Innovation** – Supporting the development of innovative TEL practices or tools

C. Course Development – Undertaking course development using TEL (e.g. preparing learning materials for an undergraduate or postgraduate programme)

D. Research – Undertaking research into TEL

Table 4.2 shows that Learning Technology Support Units (LTSUs) and Educational Development Units (EDUs) have the widest remit for supporting TEL, whilst IT support tends to focus on general support. It is of note that few local support teams have a remit for research, which tends to be carried out by the more central teams (LTSU and EDU). The question only asked respondents to indicate the type of support provided and so further detail about the nature of the activity, in particular what was considered to be research, was not available.

	A	B	C	D
	General support	Innovation	Course development	Research
Information Technology support	24	5	0	0
Learning Technology Support Unit	22	22	14	16
Educational Development Unit	10	16	11	14
Library	9	6	4	2
Dedicated local support	15	13	14	3
Outsourced supplier/specialist	3	2	0	0
Other	5	4	1	3

Table 4.2: Types of TEL support provided by different units.

Question 4 asked respondents about the co-ordination of TEL within their institution for both the operational and strategic/academic aspects of TEL development. As shown in Table 4.3, in the majority of institutions the head of TEL, or equivalent role, is responsible for the operational co-ordination of TEL. In most cases there is only one person responsible for the operational co-ordination (Table 4.4); however, one respondent noted four roles or groups with responsibility for operational co-ordination of TEL. This institution reported an integrated/hub and spoke model which could mean that operational co-ordination sits both centrally and locally.

	Operational	Strategic
Head of TEL, or equivalent	70%	58%
TEL Committee	15%	36%
Head/Director of IT	24%	21%
Head/Director of Education	3%	30%
Pro-Vice Chancellor for Education or equivalent	3%	61%
Departmental representatives	36%	27%
No co-ordination	0%	3%
Other (please specify)	9%	21%

Table 4.3: Responsibility for co-ordination of TEL

Type of co-ordination	Number of roles/groups			
	1	2	3	4
Operational	14	7	7	1
Strategic	5	6	13	7

Table 4.4: Number of roles/groups with responsibility for co-ordination of TEL

Strategic responsibility sits mainly with the head of TEL or the pro-vice chancellor for education (or equivalent senior management role); however, this responsibility appears to be shared across more roles with the majority of institutions noting three

different roles. It is possible that the TEL committee (or equivalent) encompasses these roles and therefore provides the main co-ordination. The interview stage probed further about governance of TEL.

Of the other roles noted, they were primarily on the strategic side in senior management roles such as dean of students and other deans.

4.3 Effectiveness of existing support models

Questions 6 and 7 asked respondents to identify the strengths and weaknesses of their existing TEL support models.

4.3.1 Strengths

A centralised approach and co-ordination, whether within a centralised or hub and spoke model, was seen to be a key strength by nine respondents:

Able to see across the whole university from a central position and bring together those working on similar initiatives. [...] (I18)

Central structure allows for close co-ordinate of activities and initiatives and ability to direct resources in response to specific needs/institutional priorities. [...] (I28)

To complement this centralised approach, seven respondents also noted the value in alignment with local needs through local expertise, local champions or good links between the centre and departments:

Moving to hub and spoke – gives central overview whilst maintaining local expertise (I05)

[...] Support model aligns Learning Technologists with a specific set of schools to enable them to develop an understanding of disciplinary pedagogies, practices and needs and to offer tailored rather than generic support. (I28)

Location within a department with a teaching and learning focus was felt to be a strength as it provides a greater emphasis on pedagogy and helps to distinguish TEL support from IT support.

TEL team is embedded within academic support unit, reporting to [Pro Vice Chancellor for Teaching and Learning]. Support is therefore seen as pedagogically informed. (I31)

Having central TEL team within [Academic Development Unit] highlights learning and teaching focus. (I16)

Another area highlighted was the need for good working relationships between different TEL support areas or heads of those departments. Respondents also cited various attributes about their support model which were also considered strengths, for example being responsive and flexible, having the ability to innovate, and being able to work autonomously from processes or management structures which might slow other institutions down.

4.3.2 Weaknesses

Considering the weaknesses of the support models the key issues related to staffing numbers, the lack of specialist skills and the lack of support in particular areas (e.g. for pedagogy, or at a local level):

Insufficient number of staff all appropriately skilled and qualified.

(I15)

A lack of systematic, readily available local support i.e. people for busy academic staff to turn to, quickly, for ideas, guidance and direct support. Poor communication of what is possible and what is available from the centre out and across disciplines. [...] (I04)

[...] No direct TEL support for colleagues who are non-school based, in other central departments. (I16)

Contrasting with the strength of a centralised approach, a couple of respondents noted issues with central teams not being exposed to local TEL requirements:

Not having TEL support in the faculties means it's not so easy for us to see the challenges that are facing academics. This means we are more reactive (in responding to requests) rather than proactive (in seeing what is happening and suggesting options). (I14)

Both these questions elicited limited responses, so this area was explored further in the interview stage.

4.4 Changes to TEL support models

Question 5 asked respondents whether their TEL support model had changed in the past five years; 24 respondents indicated that it had.

	No.	Percentage
Yes	24	73%
No	9	27%

Table 4.5: Whether an institution's TEL support model changed in the past five years

The types of changes made to TEL support models have focussed on providing better co-ordination for TEL support, for example moving from a distributed to a parallel model, or from a mix of central/local teams to a more co-ordinated/integrated hub and spoke model.

Previously central team and local teams, in a hub and spoke type arrangement without formal line management. Now centralised with responsibility and management falling to the centre and greater emphasis on projects, but still a local presence. (I20)

In some cases, the main change was an increase in headcount, either within existing teams or as a new team. This increase enabled one institution to provide more school-facing advisors from within its central team:

[...] the difference is that we have a greater headcount and can therefore allocate dedicated TEL advisers to each of our 3 academic Colleges (I10)

Another change noted was the reporting lines for the TEL support teams or a change to the governance structures.

Considering why TEL structures have changed, eight institutions referred to wider organisational changes or restructures which lead to new TEL support models, in particular more emphasis on local support for TEL.

It forms part of a wider organisational change at our institution. Our department was restructured to support the new College based structure and to reinforce the importance of TEL at our institution (I10)

University wide re-structuring took place around this time and additional resource was made available for new Learning Technologist posts in the three new academic schools. (I16)

This also tied in with a greater strategic focus on TEL and more generally on alignment with teaching and learning strategies:

Growing recognition by institution of the strategic importance of TEL (external and internal drivers + student expectations) and the need for local support for innovative pedagogical approaches using TEL. (I16)

Looking to the future, Question 8 asked respondents whether they would like to change their existing TEL support model, with 20 answering that they would. It is interesting to note that of those 20, 15 reported that their structure had changed in the last five years. This would indicate that TEL support models are still quite transient.

	No.	Percentage
Yes	20	61%
No	12	36%
Don't know	1	3%

Table 4.6: Whether respondents would like to change their TEL support model

Cross-tabulating these responses with the types of TEL support models noted in Question 2, there is a noticeable switch away from the more separated structures (e.g. parallel and distributed).

Type	Yes	No	Don't know
Centralised	8	7	1
Integrated/Hub and Spoke	0	3	0
Parallel	6	1	0
Distributed	1	0	0
Other	5	1	0

Table 4.7: Cross-tabulation of responses for Question 2 (types of TEL support model) and Question 8 (would you like to change your TEL support model)

The reasons for change focus around providing a more consistent and co-ordinated approach, in particular in terms of communication and decision-making. There was also interest in better aligning TEL support with school or department needs.

Provide more consistent and equitable support across the university.

Hub and spokes models to meet local needs but also ensure transfer of knowledge and expertise and ideas (I24)

Current structure is fragmented with unnecessary layers of communications and weak interfaces in terms of decision making. (I28)

In terms of the possible changes to the structure, five institutions highlighted a need to increase the number of TEL support staff. Six institutions highlighted a possible change to a 'hub and spoke' model or, at the minimum, better interaction between

central and school-based teams. This would ensure that TEL has appropriate levels of support at a local level.

4.5 Effect of organisational culture on TEL support

Question 1 utilised McNay's (1995) classification of cultural types (bureaucratic, collegium, corporate and enterprise) and asked respondents to describe the dominant culture of their institution by assigning ten points between the culture(s) they felt were most dominant within their organisation.

The aim of this question was to get respondents to think about the types of culture that might exist within their institution and in turn how TEL support might be affected by institutional culture. By asking them to assign ten points, it meant they could identify multiple-cultural configurations at an institutional level rather than being forced to select a single cultural type. The question did not specifically address culture at a school or department level, but this may have been reflected by respondents in the overall institutional culture. As mentioned in Chapter 3, the aim here was to identify the perceived culture, based on the perceptions of the head of TEL, and so the cultural type chosen was based on an individual's viewpoint and is therefore unlikely to reflect the true cultural composition of the institution. However, it does bring some insight into the thoughts of the respondent and the potential challenges they may face as a result of their perceived cultural configuration.

Of 33 respondents, only two respondents assigned all ten points to one cultural type (one bureaucratic, the other corporate). The remainder assigned points to two, three or four cultural types, with the majority assigning points across three cultural types.

Figure 4.1 shows the breakdown of the number of respondents assigning points to the different cultural types.

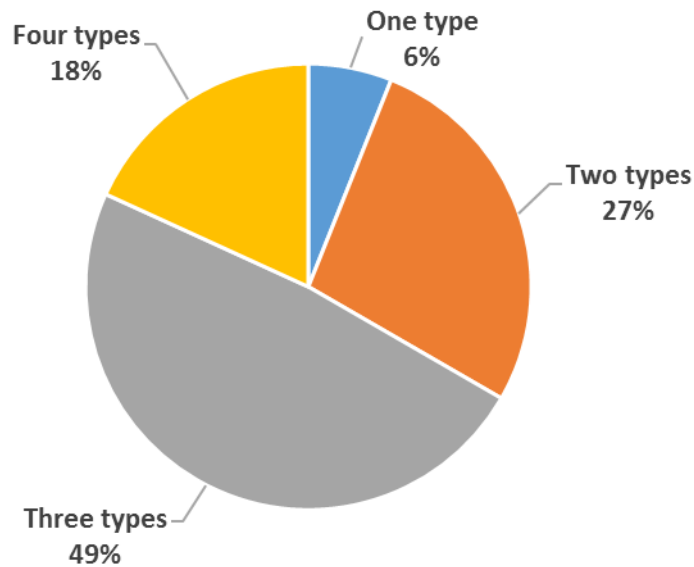


Figure 4.1: Chart showing the percentage of respondents choosing 1, 2, 3 or 4 different cultural types

Considering the total points assigned by all respondents (a total of 330), Figure 4.2 shows the percentage of the total points assigned to each cultural type. It is notable that only 9% of the points were assigned to an enterprise type, indicating that this type is not perceived to be largely present within the HE institutions represented here. The majority were assigned to corporate (34%) and bureaucratic (31%).

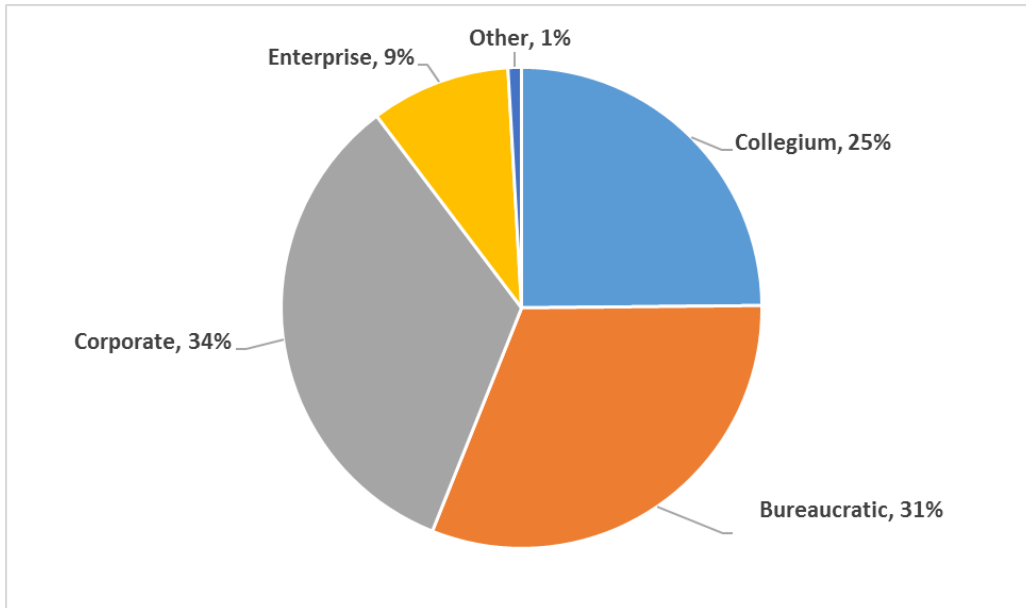


Figure 4.2: Percentage of total points assigned to each cultural type

Mapping perceived cultural type per institution, based upon the cultural type with the most points assigned, against the type of TEL support model, as described in Section 4.2, Table 4.8 shows that there is no correlation between the perceived institutional culture and TEL support model. The final type “no dominant culture” is where respondents gave equal points to two or more cultural types.

Perceived dominant cultural type	Type of TEL support model				
	Centralised	Integrated/ Hub and Spoke	Parallel	Distributed	Other
Bureaucratic	3	0	1	0	2
Collegium	4	0	2	0	2
Corporate	7	2	4	1	1
Enterprise	0	0	0	0	0
No dominant culture	2	1	0	0	1

Table 4.8: Perceived dominant cultural type mapped against type of TEL support model

Considering whether culture affects the adoption of TEL and the structure of TEL support, Questions 9 and 10 asked respondents about institutional and departmental culture and to describe the effects. Question 9 focussed on the effect of institutional culture.

	No.	Percentage
Yes	29	88%
No	2	6%
Don't know	2	6%

Table 4.9: Whether respondents felt TEL support and adoption is affected by institutional culture

In the majority of cases, respondents felt that institutional culture affected TEL support and adoption in both a positive and negative way and was primarily influenced by institutional priorities. These priorities can be split into main two areas:

- The value of teaching, and in turn TEL, compared with research and the role of TEL in an institution's ambitions or mission. This was seen as both a hindrance and a help depending on an institution's stance.

Previously, when the culture was orientated around TEL being an option or a 'nice-to-have', the supporting structures were low level and under resourced, with adoption left to enthusiasts. With TEL now seen as core to the University's ambitions, the structure has been improved and grown, and there are expectations for everyone to engage with TEL. (I33)

- Whether an institution has taken a top-down approach to delivering TEL, e.g. through directives such as online coursework submission or an opt-out

approach to lecture capture. This was generally seen to be of benefit to the adoption of TEL and ensuring the necessary support is put in place.

Directives such as online coursework submission have meant that staff have a requirement to use the VLE and in turn are more aware of the tools and technologies available. (I14)

The institutional culture supports TEL with some top down initiatives supporting the roll out and development of TEL. (I18)

Nine respondents identified an institution's senior management as key in influencing the adoption of TEL and the provision of appropriate levels of support, providing they have the necessary understanding or experience of TEL:

Good senior management support is driving forward initiatives (I05)

We now have new leadership at the highest levels [...] and these individuals are helping to shift attitudes to learning and teaching and to TEL. (I22)

[...] We lack strong leadership and vision at senior management level – specifically with our [Pro Vice Chancellor for Teaching and Learning] who has not engaged meaningfully with TEL developments. (I31)

Lack of institutional investment in TEL, in terms of funding for innovative and opportunistic projects, TEL infrastructure and staff resources were also noted as a

hindrance. In addition, lack of staff time for TEL correlates back to issues with institutional priorities.

Lack of investment in anything other than buildings and SMT means that services are run with minimum resources and maximum expectations of impact. (I29)

Question 10 then looked at whether respondents felt that their TEL support and adoption of TEL was affected by departmental culture.

Affected by departmental culture	No.	Percentage
Yes	28	85%
No	3	9%
Don't know	2	6%

Table 4.10: Whether respondents felt TEL support and adoption is affected by departmental culture

In the majority of cases respondents felt that departmental culture affected TEL support and adoption of TEL within departments, with 12 respondents citing departmental leadership as a key factor in determining whether staff adopt TEL and in turn how TEL should be supported:

Leadership is critical and even given the lack of central support some faculties/departments are promoting/sourcing support and being innovative in their practice (I01)

Clear leadership within departments and again departmental policies directly affect engagement. E.g. is the department seeking to adopt online assessment and feedback, if so, this would influence the extent to which they engage with TEL initiatives. Furthermore, such initiatives would quite likely (if appropriately justified) lead to the creation of support models based within the department or existing roles adapted/new ones created to support TEL more locally or to oversee the online assessment and feedback processes department-wide. (I10)

It was also noted that departmental priorities had a bearing on the importance of TEL and the resources invested by departments:

All schools/faculties have a strategic plan which includes TEL, however the attitudes of senior management and department heads tend to influence culture, and if TEL is not a priority with them, it won't be with their team. (I17)

In addition, eight respondents highlighted perceived cultural differences as a result of disciplinary differences, as a contributory factor:

There are clearly disciplinary differences which can impact how appropriate and useful some types of TEL supported/enabled activity are (I06)

Some departments have a quite corporate culture, others are deeply autonomous internally. There is no standard set of roles for leading IT, admin and education, each department operates differently. (I30)

Other reasons cited included school or department independence or autonomy over teaching, in particular TEL. Staff other than the heads of department were also noted as being particularly influential in either adopting or resisting TEL.

Blockers do exist. Staff can be resistant to change if they are early or late in their careers. We had one school where staff waited for members to leave or retire before introducing new practices. (I27)

The influence of organisational culture is a key area of this research, relating to research sub-question 3. The interviews explored further the effects of organisational culture on the adoption of TEL and used some of the examples provided by the survey respondents to probe further in this area. The role of influential people was noted here as a key area to look at, especially given the positive and negative influence of senior management and heads of department.

4.6 Summary

The survey identified several key themes to be followed up during the interviews:

- **The evolution of TEL support** and how institutions have reached the TEL support model they have today and what changes they will make in the future.
- **The role of governance structures** in co-ordinating TEL at both operational and strategic levels.

- **The influence of institutional and departmental culture** on the adoption of TEL and the structure of TEL support, specifically the value of teaching and top-down versus bottom-up approaches.
- **The role of influential people**, such as senior management and heads of department.

The next chapter reports on the findings of the interview stage.

Chapter 5 Interview and TweetChat Findings

5.1 Introduction

This chapter reports on the five interviews undertaken with institutional heads of TEL and reflects the structure from Chapter 4. It starts by considering the evolution of TEL support and then presents the types of TEL support models for the five institutions, considering the interplay between central and local support and the role of TEL governance structures. It then looks at the effectiveness of the support models in place and identifies possible improvements. Finally, the effect of perceived organisational culture is discussed, in particular the role of influential people within the institution. To complement the interviews, participants were asked to provide supplementary material which has been included in the analysis.

This chapter also incorporates the results from the TweetChat (described in Section 3.5) that was run as part of the 2016 Association for Learning Technology (ALT) Online Winter Conference⁷ to gain further insight into some of the key themes from the initial analysis.

The chapter concludes by presenting the results from a workshop at the 2017 ALT Conference (Voce, 2017b) in order to provide an initial validation of the key themes.

⁷ ALT Online Winter Conference - <https://altc.alt.ac.uk/online2016/>

5.2 Evolution of TEL support

Participants were asked to describe the history of TEL support within their institution, considering how their structure had evolved and any critical incidents that had impacted on the evolution of TEL and the corresponding support model. The definition of a “critical incident” used here is based on Butterfield et al.’s (2005) description of the features of Flanagan’s (1954) Critical Incident Technique, such that the “focus is on critical events, incidents, or factors that help promote or detract from the effective performance of some activity or the experience of a specific situation or event” (Butterfield et al., 2005, p. 482). The aim was to get participants to think about the key actions and events, both positive and negative, that have helped or hindered the development of TEL support within their institutions.

In all cases, TEL support grew fairly organically within the institution, starting with one or two individuals supporting TEL either centrally or within schools or departments. The majority of participants noted that support for a Virtual Learning Environment (VLE) was the primary reason for the creation of TEL support, with the posts within the team being employed on a fixed-term basis initially:

I was hired to join the university on a fixed term contract to look into the scope for the development of an institutional VLE. [I05]

In several cases the evolution of their teams has been minimal, primarily relating to the recruitment of additional staff and the growth in the types and numbers of

technologies supported; however, as TEL became more embedded, several participants noted a critical incident in the form of a re-organisation which has resulted in the structures that are in place today.

And then in [year] we had a new Director [in the IT department] and he had a grand plan to focus much more of the resource on learning and teaching and on research and so this meant a re-organisation.

And so, I was invited to draw up the perfect structure for our area and the size of the team. So, we went from, I think, 8 staff to 18 staff through that, which was good, so more than doubling. [I03]

The university decided to restructure... the [Teaching and Learning unit] was replaced with a new [Academic Development] office and a separate Technology Enhanced Learning office was established as well and this was part of the University decision to shine a light on technology enhanced learning as a strategic initiative to really increase the resourcing and capacity around that. [I04]

In most cases the re-organisations have been positive for the TEL teams; however, some have left uncertainty about roles, especially where units with a similar focus are being combined. One institution noted that an institutional re-organisation had resulted in a greater push for the use of technology, which enabled the TEL teams to capitalise on this by putting in place named TEL contacts within the schools.

Other critical incidents that have directly shaped TEL support in a positive way include:

- Receiving external funding from the Higher Education Funding Council for England (HEFCE), which paid for two learning technologists [I03] and funded pilot projects [I05]
- Strategic reviews/benchmarking which produced recommendations for TEL support staffing levels [I05] and for governance structures [I02]

Critical incidents relating to the adoption of TEL have also shaped the function of the TEL support teams and can be categorised into three key areas:

- New policies – for example e-submission and e-feedback policies [I02 and I04] and minimum standards for VLE courses [I02 and I04] which have meant that greater numbers of academic staff are required to engage with TEL.
- New strategic goals – for example, the provision of massive open online courses (MOOCs) [I01] and curriculum redesign [I05] which enable TEL teams to raise the profile of their work and work more strategically across the institution.
- New technologies – for example the provision of lecture capture technologies which have had a rapid uptake within the institution [I05]

The introduction of new policies, strategic goals and technologies has meant that TEL teams have had to expand their remit in terms of the number of technologies

supported and the type of work undertaken, which in turn has put a lot of pressure on staff resourcing.

We are asked to do more with the same resource. We were synonymous, we were called the VLE team and now we're no longer, we support a whole range of technologies. [I05]

However, this has been seen as a positive way to increase the visibility and reach of the team across the institution as well as to encourage adoption of TEL:

The e-submission project was a very high-profile initiative, and it exposed us to academic staff very prominently in that first year. [I04]

It's a positive thing in that it will provide us with opportunities through the back door to highlight the possibilities that technology can offer through having mainstream discussions on learning and teaching with academics, so it's giving us broader reach. [I05]

In addition, TEL teams have become more strategically focussed and their remit now also includes advising on strategy and policy as well as being involved in activities relating more to teaching and learning, rather than just the technology focus.

5.2.1 Looking to the future – anticipated changes to TEL support

The survey results reported that the majority of respondents intended to change their TEL support model in the coming five years. At the end of the interview, participants were therefore asked how their structure might change within that time frame. All

participants anticipated some form of change, with increasing the number of TEL support staff being the primary focus:

Our long-term mode now is to establish what we think is an appropriate ratio of staff to Learning Technologists as a basis for expanding the team in the future. So, we're reviewing that constantly, particularly as the university grows its student numbers. [I04]

However, due to a lack of funding and difficulties in recruiting to certain roles, some participants indicated that it may be necessary to look at graduate trainees or students to help expand the team:

One of the things we've been wondering about is recent graduates and train them on the job, you know as an apprenticeship. [I03]

In addition, there is a necessity to ensure the TEL teams can adapt and grow to support new and innovative activities, such as learning spaces or distance learning; however, without additional staffing this is likely to be a case of “doing more with either what we've got or less than what we've got” [I02].

5.3 TEL support model

Having established the evolution of their TEL structure, participants were asked to describe their current support model, in terms of size and function of the TEL teams, their location within the institution and the governance structures in place for TEL.

Table 5.1 provides an overview of the structure of TEL support in the five case study institutions. The institutions vary in terms of the support model, their location, the size of the primary TEL team and the type of local TEL support available. Here the primary TEL team is defined as the lead unit providing TEL support and typically where the head of TEL, or equivalent, is located. The primary TEL team is based in a central division or directorate, such as IT, educational development or the library. Whilst all the case study institutions were represented by a primary TEL team, there are examples within UK HE with a more devolved structure and therefore no identifiable primary TEL team (McElearney, 2010).

The type of TEL support model noted in Table 5.1 reflects those used in the survey and are adapted from Hughes, Hewson and Nightingale (as cited in McNaught (2002)).

Institution No.	TEL support model	Location of Primary TEL team	FTE of Primary TEL team	Local TEL support (FTE)	Location of TEL Governance
I01	Parallel	Teaching and Learning	5	1 Local Team (4) Individuals	Teaching and Learning
I02	Centralised	Information Services	6	Individuals (1)	Teaching and Learning
I03	Centralised	Information Services	18	1 Local Team (1) Individuals (3)	Information Services
I04	Centralised	Academic Registry	8	1 Local Team (2)	Teaching and Learning
I05	Distributed	Academic Registry	6	1 Local Team (3) Individuals (6)	Information Services Teaching and Learning

Table 5.1: Types of institutional support model for each case study institution

Table 5.2 provides an overview of the types of TEL support model reported by participants of the TweetChat with three main types of TEL structure present and three main locations for TEL support - either information services, teaching and learning or the library.

Type of TEL support model	Number of institutions
Centralised with separate local teams	12
Centralised	7
Parallel/Distributed	2

Table 5.2: Types of TEL support model reported by TweetChat participants

5.3.1 Type of TEL support model

Of the five case study institutions, three reported having a centralised structure, whilst the remaining two reported parallel and distributed structures. All participants reported having a primary TEL team which was based centrally. Considering the TweetChat responses, there were two examples where there was no central primary TEL team, however there was a central presence in the form of an individual learning technologist or equivalent.

The survey results identified a contradiction whereby those who identified as a centralised structure, typified by a 'single, central unit' also reported having several other units supporting TEL. This was also reflected in the TweetChat where several participants reported having 2-3 central teams providing TEL support. This was

explored further in the interviews and participants noted that whilst the primary TEL team was a single, central unit, hence identifying themselves as a centralised structure, they were reliant on other central teams, often in a separate part of the organisational structure, for delivering TEL support:

We're very central and we work in partnership with the [TEL Systems] team within our [IT department] who oversee the technical management/development of our Technology Enhanced Learning systems such as the Virtual Learning Environment. [I04]

This means there is a reliance on maintaining good relationships with the other teams supporting TEL. This is done primarily through regular meetings and well-co-ordinated governance.

We've worked hard to maintain the relationships with the IT support, because without them things just don't work. [I02]

Two participants (I03 and I04) reported having staff within the primary TEL team who are physically located with the primary TEL team but are assigned to a particular school or faculty. Defined here as 'school-facing staff' they are managed by the primary TEL team and act as a liaison or point of contact for the school; school-facing staff are often physically located with the primary TEL team, but in the case of a hub-and-spoke model, they may be located within a school or department office. The role of the school-facing staff is to "understand their specific needs and teaching processes and teaching practices and provide tailored advice and guidance aligned

to those processes and practices and needs” [I04] and then feed back to the primary TEL team. It was felt that there was an advantage to having school-facing staff within the primary TEL team, rather than distributed staff located within the schools as it helps to bring a level of consistency to their work and avoids having to get dispersed individuals to align with the primary TEL team. In Institution 03, one member of the school-facing staff had previously been located within a school, but they had since been relocated to the primary TEL team as the school felt that they would be better placed centrally, given the parallels with members of the primary TEL team.

In addition to having school-facing staff, Institution 03 also reported having one school-based learning technologist, who has a ‘dotted line’ to the corresponding school-facing member of staff in the primary TEL team for liaison purposes. ‘School-based staff’ are defined here as staff who are managed by the school and are physically located within the school; there may be an unofficial link to the primary TEL team. From the TweetChat responses, three participants also identified that in addition to the school-facing staff in the primary TEL team there were also separate school-based staff. This implies that despite having school-facing staff there may still be a need for schools to employ their own staff. It was noted by one respondent that the school-based staff supported specific programmes and, similar to Institution 03, there was some form of liaison between the school-facing staff and school-based staff:

Most of the TEL support is handled by our central team, but with one faculty having some programme-specific LTs. Programme had high

requirements for TEL support that we didn't have the resource to supply centrally. They do branch into other programmes in the faculty as requested, but in coordination with our Faculty LT. [TC07]

It would seem that the four types of TEL support model adapted from the Hughes, Hewson and Nightingale model do not adequately capture the complexities of the specific situations identified here, especially considering the reliance on other central units not directly within the primary TEL team and the role of local support staff. This will be discussed further in Chapter 6.

5.3.2 Composition of the primary TEL team

Considering the composition of the primary TEL team, for the majority of participants, the TEL team generally has a flat structure with all staff reporting to the Head of TEL. This is unsurprising given the size of the teams were between 5-8 people. The staff within the teams generally have similar roles, primarily learning technologists, and these roles often cover a number of areas. It was noticed that the generic nature of some of the roles can be both a help and a hindrance:

[...] we'd probably need to look within the team at that flat structure, it's a strength in some ways because it means everybody can cover for everybody else, but equally means that people don't get quite as specialised [I02]

Institution 03 reported the largest number of staff within the primary TEL team which had resulted in the evolution of the team into several sub-teams. This has meant a

shift in the roles of individual staff over time to become more focussed on specific areas, e.g. support, school-facing. However, this has also led to a narrowing of the roles and as such some of the staff, especially those primarily responding to support requests, feel that their roles are now less diverse and as a result less interesting.

5.3.3 Function of the TEL support units

Referring to the four types of TEL support suggested by Steeples and Zenios (2005), the interview participants reported that the main function of their primary TEL teams were categories A - providing support for the use of TEL - and B - supporting the development of innovative TEL practices or tools, with some participants also reporting a smaller focus on category D - undertaking research into TEL. This reflects the data from the survey findings. None of the case study institutions were involved in category C – course development.

The survey findings reported that the majority of IT support units were involved in providing support for the use of TEL. Interview participants suggested that this is primarily because first-line support for TEL, i.e. the initial contact point for all TEL-related enquiries, was typically located within the IT department as part of a consolidated helpdesk, often using a shared ticketing system.

First line support is managed through our [IT department]. So, we have someone who is effectively an E-learning Support Officer as part of the service desk structure within [IT], who triages all the issues and directs them into relevant queues whether it's for development, bugs, feature enhancements [I04]

We've got an IT support office which basically triages all support requests, so staff and students should fire off an email or ring IT support and then a footprint is created, which is part of our internal referencing system and that will go to us. [I05]

Several of the participants referred to joint initiatives with educational development units, for example the TEL team contributing to the Postgraduate Certificate in Academic Practice, to workshops and other more education-focussed activities.

The survey findings reported that few libraries were involved in TEL support and this was reflected in the interviews, where the main liaison point with the library was around online reading lists and information skills training:

The Library, it's surprisingly distant I'd say but I think there may be liaisons going on that I'm less aware of, but I think we should be much more joined up with them. [I03]

One participant reported a tension around the role of librarians in the digital space and noted that libraries have had to evolve to ensure their relevance, often beyond simply providing access to online resources. This could be an interesting area to explore from a Library perspective in relation to TEL.

These shared activities once again point to the importance of good working relationships with other departments supporting TEL and the wider teaching and learning initiatives. Section 5.4 considers the possible tensions and overlap with the other support units.

5.3.4 Local TEL support

All of the participants reported some form of local TEL support that was not co-ordinated or managed by the primary TEL team. The type of local TEL support is reported in Table 5.1 and often combines a mixture of individual learning technologists, supporting a particular programme or department, or a team of several learning technologists within a particular school or department. In some cases, the team are co-ordinated by a senior manager with direct responsibility for TEL, such as an associate dean. In all cases the local TEL support is paid for by the school or department.

Local TEL support staff were identified primarily as dedicated learning technologists; however, two participants reported having other local staff with a remit for TEL, such as departmental computer officers. It was noted that it was often difficult for the primary TEL team to keep track of all the local provision, especially where TEL only formed part of an individual's role.

The participants indicated that the primary reason for having local TEL staff was to meet local needs, which is something the smaller primary TEL teams felt they were not able to do as well as they wanted to.

It's also about a resource thing, we're a very small team [...] so with that level of staffing you can't really get out that far, so you do need to make use of local support as well. [I01]

I think that will be a sign of where we're exceeding our capacity. I've seen that in my previous institutions, when the centre haven't been able to respond to the needs of the school. The school have then usually gone to appoint their own and that's because they feel that there hasn't been the ability to service their needs. [I04]

However, this creates a disparity between the departments where some choose to fund their own local support and the others that do not:

There are some areas where there is no support at all. Even at a College level, some of the individual schools might not have local support, so it's how the Colleges want to manage that support. [I01]

So, it's really down to departmental drivers, you know we'd love every department to have one [a Learning Technologist], but smaller departments can't afford it, so it doesn't happen. [I05]

Lack of control over the local TEL support was mentioned by several participants as well as a concern that the local TEL staff might "go native" and start setting up their own technologies separate to the central provision.

Well, I think the key thing is, we have no control over that at all, it's really up to departments it's their decision and it comes out of their budget [...] [I05]

This can potentially be prevented by including the local TEL staff in the activities of the primary TEL team, for example inviting them to meetings or setting up a network

of departmental learning technologists in order to ensure they are aware of what support and technologies are available centrally.

He comes to all of our team meetings or many of our team meetings, he comes to the advisory meetings, he works with the champions, he can help to make sure that people in the Faculty are doing things in the right way or are aware of what's possible. [I03]

I maintain a regular connection with them both I think it's important [...] that they feel that there is this wider support network available to them. [I04]

In my current role our local TELs and my LT for their faculty meet regularly, and we support each other as much as possible. [TC07]

All TEL staff meet up together a few times a year to share news/activities from schools and central [TC15]

For some this may help with issues of isolation of local TEL staff who are the only ones in their school or department that were evidenced in the TweetChat, but as noted below this is not always the case:

I was local TEL staff in a previous role, and definitely felt very isolated in some aspects of my work. [TC07]

I'm invited to central team meetings, and work closely with technology enhanced learning advisor that works in my faculty. But that doesn't always stop me from feeling isolated. [TC06]

The primary TEL teams do acknowledge a need for local TEL staff, as it helps with developing close relationships with academics and providing a daily presence within the departments, but feel that they should be centrally co-ordinated where possible, especially to enable institutions to realise economies of scale and reduce overlap and duplication.

I think there's a lot to be said for having economies of scale, we can do a better job if we were doing things in a co-ordinated way, so it's economics really, scalability. [I03]

One participant noted that having dedicated staff locally would enable the primary TEL team to take on a more strategic role, whilst the local staff could take on the more day-to-day support work.

A key issue is, therefore, that the central teams feel they are not always able to adequately support local needs, primarily due to the size of the team or funding. Section 5.4.2 discusses some of the methods used by institutions to identify and respond to local needs and the effectiveness of those methods.

5.4 Effectiveness of existing support models

Participants were asked to describe how they ensure local needs are met alongside central co-ordination of TEL, the factors which affect the adoption of TEL, in

particular how their structure helps or hinders successful adoption, the effect of the location of TEL support within the institutional structures and the relationships with other TEL support teams. As defined in Chapter 1, 'successful adoption' is the widespread effective use of TEL across a department, school or institution where use goes beyond simply the provision of information or resources. The respondents here talked about adoption in terms of patchy take-up of TEL and engagement from academic staff with TEL activities as key factors in the adoption of TEL within their institutions.

5.4.1 Governance of TEL

This section considers the governance of TEL in relation to how TEL is represented within formal institutional committee structures and less formal user forums or working groups.

In all five cases, TEL governance is integrated into the main university reporting structure, with a clear reporting line to the top-level university committee, such as the Senate or academic board. In most cases, TEL governance sat at the bottom of three levels (see Figure 5.1) and reported into a mid-level committee either focussed on IT or on learning and teaching. Two participants reported having more than one lower-level committee to cover different areas of TEL, such as distance learning and learning spaces.

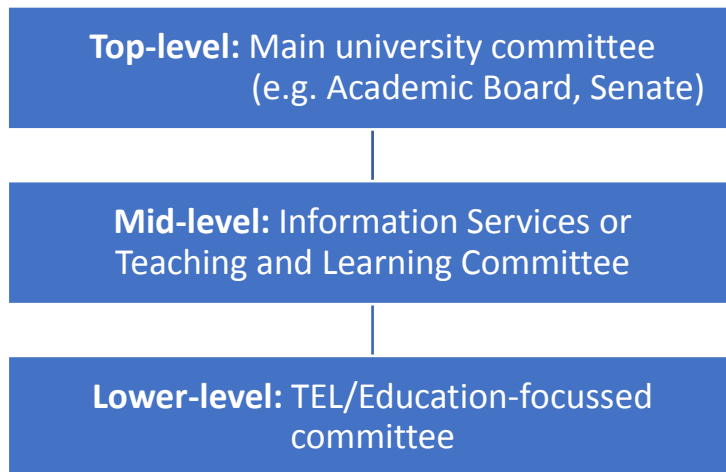


Figure 5.1: Typical TEL governance committee structure

The composition of the lower-level committee was fairly standard for three of the institutions such that it would be chaired by the pro-vice chancellor (or equivalent) for teaching and learning and they all included the head of TEL, representation from each of the schools (typically deans or other senior level staff), the library and the student union. Other representatives found on the lower-level committees included senior staff from IT, careers service, registry, academic and student services, educational development unit, quality assurance and estates.

In two institutions, the head of TEL was a member of the mid-level committee as well as the lower-level committee. Having TEL linked to the formal reporting routes and having the head of TEL as a full member of the mid-level committees was felt to be beneficial in ensuring that decisions are agreed with the relevant stakeholders and provide some weight when trying to push through change or policy:

[...] so it is now formally part of the university reporting structure, which has really helped if we want decisions to be made, particularly

around policy, so things like how long we keep our [VLE] courses for, how they're designed, how they're laid out... We can have a formal decision on that so that when people say "why have you done it this way?" we can say "well we consulted with staff and it's been scrutinised by all the people who need to see it". [I02]

It's not that I attend the [Teaching and Learning] Committee, I am a full member and that's a subtle distinction that universities often make it can be quite disempowering, but I've got that seat on that committee, I've got the direct contacts with the [PVC and the Assistant PVC for Learning and Teaching] it is that formal route through that actually get things happening and done and without that it makes things very, very difficult. [I01]

In addition to the formal committee structure, participants reported having user forums, project boards and Virtual Learning Environment (VLE) governance groups that would sit alongside or underneath this primary governance structure to facilitate more operational discussions:

We still have what we call a VLE technical operations group which meets every fortnight or three weeks, but that's the technical staff coming together with my team to look at how were doing on the VLE development work. [I05]

Some of these forums were reported to be time-limited, e.g. relating to a specific project, but others have become regular, ongoing meetings. Several participants mentioned regular meetings to oversee governance of the VLE, for example approving changes and developments for the VLE, with representation from the primary TEL team and, where relevant, the IT department. Where necessary, some decisions are referred up to the TEL committee (or equivalent), but most are taken by the primary TEL team and IT.

5.4.2 Ensuring central co-ordination whilst meeting local needs

When it comes to providing central co-ordination, this was felt to be important in providing consistency across an institution; however, there was an emphasis on meeting local needs through being flexible:

[...] because we are central and reaching out, we proactively go out, we're not trying to bring individuals who are dispersed around the campus into us to try to align with what we're doing, so it brings a level of consistency without standardisation. [104]

Aligning the work of the primary TEL team to the strategic aims of the institution was seen to be a way that the primary TEL team could ensure that they support the areas that will receive investment and enables them to co-ordinate common projects at a central level. One of the issues raised by the participants is the difficulty of supporting the more bespoke requirements coming up from the schools or departments.

The majority of participants reported that a key way of identifying local needs is through the establishment of a network of school-based TEL champions or contacts co-ordinated by the primary TEL team. The members of the network are either academic staff or administrative staff or both, typically nominated by their head of department. The role of the network is to provide a liaison point for the primary TEL team and provides an excellent opportunity for the TEL team to become more involved in strategic discussions within the schools:

The TELT contact would be the conduit between the centre and the school. They would pass information backwards and forwards, they would provide an overview of the school's activities in TEL, their aspirations, their challenges, they would also provide a focal point where I could go out and ask across the university what are you doing about X, Y or Z. [I01]

They've got focussed roles within their departments to be champions for e-learning and that helps to make things happen. [I03]

In some departments it's been incredibly effective because it's given us a voice, they can bring us in at strategic points to talk to their board of studies their departmental teaching committees to make the case for major changes [I05]

The effectiveness of this sort of network ultimately relies upon the commitment of the individuals and participants reported having difficulties in getting some staff and

departments engaged with the process. However, it was noted that lack of engagement with the TEL network did not automatically translate into lack of engagement with TEL.

We've got some areas that have been better engaged, some areas not so engaged with the [TEL network]. That doesn't equate to them being engaged or not engaged with TEL, it's whether or not they engage with the centre, which is a challenge with any distributed university. [I02]

It's a bit patchy and it depends, because these are people, they're different. Some are more engaged and engaging than others, but generally it works pretty well. [I03]

It depends on how proactive that academic is, whether they are junior or senior and whether they are really committed to the e-learning agenda or just using the post as a kind of to drop off some of their administrative responsibility, which in some cases happens [I05]

One respondent emphasised the importance of having a formal link between the TEL network and the university learning and teaching committee as it meant the network was connected to the university decision-making process, rather than simply being seen as a community of practice. Another respondent noted that having this network

as part of the overall TEL strategy helped with getting heads of department to buy into it.

In one institution, the schools themselves now manage their own TEL network, so that there is only one contact per school, typically an associate dean for learning and teaching, liaising with the primary TEL team.

Several participants reported holding annual or biannual meetings with departments to discuss TEL developments and their plans for the year ahead. The focus of these meetings is to get departments to think more strategically about what they want to achieve with TEL and to ensure that the primary TEL team and any local TEL staff have the capacity to support their requirements. In some cases, the outputs from these meetings are translated into a departmental action plan or strategy.

In terms of responding to local needs, some of participants reported that the primary TEL team would offer customised training at a department level, in particular for those areas without local support, in addition to a central training programme. One institution has been experimenting with only running school-based training and they have seen increased take-up of their courses compared with the centrally-run courses available to all schools.

5.4.3 How the TEL support model helps or hinders adoption of TEL

When asked how their TEL support model helped adoption of TEL, the participants gave different responses, for example one participant noted that their distributed support model enabled innovation to take place at a local level without stifling it as it

gave ownership locally whilst still ensuring there was some sort of central overview. Another felt that being centrally located within the same department as IT was felt to help from a support perspective as well as being able to influence other activities such as the layout of teaching rooms.

Those with school-facing staff felt the strength of their structure was their ability to build stronger relationships locally and identify key innovators within the schools and departments. In addition, local TEL networks were also felt to be beneficial in this respect.

Having the [TEL] advisors able to talk to Faculty Tutors and building good relationships with them and those influential people, with the champions, running special interest groups and networks, that kind of thing. [I03]

So, working with [...] the people who are the innovators, and the people, senior academics who have got the institutional profile, they are really good advocates. [I03]

Our structure helps adoption of TEL because our model is about relationships, it's about having individual learning technologists who can work at the school level and understand their specific needs and teaching processes and teaching practices and provide tailored advice and guidance aligned to those processes and practices and needs. [I04]

A small primary TEL team, in terms of staff FTE, was seen to be the main hindrance to TEL adoption for the majority of the institutions. Participants representing the smaller teams reported difficulties with the roll-out of institutional policies or institution-wide technologies as they often do not have the staffing resource to be able to respond as quickly as they would like. In addition, the lack of locally-based TEL staff was felt to hinder adoption, especially when the primary TEL team is working at capacity.

We're just about to go into the first year of mandatory lecture capture so again that's going to be a challenge, just in terms of having the bodies to send to places. We offer a service where we help staff start off the first lecture they are recording. Obviously with five or six people, that's a bit of a challenge. [102]

I think resourcing is perhaps the main issue in that when we do see substantial levels of engagement, if it does increase and it has increased dramatically, I think in the last 6-12 months, we don't have that free capacity to be able to necessarily respond as quickly as would be ideal and I think for technology enhanced learning I think that's really important. [104]

Tensions with other teams in the overall TEL support model, such as the local TEL support and educational development units, were also suggested to hinder adoption of TEL. The issues included staff and students not knowing which team to go to for support and advice, having staff with overlapping roles and uncertainty about where

specific activities sit, such as digital skills, lecture capture, learning spaces and pedagogic support.

[...] if an academic within [Medicine] is looking for support do they come to us or do they go to their team. [I01]

Learning spaces [...] the question would be where does that live?

Does that live in TEL or IT Services or somewhere else? [I04]

Another area of tension related to TEL support departments fighting for the same resources, especially in terms of investment and getting departmental buy-in.

Strong governance and good working relationships were felt to be the way to overcome these tensions, but there is a reliance on the personalities involved.

5.4.4 Location of TEL support

There were mixed opinions amongst the participants as to whether the location of the primary TEL team within the overall organisational structure affected the perception of the team. Reflecting the survey findings, some participants felt that being in an academically-focused department helped the TEL team to be taken more seriously when working with academics:

We're in what is basically more of an academic type unit because we've got the academic development, even though we're doing a service, we're actually seen as much more academically aligned. I think that is crucial for any kind of TEL type support because TEL

support isn't a service such as your email and what have you, it's actually about course design and delivery which is very educational

[I01]

We are currently located in amongst a facility shared by an academic school, which helps, I think, give us the credibility of being people who understand learning and teaching. We work very hard not to be seen as a technology department or an IT service, which I think is really important. [I04]

However, others felt that the effectiveness of their unit depended more on the relationships they make and the work they do, rather than the department or division they report to.

I think if you do a good job it doesn't really matter where you come from as long as you look after the institution's needs. I mean sometimes people probably expect me to be more technical than I am, but no it's kind of accepted that TEL is within [IT] and it's not really questioned. [I03]

I guess now because we are so involved in learning enhancement and teaching initiatives it would be hard to view us as techies as we're doing anything but. [I05]

Some participants noted benefits of being in the same department as other related services, such as IT and audio-visual support, as it can help with getting things progressed and when issues occur.

We can influence the layout of teaching rooms, we can say where we want... what sort of microphones we need putting in, so because we're in the same department as the people that do other things with IT and Library support, so we can have an influence over that. [102]

5.5 Effect of organisational culture on TEL adoption

The third part of the interview focussed on the effect of organisational culture on TEL adoption and support, in particular institutional and departmental culture. Building on the importance of relationships identified earlier, it also aimed to establish who the most influential people are with regard to TEL adoption. Finally, it looked at possible tensions between different institutional cultures, e.g. support culture versus academic culture, and whether there exists a TEL support identity.

As discussed in Chapter 2, there are two aspects of culture considered in this research. The first assumes an almost unitary institutional culture based upon a set of shared, unconscious, assumptions about the world, encapsulated in rituals, structures, values and beliefs within an institution (Schein, 2010); this is classified here as institutional culture. The second aspect assumes there are sub-cultures within an institution (Trowler & Knight, 2002) that typically align with the disciplines or organisational units within an institution and are considered here as relating to departmental/school culture. In both cases, culture is based on the head of TEL

perspective and so the area of discussion relates to their perception of culture and its effect.

5.5.1 Institutional culture

Participants were asked about the effect of institutional culture on the adoption of TEL. Whilst institutional culture was not specifically defined in the interviews, they were provided with a couple of examples of cultural issues that had come out of the survey which had referenced McNay's (1995) four culture framework (bureaucratic, collegium, corporate and enterprise). Examples included the value of teaching versus other activities and top-down versus bottom-up developments.

At an institutional level, participants tended to focus on the leadership and power relationships within the institution, primarily in relation to the role of senior management, with several participants using terms such as corporate, managerial, collegial, democratic and dictatorial. Discussions about institutional culture were therefore mainly framed within this context; however, there was some reference to the underlying sociological aspects of culture. For example, several participants talked about the role of research within teaching and learning being fundamental to who they are as an institution and the importance of this in what they do.

Building on the survey responses, participants discussed the effectiveness of top-down versus bottom-up approaches to the adoption of TEL. It was felt that a top-down approach, in particular in relation to TEL policy and the implementation of strategy, was of benefit to getting buy-in, but that this did not preclude the role of bottom-up approaches.

We've definitely seen more of a top-down approach than previously, it doesn't mean to say that we're not still taking recommendations and ideas and forces from bottom-up, but we've seen far more of a top-down approach. [102]

So, it is still a very democratic and diverse institution with different ways of doing things, but in some important areas there is more of a top down and an acceptance that sometimes top down is needed.

[103]

A couple of respondents felt that a central dictat would not work for them, in particular Institution 05 raised concerns about putting in place minimum expectations for use of TEL which could lead to a “compliance mentality” such that staff would do the bare minimum in order to comply with the policy. This also related to concerns that top-down approaches may stifle innovation as people focus on achieving the minimum:

We're constantly walking a tightrope of consistency versus innovation. Because people are tired, they're tired of always having a new policy, they're tired of always being told to do the same things and when you set a baseline that's what you'll do and maybe the appetite for innovation goes because you're so flat out doing everything else that you haven't got space for innovation. [102]

There was acknowledgement that where institutions have a particular strategic focus on teaching, this was more likely to encourage TEL adoption and that this may be more difficult to achieve in the research-intensive institutions:

The university is research intensive but as we grow our student numbers, obviously we have to become more teaching focussed as well [...] I don't think we can afford just to be research intensive, we must also be teaching-excellent as well. [I04]

Other issues that were attributed to institutional culture included the 'technical culture' of the institution, in particular where there is a focus on in-house development and customisation of TEL technologies:

That culture presents us with challenges aligned to the growth agenda because we have to look at how scalable or sustainable it is and some of it is, undoubtedly and some of it will not be in the long term. [I04]

And for the Welsh institution, TEL adoption was often impeded by the need to have technology translated into Welsh.

[...] it can be a barrier to adoption amongst Welsh speaking staff and students if you don't have Welsh language support and interface.

[I02]

5.5.2 Departmental/school culture

Participants were asked about the effect of departmental culture on the adoption of TEL. As for institutional culture, departmental culture was not specifically defined in the survey, but participants were provided with a couple of examples of cultural issues that had come out of the survey, such as the role of an influential head of department or departmental independence.

At the departmental level, it was reported that TEL adoption varies across the departments and disciplines and it was suggested that this was primarily due to individuals within the departments, rather than a specific departmental culture:

We do have schools where engagement is much higher than others and it could be a factor of individuals. Those individuals are not, however, in my control, so what we can do is try to reach out proactively, try different methods of engaging those schools. [I04]

[...] that's where locally if there isn't that push either from individual academics or from the Head of school, then it becomes a very poor relation. [I01]

In order to encourage adoption, it is vital to get local staff engaged with using TEL and it was suggested that this could be done through identifying local champions, as discussed in Section 5.4.1, as well as through recognising innovative or exemplary uses of TEL through awards or prizes:

We found that where there's somebody who's got a bit of recognition for what they do it tends to encourage their colleagues. [I02]

However, the age-old issue of not having enough time and resources, in terms of funding, also plays an important role in staff engagement, but this often relates back to the perceived value of teaching at a departmental level against other commitments, such as research:

I suppose another dimension is just simply, which mitigates against take up, is just the pressures that academics are under and the resources available to them. [I05]

[...] if there isn't a lot of head room in the department or the school, then it seems to be a low priority for actually engaging with it wider than just getting on and doing the teaching. [I01]

Difference in “disciplinary cultures and norms” [I03] was mentioned by a couple of institutions as a factor affecting adoption of TEL, for example the mathematics department at one institution who prefer to use blackboards. In addition, Institution 01 suggested that the devolved nature of the institution had led to greater autonomy at a local level, which also made it difficult to get consistency across the institution. Institution 05 suggested that things need to be departmentally owned in order to encourage buy-in and “empower departments to really define how, in their own terms, the technology is useful to their teaching” and talked about fostering a

particular culture amongst academic staff to get them to think on a more pedagogic basis by providing staff with the skills and inspiration to improve their teaching.

That's the culture we try to foster and by really supporting champions and enthusiasts try and get that trickle down of enthusiasm and capability and support for staff. So that has been the culture and to some extent it has worked well. [I05]

5.5.3 Influential people

Having a supportive senior manager for teaching and learning, both at the institutional and school level, was seen as a key driving factor for TEL and their involvement in the governance for TEL is critical for ensuring that TEL remains on the strategic agenda and receives the necessary funding:

We have this [Pro Vice Chancellor Learning and Teaching] [...] who has been very supportive of TEL type activity. He's basically the one factor in the university that has driven the whole agenda... [I01]

I think it's a given that you need your senior management support. We've got a great deal of support from our [Pro Vice Chancellor]. Our [Academic Registrar] has been a big advocate of our work and also has supported us by finding the resources required to deliver the services and I think that they have recognised that this is an area that should and can only grow so I think that's been really beneficial when you have these people going out there talking about it, giving

us a platform, that's been helpful for us particularly in the early stages. [I04]

There is also value in having senior managers who have experience of using TEL themselves:

[...] the last two [Pro Vice Chancellors for Learning and Teaching] have been teaching members of staff, staff that we have worked with because they have been e-learning advocates themselves, so that has really helped, I feel like we're now embedded into decision making and we're asked for our advice now. [I02]

On the contrary, an ineffective senior manager can make it more difficult to get buy-in for TEL:

I think one of the biggest frustrations, and I'm sure in our respective jobs, is the quality of senior management. When it's poor you're really dependent then on structures which can help provide the space for consideration of the whole remit of digital learning, learning and teaching, so that's where we're trying to get to. [I05]

Students, primarily the student union elected officers, were also suggested to be influential in TEL developments with varying levels of engagement. One participant reported having regular meetings with the student officer for education [I01], whilst another reported student representation on their TEL committee [I02]. Students can be very influential change agents, as reported by Institution 05 where an active

student union campaigning for lecture capture was able to influence senior managers within the institution.

It was suggested that TEL teams need to be more proactive in engaging students at all stages of TEL initiatives. However, this engagement is also highly dependent on the student representatives themselves. Institution 01 reported an initiative with their student union which received extremely positive feedback from one cohort; however, the following year's student representatives did not want to be involved in the same initiative.

Other key influencers were departmental staff who are able to show benefits of incorporating TEL into their teaching or who have an institutional or national profile:

I think possibly senior managers would like to think it's them, but actually, it's so and so down the corridor who has cut their marking workload and gets better module evaluations because of what they're doing. [I02]

Influential people [...] who have got a high profile, media-wise or research-wise and are innovators and so people will take notice of what they are doing. [I03]

In terms of encouraging support from influential people this includes promoting their work across the organisation through good practice events and case studies and working really closely with key innovators.

5.5.4 TEL support identity

Considering TEL support staff as a group, the interview aimed to identify whether there was a specific TEL support identity within the institution. Most participants were unsure what this meant, but felt that there was a difference between TEL staff and other institutional staff supporting TEL:

I do see a significant difference in identify between IT professionals and Learning Technology professionals. There is a difference in ethos, there is a difference in focus. [I04]

[...] so they [departmental staff] are more technically driven, it's what they know and what they do. I think the brand that we have, my central team, is more as educationalists [I05]

It was suggested that the central teams may have a more unified identity, due to being in the same team, as opposed to the local TEL support staff who are more disparate. In order to create a TEL support identity, participants recommended setting up institutional TEL networks and providing support for professional development schemes, such as an internal scheme to achieve Certified Membership of the Association for Learning Technology (CMALT) ⁸.

⁸ CMALT – Certified Membership of the Association for Learning Technology -

<https://www.alt.ac.uk/certified-membership>

Linked to this is the perception of TEL support staff within an institution in terms of perceived credibility of the TEL support staff when discussing more pedagogic topics with academics. It was felt that regardless of their location within the institution, professionalisation would strengthen the image of TEL staff when working with academic staff, either through qualifications, such as a master's or PhD, or through accredited programmes such as Fellowship of the Higher Education Academy or CMALT. One respondent noted that they actively recruited people with some form of academic background to help give the team more credibility.

It is all about kudos, that's what I was saying about my team, I've got two doing PhDs, I've got others doing MScs, all engaged with some level of teaching, because without that you don't get the academic buy-in. [I01]

In several of the responding institutions, TEL staff were actively encouraged to undertake professional development activities relating to TEL and more generally to teaching and learning, such as a Postgraduate Certificate in Academic Practice or equivalent. In addition, professionalisation did not stop with the primary TEL team – two participants mentioned running CMALT schemes for staff across the institution to help them to think more about how they are supporting teaching and learning through their use of TEL.

5.6 Validation of the findings

In order to provide an initial validation of the findings with a wider audience, this research was presented as part of an interactive workshop at the 2017 Association

for Learning Technology conference (Voce, 2017b). The outputs from the workshop (Voce, 2017a) suggested that the conclusions drawn were comparable with the views of those attending the workshop, who represented TEL support staff and heads of TEL from around 20-25 different institutions from UK HE.

The workshop asked participants to relate their own institution's support for TEL against the findings relating to the following three key areas:

5.6.1 Predominant TEL support model

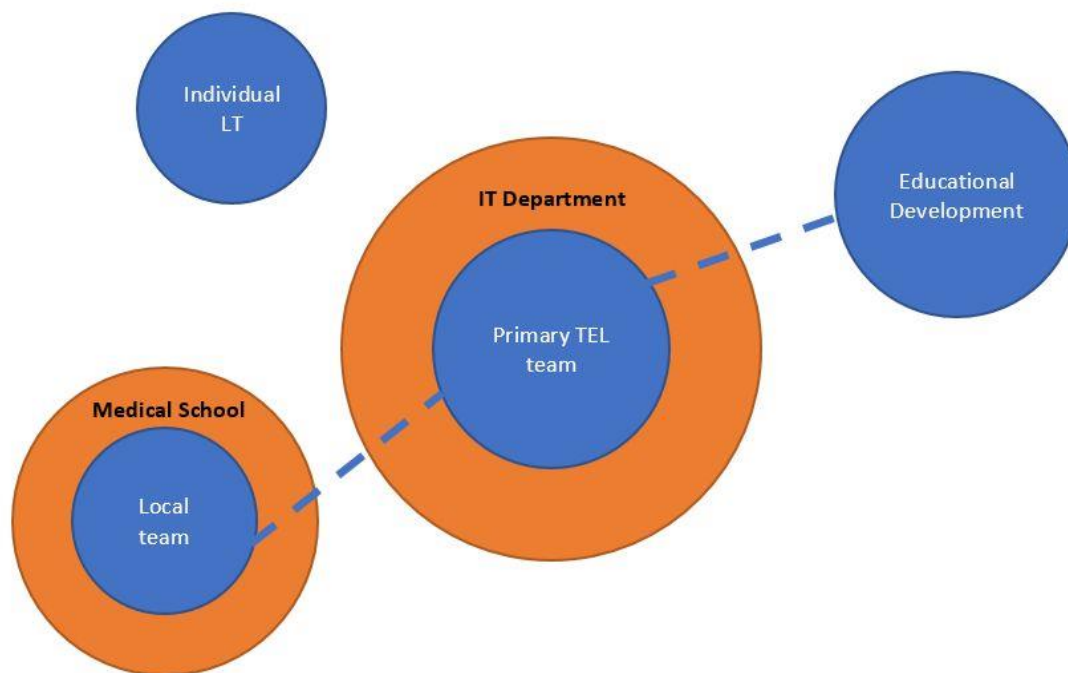


Figure 5.2: Example of a TEL support model.

A visual example of the predominant TEL support model (Figure 5.2) was presented and the participants were asked to indicate how well this reflected the situation in their institution (Figure 5.3Error! Reference source not found.). All participants

noted a similarity with their structure, with 13 out of 21 reporting that it was either the same or very similar. Where differences were identified, these tended to relate to specifics about the particular example rather than an alternative structure; for example, five participants noted that their TEL team was based in an alternative central department, such as educational development, rather than IT as per the example. Five participants also referred to not having local TEL staff.

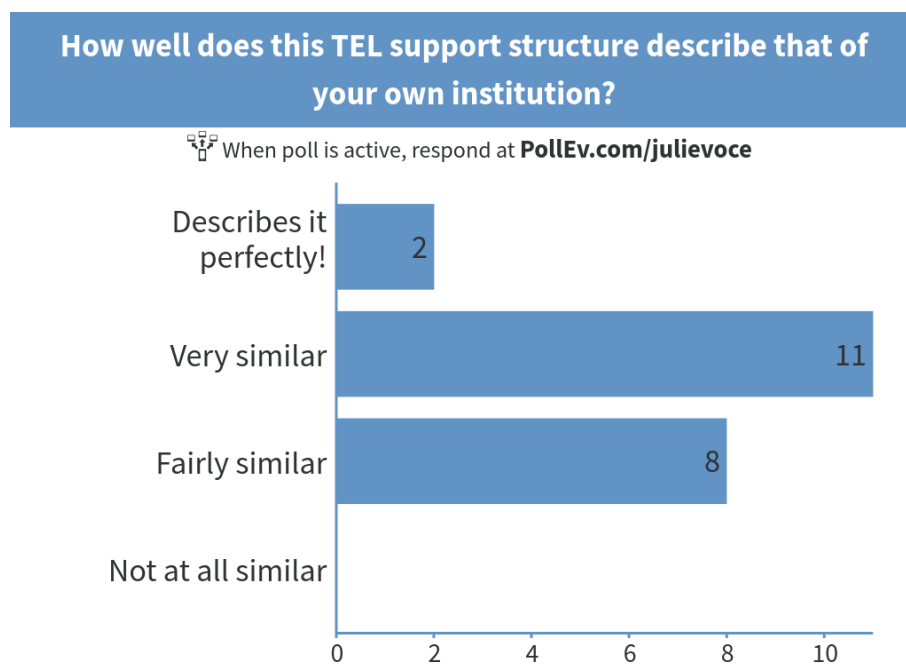


Figure 5.3: Poll results showing similarity with predominant TEL support model

5.6.2 Understanding and supporting local needs

The presentation highlighted the areas identified in the research relating to how institutions understand and support local needs and asked participants which ones they have in their institutions. Figure 5.4 **Error! Reference source not found.** shows

that the majority reported some connection with staff in schools either through a network of TEL champions or through school-facing or school-based staff.

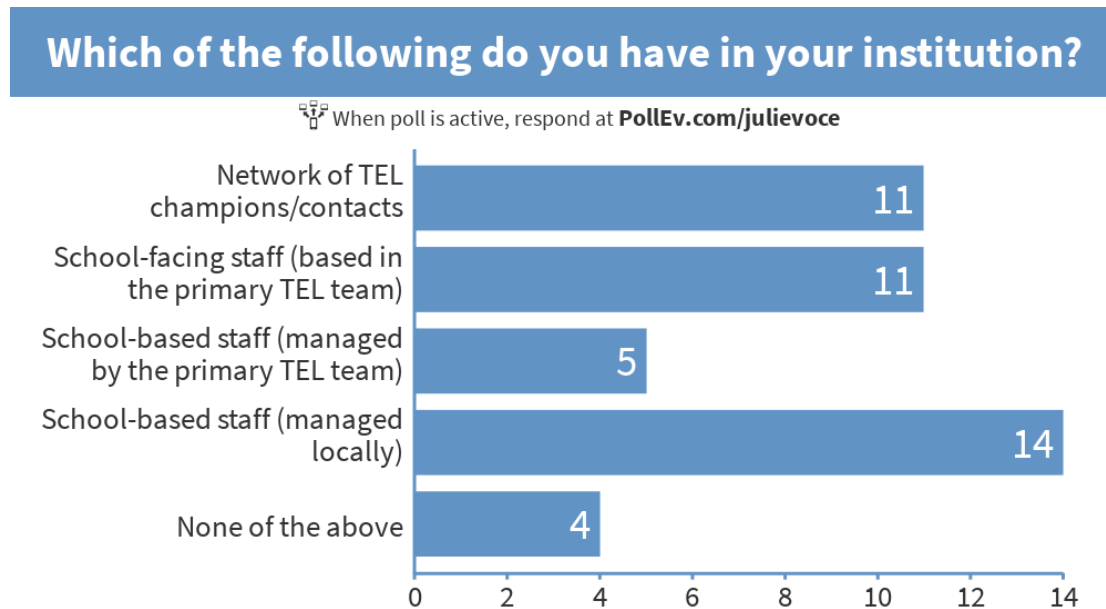


Figure 5.4: Poll results showing how institutions understand and support local needs

5.6.3 The role of TEL governance

A visual example of the governance structure identified in the research (Figure 5.1) was presented and the participants were asked to indicate how well this reflected the situation in their institution (Figure 5.5 **Error! Reference source not found.**). As expected, the results were mixed and reflect the findings here such that TEL governance connected to the university governance structures is not well established across the sector.

How well does this TEL governance structure describe that of your own institution?

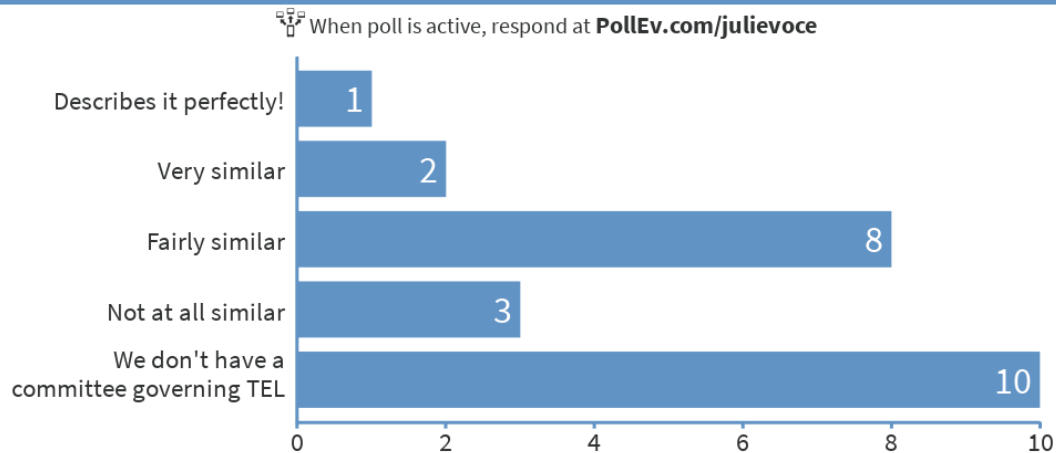


Figure 5.5: Poll results showing similarity with proposed TEL governance structure

5.7 Summary

The interviews and TweetChat have highlighted that regardless of an institution's TEL support model and perceived organisational culture, TEL adoption and engagement is primarily driven forward as a result of strong governance structures, the ability to identify local needs and the development of good relationships with key influencers, other TEL teams and local staff. The chapter presented the results from an initial validation of these findings at the 2017 ALT Conference (Voce, 2017b) and noted that the conclusions drawn were comparable with the views of those attending the workshop.

The next section will discuss the findings from the survey and the interviews within the context of the literature, with a particular emphasis on the analysis of the UCISA TEL Case Studies (Browne et al., 2010; UCISA, 2012, 2014, 2016).

Chapter 6 Discussion

6.1 Introduction

This chapter considers the findings from the previous two chapters alongside the literature. The results from the analysis of the UCISA TEL Case Studies (Browne et al., 2010; UCISA, 2012, 2014, 2016) have been used to compare and contrast the findings and provide additional examples. The aim of this chapter is to respond to the first three research sub-questions (RSQ):

RSQ1. What TEL support models exist within UK HE institutions and how have they evolved with the increased use of TEL?

RSQ2. From the perspective of a head of TEL, which factors of a particular TEL support model help or hinder the successful adoption of TEL?

RSQ3. From the perspective of a head of TEL, to what degree is successful adoption of TEL influenced by organisational culture?

The final research sub-question – Which factors should heads of TEL consider when changing their existing TEL support model? – will be the focus of the concluding chapter and will draw upon the discussion of the first three sub-questions and will be used to answer the overarching research question.

6.2 What TEL support models exist within UK HE institutions and how have they evolved with the increased use of TEL?

When considering TEL support models, the findings have considered several aspects that make up the overall model, for example the more quantitative measures such as the number, location and type of support units and the governance structures in place as well as the more qualitative aspects such as how the support units work together, in particular the relationships between the various teams and the engagement with key institutional stakeholders. This section focusses on the evolution of TEL support within UK higher education institutions (HEIs) and identifies the predominant type of TEL support model.

6.2.1 Evolution of TEL support

Support for TEL within UK HEIs has typically evolved organically, primarily by increasing the number of staff supporting TEL. The findings here partially reflect those of Zellweger Moser (2007) whereby “organization structures are not an outcome of a rational and strategic management process but have rather grown over time and are often influenced by political constellations” (p. 49); however, it was noted in both the survey and interviews that for some institutions, whilst their structures initially evolved organically, they subsequently changed as a result of a planned re-organisation, which does indicate that institutions are starting to take a more rational and strategic approach to the support of TEL. Since 2012, the UCISA TEL Surveys have reported on the ways in which TEL support has been changing, with restructure of department(s) being a leading change, although it was noted that

this is often as a result of an institutional restructure which has impacted on TEL (Walker, Voce, Swift, et al., 2016). This was reflected in the findings from this research, such that this process is likely to occur in institutions that are either subject to institution-wide restructuring or those who have made a strategic decision to increase their focus on TEL and as such want to ensure that they have the most appropriate support model in place. As evidenced in the interviews, without this structured approach, existing teams can become overloaded or will find that they are not in a position to cope with increased demand and the requirement to support an increased number of technologies. It was suggested by one respondent that local support models may start to emerge as a direct result of an inability to respond to demand. It is therefore important that an institution considers the TEL support model as part of any new initiative, such as the introduction of a new technology or TEL-related policy, and ensures there is adequate resource at the right level (either centrally or locally) to support it. However, institutions do need to commit to providing resources; one respondent reported that despite a strategic review of TEL and the recommendation to employ additional staff, this recommendation had not yet come to fruition.

As reported in the survey and interviews, TEL support typically started in an existing department either centrally or locally and has evolved towards central co-ordination of TEL, in most instances with a primary TEL team based in a central department or division. As defined in section 5.3.1, the primary TEL team is defined as the lead unit providing TEL support and typically where the head of TEL, or equivalent, is located. Where TEL grew more locally, in some cases this has evolved towards a more

central model, for example City, University of London where five school-based teams were combined with the existing central team to form one central team with school-based staff (UCISA, 2014); however, in other cases existing local teams have remained. For example, in the TweetChat it was reported that Imperial College London retains separate faculty TEL teams which work alongside a central TEL team, based in the IT department, with co-ordination primarily via an advisory group. In addition, the University of Manchester also supports a devolved structure (McElearney, 2010) with large faculty-based teams but without a primary TEL team.

In contrast to this, Coventry University reported devolving their support from a large central team into school-based teams with several central departments; however, this has come at a price as “the devolution left a gap in coordination and sharing of practices among faculties” (UCISA, 2014). This was also noted by a TweetChat respondent such that the lack of a primary TEL team was an issue in terms of being about to provide support and do horizon-scanning as TEL staff get bogged down in the day-to-day of school support. They also commented on TEL staff skills not being well deployed across the institution.

In the larger teams, the structure within the primary TEL team has evolved from a flat structure such that staff roles have become more specialised and, as noted in Chapter 5, potentially more mundane for staff at lower levels. This was reflected in the 2016 UCISA Case Studies (UCISA, 2016) where Queen Mary, University of London reported that:

However, over time, it has also meant that staff on lower grades tend to be those who manage support enquiries; this has been problematic for staff morale, as post holders aim to be promoted out of this particular role because it is the most junior position even though it is vitally important. (UCISA, 2016)

Another area in the evolution of TEL support, where a primary TEL team exists, is the creation of school-based teams or individuals by the schools to work alongside or in conjunction with the primary TEL team. This evolution tends to be less co-ordinated and based on the needs and finances of the school. Local support appears to have either come about because the primary TEL team were at capacity in terms of the support they could provide or as a result of an increased demand for more specific support for certain areas or initiatives, such as supporting distance learning programmes or instructional design, which either requires specialist skills or knowledge, or would be too time consuming for the primary TEL team to provide. This was noted in the 2016 UCISA Case Studies by Edge Hill University:

These [local] roles typically focus more on the content development side of things and undertake administrative duties relating to the specific programmes... (UCISA, 2016)

This has parallels with Nichols and Anderson's (2005) suggested "core and custom" model as a way of implementing TEL strategically, such that the core relates to activities and approaches common across all courses, whilst the custom are more flexible and specific to particular courses or programmes. By taking this approach,

an institution can realise economies of scale and ensure that there is equity of support for core TEL technologies without stifling local innovation, whilst still providing “proximity to meet individual faculty needs” (Zellweger Moser, 2007, p. 39). However, to be effective, this structure relies on the roles of the central and local teams being clearly defined without overlap (Beetham et al., 2001) and sufficient staffing both locally and centrally.

6.2.2 Types of TEL support models

Considering the types of TEL models available, it is not possible to detail all the different types, which is why previous attempts have typically used categories to group similar models. The survey defined four types of TEL support model, adapted from the Hughes, Hewson and Nightingale’s model (as cited in McNaught (2002)), to ask respondents about their model:

- **Centralised** – a single, central unit combining several different support areas for TEL.
- **Integrated/"hub and spoke"** – a central unit which co-ordinates school/faculty-based TEL staff.
- **Parallel** – separate units located centrally or in faculties/schools, with some co-ordination.
- **Distributed** – a range of units located centrally or in faculties/schools, with no or little overall co-ordination

The survey results indicated that most institutions identified themselves as having a centralised TEL support model, such that there is a single, central unit combining a

number of different support functions for TEL. However, as was identified in the interviews, the centralised institutions typically had a primary TEL team that worked in partnership with other departments, such as IT or educational development, as well as some form of local TEL support, either teams or individuals, that was not co-ordinated by the centre. This reflects the findings of Almpanis (2015b) whereby his case study institutions, also UK HEIs, all provided TEL support via a centralised unit, with some local support in the faculties. This similarity could, however, be attributed to the same bias identified in Chapter 2 as Almpanis also utilised the Heads of E-learning Forum (HeLF) as his target group and in doing so potentially excluded those institutions who may not have a singular institutional head of TEL and therefore no representative on HeLF.

The 2016 UCISA TEL Case Studies (UCISA, 2016) also identified that UK HEIs primarily support TEL via one central team with some local school or department-based teams, which may work in liaison with the central team. The previous UCISA TEL Case Studies (UCISA, 2012, 2014) also noted the predominant TEL support model as relating to a central team with local support, suggesting that this has been the predominant model across the sector for several years. The 2016 UCISA TEL Case Studies also highlighted two additional models; for example, it was reported that Edinburgh Napier had two central teams jointly co-ordinating TEL and City College Norwich had a model such that their TEL support was outsourced. These are, however, variations on having a main central TEL presence. In addition, the 2014 UCISA Case Studies identified two 'hub and spokes' models whereby the

central teams co-ordinated the school-based teams. Once again, this is a variation on having a centrally co-ordinated TEL structure.

The TweetChat also identified a predominance of having a central team with some form of local support. There was only one alternative model mentioned, which lacked a central team and instead had a devolved model with four local teams. This type of devolved model was also noted in the 2014 UCISA Case Studies, whereby Coventry University had moved from a central Team to a mix of central and school-based teams.

So, the predominant type of TEL support model could be described as having a primary TEL team based in a central department, often working in conjunction with other central teams supporting TEL, and alongside some local TEL support, typically unconnected from the primary TEL team. This seems to indicate that the predominant type of TEL support model is closer to a mix of the parallel and distributed approaches, depending on the level of co-ordination between the primary TEL team and the local teams/individuals. In this respect, TEL support models still reflect those identified in the study by Beetham, Jones and Gornall (2001) who also noted that TEL support has a mix of the different models described by Hughes, Hewson and Nightingale (as cited in McNaught (2002)). This type of mixed-model is noted in the literature under several different names, for example Armitage, Rothery and Jenkins (1999) identified a collaborative model, such that there is a specialist unit who have responsibility for TEL and who work in close liaison with the IT department. Along the same lines, Zellweger Moser (2007) defined a 'Network

Approach' typically used by elite US institutions such that there is a designated unit in charge of co-ordinating TEL across a network of units. Both approaches assume that there is overall co-ordination for TEL at a central level but do not seem to factor in the local TEL support, which often works separately to the central teams.

6.2.3 Governance of TEL

Governance of TEL is primarily focussed on how TEL is represented within formal institutional committee structures and the role of less formal user forums and working groups. The interviews identified that linking TEL into the main university committee structure was a key enabler for TEL developments, especially those which require policy changes. All the case study institutions reported having an institutional-level committee governing TEL, with TEL represented by the head of TEL, or equivalent. In addition, where such a committee exists, TEL is typically linked into a university's structures as part of a three-level structure connecting TEL (Figure 5.1) with the top-most committee being at the university senior management level, such as a council or Senate. This structure reflects the recommendations by Kirkwood and Price (2016) regarding the incorporation of TEL governance into the institutional committee structures to enable "TEL information flows, decision making and actions" (p.21). However this formal governance structure is not commonplace across the sector (Bichsel, 2013; Walker, Voce, Swift, et al., 2016); the 2016 UCISA TEL Survey (Walker, Voce, Swift, et al., 2016) reported that just under half of institutions had an institutional-level committee governing TEL, with the majority being learning and teaching committees. In addition, 20 institutions reported not having any institutional-level committees or working groups focussed on TEL. This is also evidenced in the

UCISA TEL Case Studies (UCISA, 2016), where several institutions reported having limited integration of TEL with the formal committee structures. For example, Sheffield Hallam University reported having a TEL Strategy Group and a TEL Operation Group, but neither group reported directly to a University committee (UCISA, 2016). The importance of connecting TEL into the governance structures was evidenced in the interviews and was felt to lead to greater visibility of TEL at a more senior level, which was in turn conducive to greater adoption and support for TEL. Embi (2011) reported that one of the challenges for implementing TEL within Malaysian HEIs was the lack of governance, in particular the absence of a clear governance structure; however, it would seem that the term governance is used in this context to refer to the whole TEL support model rather than just the committee structures. There is clear evidence from the literature of the importance of governance in terms of ensuring successful implementation of TEL (Adamy & Heinecke, 2005; Chang & Uden, 2008; Kirkwood & Price, 2016) and having an effective, established governance mechanism has been cited as a factor in determining the maturity of TEL implementation (Bichsel, 2013; Graham et al., 2013). This leads us to believe that without clear and effective governance structures, institutions may struggle to effectively implement TEL; however, Beetham, Jones and Gornall (2001) noted that this might not be necessary depending on the type of institution. They suggested that the 'old universities', traditionally more research-focussed, may need to rely upon a committee structure, due to historical cultural differences, whilst the 'new universities' may not need committees providing they have a clear institutional strategy and "active individuals

catalysed by a proactive teaching and learning unit” (Beetham et al., 2001, p. 61). It would therefore be of interest to identify the reasoning behind not having TEL included in institutional-level committees and how this affects adoption of TEL; however, this level of detail was neither available in the UCISA TEL Case Studies nor explored as part of this research.

6.2.4 Summary

To summarise, the predominant model for TEL support within UK HEIs has evolved to a primary TEL team, based in a central division or department and that may co-ordinate TEL with other central teams. There is likely to be some school-based support, usually employed by the school; however, the level of co-ordination between the primary TEL team and the school-based support will vary. Naming this model is difficult as it wholly depends on the level of co-ordination between the centre and the local teams.

In terms of the function of TEL support, this model could be described as a ‘core and custom’ model (Nichols & Anderson, 2005), such that the primary TEL team deal with institution-wide technologies and the institutional strategic direction of TEL, whilst the school-based support focuses more on the ‘custom’, such as department-specific technologies or content-creation/instructional design.

Governance of TEL through institutional committees plays an important role in raising the visibility of TEL within the senior levels of an institution and for the five case study institutions there was a similarity such that TEL was part of a three-level governance structure. This type of structure is not commonplace across the sector

and so it would be useful to understand the effectiveness of TEL adoption in institutions where TEL governance is not linked to formal institutional committees.

6.3 From the perspective of a head of TEL, which factors of a particular TEL support model help or hinder the successful adoption of TEL?

As identified in the interviews, a key factor which helps or hinders the successful adoption of TEL lies in the relationships between the primary TEL team and both the schools/departments and the other teams supporting TEL. The TEL support model itself can make these relationships easier to manage, either through the location and structure of the TEL support teams or through well-co-ordinated governance.

This section therefore considers how the following factors may help or hinder the successful adoption of TEL:

- The interfaces between the primary TEL team and the schools/departments.
- The structure of the TEL support model in terms of type of model, size of team, the changing role of the team and the location of TEL support within the institutional structures.

6.3.1 Interfaces with the schools/departments

Considering the relationships with the schools/departments, being able to identify and respond to the local needs was reported to be the most important mechanism for successful adoption of TEL. The interviews identified two key ways in which this

could be achieved: a network of school-based TEL champions/contacts; and school-facing/school-based TEL support staff.

TEL 'Champions' are defined as staff within academic schools or departments who have a formal responsibility for promoting the use of TEL (White, 2006). Since 2010, the UCISA TEL Surveys (Browne et al., 2010; Walker et al., 2012; Walker et al., 2014; Walker, Voce, Swift, et al., 2016) have consistently ranked the 'Availability of local champions' in the top six most important factors for encouraging the development of TEL. But how commonplace are local champions across the sector, how effective are they, and what role does the TEL support model have in cultivating the champions?

In the interviews, three participants reported the existence of a network of school-based TEL champions or contacts, typically co-ordinated by the primary TEL team. In one institution the network had evolved such that the individual schools co-ordinated their own network with oversight from a senior academic with responsibility for TEL. The UCISA case studies (Browne et al., 2010; UCISA, 2012, 2014; Walker, Voce, Swift, et al., 2016) provide some further examples of TEL champions in the sector. For example, York St John reported having a network of e-pedagogy teaching fellows who receive a small stipend to act as TEL champions within their faculty, contributing to plans for the use of TEL and overseeing local initiatives (UCISA, 2012). Glasgow Caledonian reported having a network of blended learning academic leads within each school and in one school the presence of several champions and a Blended Learning Group (UCISA, 2014). The University of South

Wales reported having champions within each school whose role was to provide specialist expertise and support for their colleagues (UCISA, 2014). However, these provide only a handful of examples, which could indicate that formal networks of champions are not necessarily widespread across the sector.

Local TEL champions within higher education have been cited in the literature as important (Cook, Holley, & Andrew, 2007; King & Boyatt, 2014; McPherson & Baptista Nunes, 2006) but with minimal research into their effectiveness. For example, King and Boyatt (2014) suggested that introducing local champions would help with increasing staff engagement, but do not explain the rationale for this recommendation. Likewise, McPherson and Baptista Nunes (2006) also emphasised a need for “strong e-learning champions to support e-learning and guarantee buy in from institutional stakeholders” (p555), but with minimal explanation as to why.

The interviews identified that the primary benefit of the local TEL champions was to act as a conduit for gathering needs and ensuring that the local needs align with the strategic ambitions of the institution. This is similar to the findings by Gramp (2013) who noted the benefits of the introduction of a TEL champions’ network within her institution as improved communication and idea generation with the departments. In addition, she reported an increase in the TEL activity within several departments as an outcome of the network. However, her network was only in its infancy, so it is not clear whether these would continue on a longer-term basis.

Gosling (2008), in the context of educational development, cited the benefits of a “distributed model with local champions who have credibility with their colleagues” (p.

30), but with the caveat that it can be difficult to find people willing to become a champion and have expertise to be able to do it well. The interview participants suggested that staff were typically nominated by the head of department and that the effectiveness of the local TEL champions was dependent on whether the staff involved were engaged in the process. In addition, it was suggested that connecting the network into the TEL governance structures helped to raise the importance of both TEL and the network, beyond simply being a community of practice, which would help with buy-in from both academics and heads of department.

The successful adoption of TEL was not felt to be wholly dependent on the engagement of the TEL champions alone. One interviewee noted that it also depended on the engagement between the school and the primary TEL team, which could be done through other means such as a network of associate deans for learning and teaching within each school. For example, at Edge Hill University the Faculty Associate Deans for Learning and Teaching are responsible for identifying and agreeing priorities for TEL through Faculty TEL Steering Groups (UCISA, 2016).

Zellweger Moser (2007) noted the value of central co-ordination, in terms of economies of scale, alongside the importance of being close to staff in order to “better understand and serve the individual needs” (p. 228). To support this approach, the second way of ensuring good engagement with schools is through school-facing or school-based TEL support staff. The respondents indicated that this approach enables the development of closer relationships with local staff and key innovators, enables tailored support to be provided and means that support could be

easier for the academics to access in person. Steeples and Zenios (2005) reported that where institutions had adopted a model with school-based teams, the TEL support could be more tailored to the different needs of each discipline. This aspect is explored further in Section 6.4.2, which considers disciplinary differences in the adoption of TEL and the provision of tailored TEL support. An important factor identified in the interviews was the co-ordination of the school-facing or school-based TEL staff by the primary TEL team to ensure that the institution maintains consistency of provision, realises economies of scale and reduces overlap and duplication. Where local TEL support exists independent of the primary TEL team, there is a need to ensure that the primary TEL team develops good relationships with the local teams and clarifies the responsibilities of each team. Beetham, Jones and Gornall (2001) noted that overlapping responsibilities provide the potential for conflict between central and local priorities, in terms of both planning and resource allocation. Steeples and Zenios (2005) suggested that greater devolution of support to a local level increased the importance of having a central team who could integrate and disseminate good practice across the institution. In addition, as evidenced in the TweetChat, it is important for local TEL support staff, especially those who are not within a TEL team, to feel part of a wider TEL community and it was noted in the interviews that this could be achieved by setting up a network or community of practice amongst TEL support staff. This could be a formal, regular network such as the ones set up at Oxford Brookes University (Sharpe, Benfield, & Francis, 2006) and Queen Mary University of London (UCISA, 2016) or less formal,

such as having regular coffee mornings, an approach used by Imperial College London and City, University of London (UCISA, 2012).

6.3.2 Structure of the TEL support model

Central co-ordination of TEL was felt to be useful in ensuring a more coherent institutional approach to the adoption and use of TEL; however, there were concerns raised that it may stifle innovation, especially at a grass roots level. The TEL support model should to be flexible enough to enable bottom-up innovation to occur and have a means for evaluating this innovation and bringing it into the mainstream.

The size of the primary TEL team was reported in both the survey and the interviews as the main hindrance to the effective adoption of TEL, in particular because it limits the ability to adequately support new initiatives and local needs. During the interviews, it was queried whether there was a suitable ratio for the number of TEL support staff to academic staff. One institution noted they had been advised to recruit three TEL support staff, following an institutional review, but it was not clear on what basis this figure had been determined. McAvinia (2016) cites a 2009 report by the Dublin Region Higher Education Alliance, which gives a figure of one TEL support person for every 173 lecturers, or one for every 3,000 students, based on data from eight institutions in the Dublin region. Considering the institutions interviewed for this research and utilising published statistics on numbers of academic staff, the ratios are estimated as ranging from 1:125 to 1:669 (based only on FTE of primary TEL team and FTE of academic staff). When local TEL support staff are included the ratios reduce slightly to a range of 1:100 to 1:335.

As TEL has become more embedded, the interviewees reported seeing the role of their teams changing, primarily in terms of the range of technologies supported, but also with greater emphasis on strategy and policy. The growth in the number and use of learning technologies has been reported in the UCISA Surveys, with the 2016 report (Walker, Voce, Swift, et al., 2016) identifying 25 types of centrally-supported tools compared with only six in the 2008 Survey (Browne et al., 2008). This is a significant increase since the initial UCISA Survey in 2001 (Jenkins, Browne, & Armitage, 2001), which focussed primarily on the use of Virtual Learning Environments (VLEs). Indeed, as noted in the interviews, TEL support typically started in response to a need to support a VLE and has grown from there. This growth in the role of the TEL team was suggested to be hindering the effectiveness of TEL support teams with several respondents indicating that their teams were expected to do more, but without a corresponding increase in staff. The 2016 UCISA Survey (Walker, Voce, Swift, et al., 2016) reported that over the previous two years 31% of institutions had seen a change in existing roles or the incorporation of other duties; however, 51% of institutions were fortunate to have received an increase in the number of TEL staff.

A factor which could both help and hinder the adoption of TEL is the location of TEL support within the institutional structure in relation to the perceived identity of the TEL staff. Zenios and Smith (2010) called for a need to “align organizational structures to centrally locate the e-learning centre” (p. 307) and to be aware of likely user perceptions around the function of an e-learning centre, named here as a TEL support team, based on its location. Shurville, Browne and Whitaker (2008)

suggested that location can bring about a perceived bias “towards either pedagogy or technology, which can affect credibility and voluntary uptake of services by academics” (p. 921). In both the survey and the interviews, respondents noted that being situated within an academically-focussed department was of benefit to ensuring that TEL was viewed with a more pedagogic focus and helped when working with academic staff. There was a desire not to be seen as an IT team, which correlates to the work of Steeples and Zenios (2005) who reported that where teams were co-located with IT support services, they were perceived to have a technology focus. Drawing parallels with the role of educational developers, Jones and Wisker (2012) reported similar concerns about credibility being affected by the location of an education development centre, specifically in terms of a team’s identity and their power within the institution, and cited one participant from their study who had suggested that being moved into an administrative building would be the ‘kiss of death’. This suggests that institutions need to consider the location of TEL support both physically and within the organisational structures to ensure that the team are perceived by academics to be credible. Two of the interview participants noted that location of TEL support is less of a factor for established teams who already have good relationships within the institution; however, it can take time to establish this reputation and it was reported that despite this, there may still exist a perception for TEL support staff in IT departments that they are there to fix computers. It was reported by one participant based in an IT department that a key benefit of this location was the more direct access to the technical teams supporting TEL, such as audio-visual teams, which made it easier to get things progressed and resolved due

to shared management structures. This was also noted by the University of Sheffield (UCISA, 2016) as a benefit, following a move from Academic and Learning Services to Corporate Information and Computing Services.

Another aspect of credibility noted in the interviews was how professional development could be used to ensure that TEL support staff have the “academic legitimacy” when working with academic staff (Armitage et al., 2004; Fox & Sumner, 2014). This was felt to be important in ensuring that the academic staff acknowledged and respected the TEL staff who were providing advice on the use of TEL. The interview participants reported that this credibility could be achieved through qualifications, such as a master’s or PhD, or through accredited programmes such as Fellowship of the Higher Education Academy (HEA) or Certified Membership of the Association for Learning Technology (CMALT) and several participants noted that staff were actively encouraged to undertake professional development activities. This reflects the findings from Browne and Beetham (2010), who also reported that gaining academic qualifications was one way that TEL staff could gain credibility. In terms of accreditation, Hudson (2009) reported some scepticism amongst learning technologists about the value of formal accreditation and noted that some schemes, specifically HEA Fellowship, may be perceived to have greater status than others. It would therefore be important to ensure that professional development activities promoted to TEL staff have adequate credibility both within the institution and within the sector.

6.3.3 Summary

This section has identified two main ways of ensuring that the primary TEL team provides appropriate support to the schools and can keep abreast of the school's needs with regard to TEL. This can be done through a network of school-based TEL champions or contacts and by the provision of school-facing or school-based TEL support staff, co-ordinated by the primary TEL team.

In terms of the structure of the TEL support model, there are several factors which may help or hinder the successful adoption of TEL. For example, the size of the team limits the amount of support provided and institutions need to be conscious that any increase in the number of technologies supported or a change in the role of the team must be supported by an increase in the number of TEL support staff. In addition, the location of TEL support can affect external perceptions of the role of the team, which in turn may affect to what degree academic staff will work with and value the support of the primary TEL team. Both of these aspects should be key considerations for heads of TEL looking to ensure their TEL support model is optimum for supporting the needs of the institution.

6.4 From the perspective of a head of TEL, to what degree is successful adoption of TEL influenced by organisational culture?

This section discusses how successful adoption of TEL might be influenced by culture at the institutional and departmental levels and then considers the role of influential people. It should be noted that the study reflects on perceived culture, based on the perspective of the head of TEL.

6.4.1 Institutional culture

The survey introduced the concept of organisational culture through the use of McNay's (1995) four culture framework (bureaucratic, collegium, corporate and enterprise), but provided flexibility for respondents to select multiple options to help to build up an overall picture of the institutional culture from their perspective.

Introducing this framework may have influenced the ways in which respondents viewed culture as the qualitative responses regarding institutional culture tended to refer to a power-based approach, e.g. top-down versus bottom-up, although there was the notion of culture being attributed to the importance of teaching against other activities, such as research, which is more values-based.

Using the themes from the survey responses as examples for the interviews meant that again the focus tended to be on the power relationships within the institution.

With this in mind, the respondents noted that a top-down approach was beneficial in terms of implementing institution-wide policies to help mainstream use of TEL, such as an e-assessment policy. There was concern raised that only using this approach would stifle innovation and that there is a need to ensure that a bottom-up approach is also encouraged and supported. This means that it is important for the TEL support model to enable both approaches, which reflects the findings in the literature (King & Boyatt, 2014; Nichols & Anderson, 2005; Thanaraj & Williams, 2016).

Mapping the types of TEL support models against the perceived institutional culture produced no correlation between the two, indicating that the perceived culture does not appear to heavily influence the structure of the TEL support. Based on McNay's

(1995) definitions of cultural types, given in Section 2.1.1, one might have expected that the more collegial institutions, where departments are the dominant units, would have more devolved/parallel support models, whilst the more corporate institutions, with a strong senior management team, would tend towards a centralised model, but this did not seem to be the case.

6.4.2 Departmental/school culture

Departmental culture was purposefully not defined in the survey and interviews, in order to elicit the respondent's understanding of departmental culture; however, in both cases the questions about departmental culture immediately followed those about institutional culture and so the role of power, in terms of the influence of key individuals, was prevalent in the responses given. The role of influential people is discussed in the next section.

Considering the more sociological aspects of culture, respondents did identify disciplinary differences in terms of how subjects are taught, as a factor in influencing the adoption of TEL, for example a mathematics department preferring to use blackboards. Since 2008, the UCISA surveys (Browne et al., 2010; Browne et al., 2008; Walker et al., 2012; Walker et al., 2014; Walker, Voce, Swift, et al., 2016) have reported a longstanding difference between the disciplines in terms of adoption of TEL, such that medical sciences and business and management programmes make the most use of TEL, whilst those with the least use tend to be the creative disciplines such as art and design, music and drama. Cultural factors, primarily based around the teaching style, were cited by the interview participants as reasons

for not adopting TEL. Disciplinary differences in relation to the adoption of TEL have also been highlighted in the UCISA TEL Case Studies (UCISA, 2016); for example, Edge Hill University suggested that it was easier to achieve consistency of approach within schools with similar disciplines, such as Health Sciences, whilst the University of Sheffield reported some faculties taking a more structured and systematic approach to TEL. Russell (2005) suggested that understanding these disciplinary differences could be helpful at an institutional level in relation to the structure of TEL support, as it could impact on the types of services provided centrally and the need for devolved support. Based on her research, she indicated that some disciplines, such as physics and mathematics, may require specialist TEL support to develop interactive media to help to explain core concepts to students which may need to be devolved from the central team if this is not a widespread need across the institution. This research found that where local TEL support exists, particularly individual learning technologists, it is often linked to a particular programme to provide more dedicated support or content development.

6.4.3 Influential people

King and Boyatt (2014) identified leadership and support from senior management as critical factors for successful implementation of TEL and this is also reflected by other examples from the literature (Armitage & O'Leary, 2003; Luckin et al., 2007; Walker, Voce, Swift, et al., 2016; Zellweger Moser, 2007). In this study, the survey and interviews identified the influence of key individuals both within departments, such as the head of department or a prestigious academic, and at an institutional level, such as a pro-vice chancellor for education or equivalent. In addition, Queen

Mary University of London attributed the high uptake of TEL to an influential member of staff whose enthusiasm for e-learning developed a TEL culture within the department (UCISA, 2016).

This influence can work in both a positive and a negative way by either championing TEL or fighting against it in favour of funding other activities. This reflects the findings by Land (1999) who noted the importance of deans in the context of championing educational development activities. It is therefore vital to ensure that Senior Managers at both institutional and local levels are engaged with TEL to ensure buy-in. However, unless the primary TEL team is able to support the local innovation, the more enthusiastic departments or schools may create their own TEL support models in order to meet their needs.

Another area touched upon was the influence of students in driving TEL developments. The findings suggest that student union elected officers are the primary point of contact for the head of TEL either through specific meetings or representation on committees. This is reflected in the UCISA TEL Case Studies (UCISA, 2016) with both Sheffield Hallam University and Queen Mary University of London also citing student representation on key TEL committees. Student campaigns in highlighting need for TEL, specifically lecture capture, were noted in the interviews as a driver for influencing TEL adoption.

6.4.4 TEL support culture

Another aspect of culture explored in this research related to whether there exists a TEL support identity within institutions (Oliver, 2012), such that staff in TEL support

roles regardless of their location act as a unitary tribe. The research also explored whether there was a difference in culture between the different teams involved in TEL support. The interviews introduced the concept of a TEL support identity, but as noted in Section 5.5.4 participants suggested that a unified identity might exist within the primary TEL team, but that there was not a cohesive TEL support identity across all of the different teams supporting TEL. As reported in Section 6.3.1, this TEL support identity could be developed through the use of a formal or informal community of practice within the institution.

In relation to differences in culture between the teams supporting TEL, participants identified a perceived difference in world view between learning technologists and other support services, such as IT, which reflects the findings by Zellweger Moser (2007). This difference was suggested to make working relationships more difficult when teams do not seem to be working towards a shared function or purpose.

6.4.5 Summary

In summary, there is a perception that cultural factors influence the adoption of TEL. At the institutional level, this is primarily in the way that the organisation co-ordinates TEL and whether there is a strong central drive coming from senior management. This can have a positive effect in mainstreaming TEL, but care must be taken not to stifle innovation at the departmental level.

Cultural factors at a school or department level tended to relate to different ways of teaching as well as the role of influential people, such as heads of department. From a head of TEL perspective, it is important to demonstrate good practice in the use of

TEL within the disciplines and to influence the senior managers within schools and departments to ensure that they present a culture that is supportive of TEL. This also links back to value of a network of TEL champions within schools, discussed in Section 6.3.1, which can help to promote TEL.

6.5 Summary

This chapter responded to the first three research questions and related the findings from the surveys, interviews and TweetChat to the literature. In particular, identifying the types of TEL support models within UK HE institutions and discussing how the TEL support model and the role of organisational culture helps or hinders the successful adoption of TEL.

The next chapter looks at the final research question – *Which factors should heads of TEL consider when changing their existing TEL support model?* – and will draw together the overall findings into a series of recommendations aimed primarily at heads of TEL.

Chapter 7 Conclusion

7.1 Introduction

This thesis has explored institutional support for TEL within UK higher education from the perspective of a head of TEL, or equivalent. Using a mixed-methods, three-stage explanatory sequential design approach, this research used the findings from a survey sent to the Heads of E-learning Forum (HeLF) to determine the focus for the second stage of the research, which used semi-structured interviews with selected heads of TEL to investigate specific areas of interest in greater depth. In addition, an online TweetChat was used to present initial findings to those working in the field of TEL to explore the findings further.

The previous chapters have presented the data from the survey, interviews and TweetChat, followed by a discussion of the findings against the literature, specifically the UCISA TEL Surveys (Browne et al., 2010; Browne et al., 2008; Walker et al., 2012; Walker et al., 2014; Walker, Voce, Swift, et al., 2016) and the related UCISA TEL Case Studies (UCISA, 2012, 2014, 2016). The discussion was situated in the context of the first three research sub-questions, which related to identifying existing TEL support models within UK HE and their evolution, how a TEL support model helps or hinders the successful adoption of TEL and the role of organisational culture in the adoption of TEL.

This concluding chapter starts by providing a summary of the findings for each of the first three research sub-questions, which sets the scene for responding to the fourth research sub-question and for drawing conclusions against the overarching research question: *How does an institution's TEL support model and its organisational culture help or hinder the successful adoption of TEL?*

7.2 Addressing the research questions

This section summarises the research findings against the first three research sub-questions by drawing together the findings from the previous three chapters: survey findings, interview findings and discussion.

7.2.1 What TEL support models exist within UK HE institutions and how have they evolved with the increased use of TEL?

The research identified that the model for TEL support varies between different institutions; however, the findings from both the survey and interview stages identified a predominant model for TEL support such that there exists a primary TEL team, based in a central division or department and who may co-ordinate TEL with other central teams. The primary TEL team is defined as the lead unit providing TEL support and typically where the head of TEL, or equivalent, is located. In addition, there is likely to be local TEL support within the schools or departments, representing a 'core and custom' model (Nichols & Anderson, 2005), however the level of co-ordination and collaboration between the local teams/individuals and the primary TEL team varies from being a 'hub-and-spoke' model to having no or little co-ordination or

collaboration. This predominant model was presented at the 2017 Association for Learning Technology Conference (ALT-C) (Voce, 2017b) using Figure 7.1 as an example; the majority of delegates indicated that it was generally representative of their own institution's support model. The example given in Figure 7.1 shows a primary TEL team centrally located within an IT department with close links to an educational development department and a local TEL team within the medical school. An individual learning technologist (LT) sits within another school or department with little to no interaction with the primary TEL team.

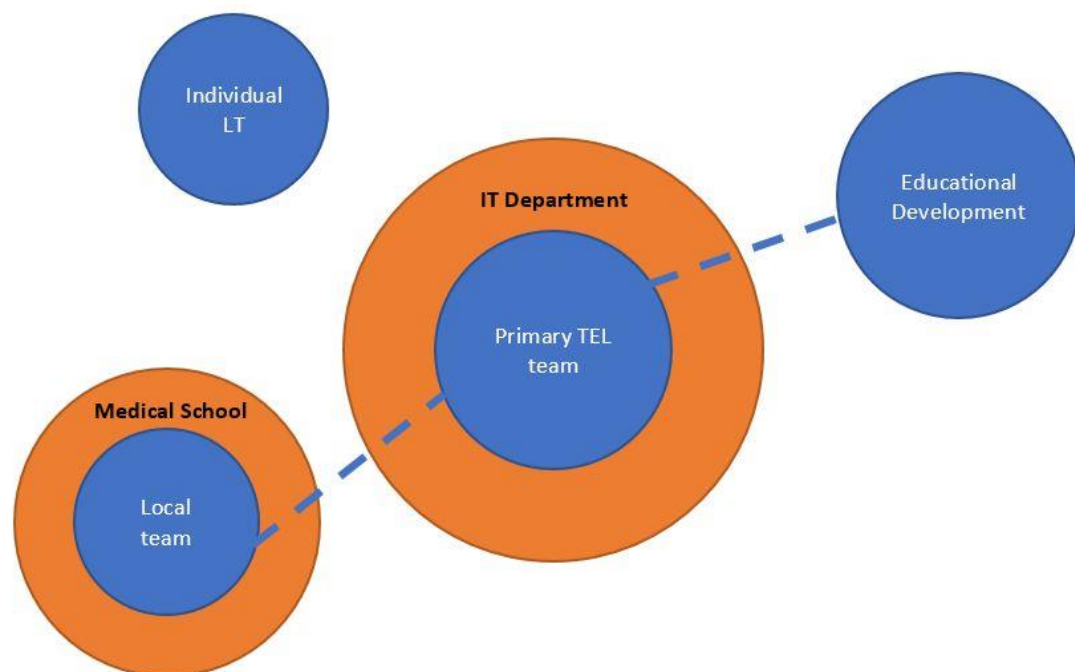


Figure 7.1: Example of a TEL support model.

Alongside the support model, the research also reviewed the governance structures in place for supporting TEL and identified a three-level structure for connecting TEL with the university's committee structures (see Figure 5.1).

Whilst this three-level structure was evident in the case study institutions considered in this study, data from the UCISA TEL Survey (Walker, Voce, Swift, et al., 2016) reported that this integration of TEL into the institutional governance structures was not commonplace across the sector. This was further supported by the presentation of findings at ALT-C 2017 (Voce, 2017b) where around half of the delegates reported having either no committees governing TEL or that the structure was not similar to that in their own institution.

In terms of how TEL support has evolved with increased use of TEL, it was noted in both the survey and interview stages that TEL support has generally grown organically, with institutions reporting the main change as a growth in the number of staff within the team. Findings from this research and the UCISA TEL Surveys (Walker et al., 2012; Walker et al., 2014; Walker, Voce, Swift, et al., 2016) have reported that whilst the majority evolved organically, for some institutions re-organisation of TEL support has been the result of a more strategic approach. With the continued growth of TEL and the increased level of interest in distance and online learning, it is possible that institutions will need to take a more strategic approach to reviewing their TEL support needs in the future. The results from this research would therefore be useful

in helping institutions to review and identify their own approach; this could be done by utilising the Framework for Action discussed in Section 7.3.

7.2.2 From the perspective of a head of TEL, which factors of a particular TEL support model help or hinder the successful adoption of TEL?

This question aimed to understand the critical success factors which enable greater or more effective adoption of TEL ('help') or prevent or slow down the adoption of TEL ('hinder'). In terms of how the support model itself might help or hinder the successful adoption of TEL, two key areas were suggested to have an influence: 1. the ability to identify and respond to local needs; and 2. the structure of the support model itself.

Considering the interface between the primary TEL team and the schools/departments, in terms of the ability to identify and respond to local needs, the research identified two mechanisms for success: a network of school-based TEL champions/contacts and school-facing TEL support staff co-ordinated by the primary TEL team. The role of TEL champions would be to act as a conduit for gathering needs and ensuring those needs align with the strategic ambitions of the institution as well as to promote TEL within their school or department. The importance of having school-facing staff is to enable the primary TEL team to develop closer relationships with academic and administrative staff in the school, including key innovators, in order to provide more tailored and easier to access support, whilst also ensuring consistency of provision across the institution. Where local TEL support staff

exist separate to the primary TEL team, it is important to ensure there is a network or community of practice of TEL support staff to avoid isolation of lone TEL staff and ensure good relationships between the TEL teams to reduce the potential for overlap and conflict.

The second area related to the structure of the support model itself, in particular the number of staff supporting TEL. Several respondents noted that small teams were limited in their ability to adequately support new initiatives and local needs. It was highlighted that where the primary TEL team were at capacity, schools or departments may look to establish their own TEL support separate from the primary TEL team which would perpetuate issues of co-ordination of TEL. Another factor was the growing remit of TEL support teams who once supported a VLE and are now expected to support a growing number of learning technologies, with a minimal increase in staff. The location of TEL support was also suggested to be important in influencing the adoption of TEL in relation to the perception of TEL within the institution. Alignment with an IT-focussed team could mean that TEL support is perceived to be more technology-focussed, whilst being situated alongside departments with a teaching and learning focus might provide more credibility for TEL staff when dealing with academic staff.

7.2.3 From the perspective of a head of TEL, to what degree is successful adoption of TEL influenced by organisational culture?

For this question, the research considered perceived culture at the institutional level and at a departmental level from the perspective of a head of TEL. Whilst the survey and interviews aimed to leave the definition of culture open to the respondents, it is possible that the introduction of McNay's (1995) framework in the surveys may have influenced how the respondents perceived culture as a result of the language used to describe cultural types, e.g. bureaucratic, collegium. To mitigate against this, the surveys encouraged participants to consider a multiple-cultural configuration through the question design. The interviews avoided reference to McNay's framework and a cultural type, instead providing examples that were power-based (e.g. top-down versus bottom-up approaches) and values-based (e.g. value of teaching versus research).

In terms of institutional culture, respondents referred to culture in terms of the institutional approach to TEL implementation – 'top-down' versus 'bottom-up'. It was suggested that successful adoption of TEL for institution-wide initiatives was more successful with the support of a top-down approach; however, there were concerns that innovation would be stifled if this was the only approach taken. Respondents indicated that a mix of top-down and bottom-up approaches were needed for both large-scale implementation and smaller scale innovations. There were some references to individual perceptions of

culture affecting adoption; for example, one respondent who noted that the implementation of VLE minimum expectations would not work in their institution, despite this being successful elsewhere (UCISA, 2018).

At the department level, power relationships were prevalent in the responses, in particular the role of influential people; for example, it was suggested that a head of department supportive of or interested in TEL would heavily influence successful adoption of TEL within that department. This finding also extended to the institutional level, where a pro-vice chancellor for education could also influence TEL adoption either positively or negatively. Disciplinary differences, in terms of how the subjects are taught, were suggested to influence the extent to which a particular discipline would adopt technology in their teaching. For example, a mathematics department preferring to use blackboards, which can make adoption of lecture capture more difficult.

7.3 Developing a Framework for Action

The fourth research sub-question asked *Which factors should heads of TEL consider when changing their existing TEL support model?* with the intention of providing a practical way forward for heads of TEL who would like to review their existing TEL support model. This section utilises the notion of a Framework for Action (Bamber et al., 2009) to provide a summary of the findings followed by a series of reflexive questions to act as a bridge between the ideas presented and actions that might be taken to enhance a particular

practice (Saunders, Bamber, & Trowler, 2009), in this case the TEL support model.

The findings reported on three key aspects of a TEL support model that were suggested to influence the successful adoption of TEL and so provide a useful starting point for heads of TEL or senior managers looking to review an existing TEL support model or implement a new one.

The research identified the predominant TEL support model as having a primary TEL team and some local TEL support, typically unconnected from the primary TEL team. The factors presented below are therefore based upon the success indicators from this type of support model and as such the following suggestions will be more relevant to institutions where a similar model exists. As discussed in the previous chapter, the key factors identified by the research were related to the size and location of TEL support, how institutions identify and support local needs and the governance structures in place for TEL. These three factors are now discussed further in the context of the fourth research sub-question: *Which factors should heads of TEL consider when changing their existing TEL support model?*

7.3.1 Size and location of TEL support

The research identified that the primary TEL team was often working at capacity, which limited the amount that they could do within the institution. It was suggested that this was a primary driver for schools or departments

recruiting their own TEL staff separate to the primary TEL team. It is therefore necessary to consider whether the primary TEL team is able to respond to current and future needs of the institution, especially before implementing new technologies or services and to ensure there is a mechanism in place for increasing the number of staff or providing the facility for existing staff to upskill or reskill as required. The following questions may help develop an understanding of the flexibility of the current TEL staffing numbers:

- How do you ensure that new technologies or policies for the use of TEL are adequately supported?
- What mechanisms exist for reviewing the institution's current and future TEL support needs? How is additional staff resource obtained?
- What mechanisms exist for reviewing and developing your team's skills?

Location of TEL support was suggested to influence the perception of the primary TEL team within the institution (both positively and negatively). Common locations for the primary TEL team included being within an academic-oriented department or within an IT department and reporting up to the corresponding institutional committees, e.g. teaching and learning or IT. It would be prudent to consider the location of the team within the institutional structures, in terms of both line management and governance, and in terms of relationships with other teams. Teams wishing to portray a more academic, pedagogic focus may find it better to be located within an educational

development or academic services department. However, this could mean a trade off with the relationship with other key TEL support departments such as IT. These relationships may require more work and take longer to develop than if the team were located within an IT department which brings benefits from common line management with the IT teams delivering the TEL services and supporting infrastructure. The following questions may be of use to heads of TEL considering the location of their own team:

- In what way or ways is your team perceived within your institution?
How does this affect the work of the team?
- Considering your current location within the institutional structure, consider the strengths, weaknesses, opportunities and threats (SWOT) of being in this location.
- Now consider another location in the institutional structure. Use a SWOT analysis to identify whether your team would benefit from being aligned with another part of the institution.

7.3.2 Identifying and supporting local needs

The research identified a need for a primary TEL team to establish mechanisms to identify and support the needs of staff at a local level, e.g. department or school. Two key mechanisms were identified:

- Network of TEL contacts or champions within schools or departments
- School-facing/school-based staff within the primary TEL team

Both mechanisms were suggested to enable the primary TEL team to establish good working relationships with the schools, ensure staff engagement with TEL and provide a channel for communication between the school and the primary TEL team for discussing school and institutional strategic priorities.

When considering existing practice in this area, heads of TEL should consider the following questions:

- How does your team identify the local priorities for TEL? How effective is this?
- How do these priorities feed into the strategic direction of your team and that of the institution?
- How is innovation currently identified and supported? How effective is this?
- How engaged are the schools/departments with your team? What mechanisms are in place for exchanging information?

7.3.3 TEL governance

The research and the literature identified that governance of TEL and the link between TEL governance and the institutional governance structures was suggested to be important for ensuring greater buy-in for policy decisions and raising the visibility of TEL within the senior levels of an institution. The literature also identified that a number of UK HEIs do not have an institutional

committee governing TEL (Walker, Voce, Swift, et al., 2016); however, it was not clear whether these HEIs felt disadvantaged by this. As noted in the previous chapter, Beetham, Jones and Gornall (2001) suggested that the type of institution may determine the need for a committee-based governance structure and as such, the important factor here is that there is some form of governance in place and not necessarily a committee-based structure. When considering existing practice in this area, heads of TEL should consider the following questions:

- Who sets the strategic direction for TEL? How is this strategy monitored and communicated to the rest of the institution?
- Who oversees and approves policies for TEL? How effective is this process?
- How are senior managers made aware of TEL developments? How effective is this?

7.3.4 Summary – a Framework for Action

The fourth research sub-question aimed to provide a starting point for heads of TEL to consider their own structure based on three key factors – the size and location of TEL support, how institutions identify and support local needs and the governance structures in place for TEL. For each factor a series of questions has been presented as a starting point for heads of TEL to consider the effectiveness of their current TEL support model and governance. This is an area that could be developed further and, with this in mind, one output

from this thesis is the production of a draft Framework for Action (Bamber et al., 2009; Trowler & Trowler, 2010) to be used by heads of TEL and senior managers to review the effectiveness of their TEL support model with a view to identifying potential changes.

A draft Framework for Action has been developed utilising the questions suggested for each of the three key factors. In order to set the scene for discussing the factors, the Framework for Action asks heads of TEL to scope out their current TEL support model, considering the other teams involved in supporting TEL and the level of influence and interaction they currently have with them. The influence/interaction grid has been based on the power/interest grid used in stakeholder analysis (Eden & Ackermann, 1998) and relates to the research findings in terms of the relationships with other TEL support teams. The reliance on good relationships with other TEL teams was noted as a factor in the success of a particular model.

The questions have been presented in four sections which each end with a confidence rating and the opportunity to identify potential areas for change. The purpose of the confidence rating is to enable the head of TEL to think about how confident they are in how their TEL support is currently operating; this can then be revisited after changes have been made.

This Framework for Action was trialled with three peers who completed it based on their current or previous institution. Feedback was positive about the reflective nature of the questions and they agreed that it was a useful tool to

get people thinking about their TEL support model. Improvements suggested related to terminology used, the layout/formatting of the document, for example making it easier to complete digitally rather than printing out, and the need to provide explanatory text to assist with completing the document. It was noted that the framework might not be as useful for institutions where there is no primary TEL team; this has now been clarified in the explanatory notes for the document. The interaction versus influence grid was felt to be especially enlightening and useful for identifying which teams could work more closely together. The revised version of the Framework for Action is provided in Appendix 5.

7.4 From the perspective of a head of TEL, how does an institution's TEL support model and its organisational culture help or hinder the successful adoption of TEL?

This research aimed to answer the above overarching research question by responding to the four research sub-questions previously discussed. This chapter has provided an overview of the research findings for the sub-questions which have identified several factors that could help or hinder the successful adoption of TEL, such as the size and location of the team, the interfaces with the schools or departments, the cultures at both an institutional level and school level and the role of influential people.

Considering the TEL support model itself, there is a key role for the primary TEL team to play in terms of working with schools and departments to achieve

their objectives. If the TEL support model is too restrictive or too distant from the schools and departments, then an institution may find that uncoordinated local TEL support models emerge, which can hinder the consistency of TEL support and adoption. It is therefore important that the primary TEL team works to either ensure they can adequately meet the needs of the institution or develops relationships with local TEL staff.

In terms of organisational culture, the findings here reflect the literature in that there is a cultural influence on the adoption of TEL, primarily in relation to the power within an institution; for example, the mainstreaming of technology through policies, but also in relation to different levels and ways of adopting TEL within the disciplines. The findings emphasised the importance of influential people, such as senior managers and students, in the adoption of TEL and the role of heads of TEL to ensure these people are engaged and on board with TEL.

7.5 Significance of the study

This research responds to a need echoed by heads of TEL into the structure of TEL support in other HE institutions. The research identifies a predominant TEL support model within UK HE and reviews the effect of TEL support models and organisational culture on the successful adoption of TEL.

As discussed in Section 3.8, the findings presented here were not expected to be generalisable across the whole UK HE sector due to the small sample sizes for the survey and interviews. However, by considering five cases in-

depth alongside 30 case studies from UCISA (Browne et al., 2010; UCISA, 2012, 2014, 2016), the analysis has identified some common themes within the sector from the perspective of a head of TEL. These relate to the structure of TEL support, primarily in terms of size and location within the organisational hierarchy, how institutions identify and support local needs and the governance structures in place for TEL. The findings are of most relevance to those working in the field of TEL for whom the structure of TEL support and its effectiveness impact directly on their roles, such as learning technologists and heads of TEL, and senior managers within UK HEIs, such as pro-vice chancellor for education or professional services directors, for whom the structure of TEL support may be under consideration as part of a review of how the institution supports TEL. In addition, the literature review has identified that the structure of TEL support has been the topic of review in other countries, primarily the USA, Australia, Canada and South Africa, and so this work would be of benefit to those investigating TEL support within other countries as a comparative study to provide a UK perspective.

7.6 Contribution to knowledge

The aim of this research was to investigate how an institution's TEL support model and the perceived organisational culture might help or hinder the successful adoption of TEL and was broken down into four key areas linked to the research sub-questions (RSQs) presented in Section 1.2.

7.6.1 Describing TEL support in UK HE

In relation to the types of TEL support model within UK HE (RSQ1), the literature review identified that there had been limited research into the UK perspective since the findings from Beetham, Jones and Gornall (2001). McPherson and Baptista Nunes (2006) highlighted a lack of research into the organisational and institutional aspects of TEL implementation whilst Shurville, Browne and Whitaker (2008) called for further research into organisational structures for TEL, with particular reference to the UK and Australian contexts. This research therefore responds to the call by Shurville, Browne and Whitaker (2008) by providing a more recent overview of TEL support within UK HE. A key output is the identification of a predominant TEL support model, such that there exists a primary TEL team based in a central department, often working in conjunction with other central teams supporting TEL, and alongside some local TEL support, typically unconnected from the primary TEL team (Figure 7.1).

It also provides a reflection on how the area of TEL support has evolved since the Beetham, Jones and Gornall (2001) study. Despite the mainstreaming of TEL and the expansion of TEL support teams (Walker, Voce, & Jenkins, 2016), a number of the challenges identified by Beetham et al. (2001) remain. For example, there remain multiple locations for TEL support within an institution and a lack of co-ordination in some areas still leads to duplication of effort. They had also called for senior managers to ensure representation for

TEL staff on institutional committees, but as evidenced here this is not widespread across the sector. Finally, there continue to be challenges in identifying and understanding local needs, although the research has identified means for doing this through TEL champions' networks and school-facing/school-based TEL staff.

This study also provides a more in-depth analysis of the research from the UCISA TEL Surveys (Browne et al., 2010; Browne et al., 2008; UCISA, 2011; Walker et al., 2012; Walker et al., 2014; Walker, Voce, Swift, et al., 2016) and the corresponding case studies (Browne et al., 2010; UCISA, 2012, 2014, 2016) by probing further into areas reported in the surveys, such as the types of TEL support and the role of TEL governance. Whilst the survey data provides a numerical overview, the analysis of the UCISA case studies alongside five original case studies for this research provides more insight into the meaning behind the numbers. In addition, the outputs from this work have already fed into the design of questions for the 2018 UCISA TEL survey; for example, the addition of a question to identify the main TEL support unit, thus providing a richer data set for UCISA and the UK HE community.

7.6.2 Understanding the effectiveness of TEL support in UK HE

The research also considered how the TEL support model itself might help or hinder the successful adoption of TEL (RSQ2), which provides a new insight into the effectiveness of TEL support from the perspective of a head of TEL.

Two key areas were suggested to have an influence: 1. the ability to identify and respond to local needs; and 2. the structure of the support model itself.

Considering the first area, it was noted in the previous chapter that the literature recommends the use of TEL champions with minimal explanation as to the benefits (Cook et al., 2007; King & Boyatt, 2014; McPherson & Baptista Nunes, 2006). This study contributes to the literature by providing insights into the benefits of TEL champions, such as acting as a conduit for gathering local needs and ensuring that the local needs align with the strategic ambitions of the institution; this reflects the research of Gramp (2013) whose network was in its infancy when her study took place.

In addition, the role of school-based or school-facing staff is under-researched in the literature with only a small number of references identified in the literature review. Those identified only briefly discuss the role of school-based learning technologists within the context of an institutional case study on the adoption of TEL (Davis & Fill, 2007; Sharpe et al., 2006). This research therefore provides a more comprehensive perspective on the role of these staff for facilitating closer relationships with the schools/departments. This research also identifies the importance of co-ordination by the primary TEL team to ensure that the institution maintains consistency of provision, realises economies of scale and reduces overlap and duplication. The role of school-based and school-facing staff would make an interesting area for further

research and would complement the existing literature on TEL support models.

Considering the second area, the structure of the support model, this study has identified the number of TEL support staff as a key factor in helping or hindering adoption of TEL and has provided some ratios between academic staff and TEL support staff that could be used to compare team sizes. In addition, this study has explored the potential influence of location within the organisational structure. The findings add to the existing literature (Armitage et al., 2004; Fox & Sumner, 2014; Shurville et al., 2008) around perceptions and credibility of TEL support staff and makes connections with similar literature in the educational development domain (Jones & Wisker, 2012).

7.6.3 Understanding the role of organisational culture on TEL adoption

The research also focussed on the influence of organisational culture from a head of TEL perspective on the adoption of TEL (RSQ3), in particular departmental/school culture and the role of influential people. This brings a new perspective on organisational culture as the research is framed within the notion of an individual's perception of culture, rather than a prescribed institutional cultural type as a result of aggregated viewpoints. The recommendation here is that institutions should ensure that they can support both top-down and bottom-up approaches to enable both large-scale implementation alongside small-scale innovations which reflects the findings in the literature (King & Boyatt, 2014; Nichols & Anderson, 2005; Thanaraj &

Williams, 2016). In addition, the findings on departmental culture reflect the literature (Russell, 2005; Walker, Voce, & Jenkins, 2016) such that disciplinary differences are perceived to affect the adoption of TEL.

7.6.4 Contributions to research design

In addition to the contributions to the literature, this study also contributes a revised research design. Whilst a two-stage explanatory sequential design is a standard approach in mixed-methods research, the use of a TweetChat has been an interesting enhancement to the research design as a means of verifying the themes with a wider audience as well as probing for further information. This enhanced design may be of interest to researchers following a two-stage explanatory design approach which involves surveys and interviews and would be a means of verifying their findings with a wider audience.

7.6.5 Implications for practice

The aim of the fourth research sub-question was to produce a practical output that could be used by heads of TEL, or equivalent, to review their own TEL support model. The factors identified in this research have therefore been used to create a Framework for Action (Bamber et al., 2009). The Framework provided in Appendix 5 gives an immediate focus for heads of TEL or other senior managers to start evaluating their own support models and could feed into a further study to refine and trial the Framework with institutions planning

a re-organisation of their TEL support. The next steps for this research are to trial the Framework for Action with institutions planning a re-organisation of their TEL support with a view to evaluating its effectiveness and further refining the Framework.

7.7 Summary

This concluding chapter has summarised the research with respect to the overarching research question and discussed the significance of these findings and how they relate to the existing body of knowledge. By doing this, a draft Framework for Action has been developed which provides heads of TEL with an initial focus for considering their own TEL support model with a view to identifying possible areas for improvement. The next stage of this research will be to trial the Framework with institutions currently undergoing a restructure of their TEL provision to review its effectiveness as a tool and provide further refinements.

References

- Adamy, P., & Heinecke, W. (2005). The Influence of Organizational Culture on Technology Integration in Teacher Education. *Journal of Technology and Teacher Education*, 13(2), 233-255.
- Almpanis, T. (2015a). Staff Development and Institutional Support for Technology Enhanced Learning in UK Universities. *Electronic Journal of e-Learning*, 13(5), 366-375.
- Almpanis, T. (2015b). *Staff Development and Wider Institutional Approaches Around Technology Enhanced Learning in Higher Education Institutions in the United Kingdom from the Heads of E-learning Perspective*. (PhD Thesis). Lancaster University, Lancaster,
- Alvesson, M. (2002). *Understanding Organizational Culture*. London: SAGE Publications Ltd.
- Arabasz, P., & Baker, M. B. (2003). *Evolving Campus Support Models for E-Learning Courses*. Retrieved from <https://net.educause.edu/ir/library/pdf/EKF/ekf0303.pdf>
- Arabasz, P., Pirani, J. A., & Fawcett, D. (2003). *Supporting E-learning in Higher Education*. Retrieved from <https://www.educause.edu/ir/library/pdf/ers0303/rs/ers0303w.pdf>
- Armitage, S., Bryson, M., Creanor, L., Higgison, C., Jenkins, M., Ringan, N., . . . Yip, H. (2004). *Supporting Learning Technology: Relationships With Research and Theory*. Paper presented at the Networked Learning Conference 2004, Lancaster University, Lancaster.
- Armitage, S., & O'Leary, R. (2003). *e-Learning Series No 4: A guide for Learning Technologists*. Retrieved from https://www.heacademy.ac.uk/system/files/id324_a_guide_for_learning_technologists_elearning_series_no_4_1.pdf
- Armitage, S., Rothery, A., & Jenkins, M. (1999). *Report of a UCISA survey of support provided in Universities and Colleges for the use of technology in teaching and learning*. Retrieved from <https://www.ucisa.ac.uk/-/media/groups/ssg/surveys/vlesurvey99%20pdf.ashx?la=en>
- Ashkanasy, N. M., Broadfoot, L. E., & Falkus, S. (2000). Questionnaire Measures of Organizational Culture. In N. M. Ashkanasy, C. P. M. Wilderom, & M. F. Peterson (Eds.), *Handbook of Organizational Culture & Climate*. Thousand Oaks, CA: SAGE Publications Inc.
- Bamber, V., Trowler, P., Saunders, M., & Knight, P. (2009). *Enhancing Learning, Teaching, Assessment and Curriculum in Higher Education*. Maidenhead: Open University Press.

- Becher, T. (1989). *Academic Tribes and Territories*. Buckingham: The Society for Research into Higher Education and Open University Press.
- Becher, T., & Trowler, P. (2001). *Academic Tribes and Territories: intellectual enquiry and the cultures of disciplines* (2nd ed.). Buckingham: The Society for Research into Higher Education and Open University Press.
- Beetham, H., Jones, S., & Gornall, L. (2001). Career Development of Learning Technology Staff: Scoping Study Final Report. Retrieved from http://www.jisc.ac.uk/media/documents/programmes/jos/cdss_final_report_v8.pdf
- Bergquist, W. H. (1992). *The Four Cultures of the Academy: Insights and Strategies for Improving Leadership in Collegiate Organizations*. San Francisco, CA: Jossey-Bass.
- Beytekin, O. F., Yalçinkaya, M., Doğan, M., & Karakoç, N. (2010). The Organizational Culture At The University. *The International Journal of Educational Researchers*, 2(1), 1-13.
- Bichsel, J. (2013). *The State of E-Learning in Higher Education: An Eye toward Growth and Increased Access (Research Report)*. Retrieved from <https://net.educause.edu/ir/library/pdf/ers1304/ers1304.pdf>
- Birnbaum, R. (1991). *How Colleges Work. The Cybernetics of Academic Organization and Leadership*. San Francisco, CA: Jossey Bass.
- Boezerooij, P. (2006). *E-learning strategies of higher education institutions*. (PhD Thesis). Universiteit Twente, The Netherlands, Retrieved from <https://www.utwente.nl/en/bms/cheps/education/phd-page/cheps-alumni-and-their-theses/2006boezerooydissertation.pdf>
- Bray, M. (2003). Control of Education: Issues and Tensions in Centralization and Decentralization. In *Comparative Education: The Dialectic of the Global and the Local* (pp. 204-228). Lanham, MD: Rowman & Littlefield.
- Browne, T., & Beetham, H. (2010). *The positioning of educational technologists in enhancing the student experience. Report funded by The Higher Education Academy under its Call4: Enhancing Learning and Teaching through the use of Technology*. Retrieved from http://repository.alt.ac.uk/831/1/Tom_Browne_Helen_Beetham_HEA_finalweb.pdf
- Browne, T., Hewitt, R., Jenkins, M., Voce, J., Walker, R., & Yip, H. (2010). *UCISA 2010 Survey of Technology Enhanced Learning for higher education in the UK*. Retrieved from http://www.ucisa.ac.uk/~media/groups/ssg/surveys/TEL%20survey%202010_FINAL
- Browne, T., Hewitt, R., Jenkins, M., & Walker, R. (2008). *UCISA 2008 Survey of Technology Enhanced Learning for higher education in the UK*. Retrieved from

<http://www.ucisa.ac.uk/~media/Files/publications/surveys/TEL%20survey%202008%20pdf.ashx>

- Butterfield, L. D., Borgen, W. A., Amundson, N. E., & Maglio, A.-S. T. (2005). Fifty years of the critical incident technique: 1954–2004 and beyond. *Qualitative Research*, 5(4), 475-497.
- Cameron, K. S., & Freeman, S. J. (1991). Cultural Congruence, Strength, and Type: Relationships to Effectiveness. *Research in Organizational Change and Development*, 5, 23-58.
- Chang, V., & Uden, L. (2008). *Governance for E-learning ecosystem*. Paper presented at the 2008 2nd IEEE International Conference on Digital Ecosystems and Technologies, Phitsanulok, Thailand.
- Charmaz, K. (2000). Grounded Theory: Objectivist and Constructivist Methods. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (2nd ed., pp. 509-535). Thousand Oaks, CA: SAGE Publications Inc.
- Coen, M., & Nicol, D. J. (2007). Managing investment in teaching and learning technologies. *Perspectives: Policy and Practice in Higher Education*, 11(1), 25-28.
- Cohen, L., Manion, L., & Morrison, K. (2011). *Research Methods in Education* (7th ed.). Abingdon: Routledge.
- Cook, J., Holley, D., & Andrew, D. (2007). A stakeholder approach to implementing e-learning in a university. *British Journal of Educational Technology*, 38(5), 784-794. doi:10.1111/j.1467-8535.2007.00755.x
- Creswell, J. W., & Plano Clark, V. (2011). *Designing and Conducting Mixed Methods Research* (2nd ed.). Thousand Oaks, CA: SAGE Publications Inc.
- Czerniewicz, L. (2008). Distinguishing the Field of Educational Technology. *e-Journal of e-Learning*, 6(3), 171-178.
- Czerniewicz, L., & Brown, C. (2009). A study of the relationship between institutional policy, organisational culture and e-learning use in four South African universities. *Computers & Education*, 53, 121-131. doi:10.1016/j.compedu.2009.01.006
- Data Protection Act (1998). Retrieved from <https://www.legislation.gov.uk/ukpga/1998/29/contents>
- Davis, H. C., & Fill, K. (2007). Embedding blended learning in a university's teaching culture: Experiences and reflections. *British Journal of Educational Technology*, 38(5), 817-828.
- Dellinger, A. B., & Leech, N. L. (2007). Toward a Unified Validation Framework in Mixed Methods Research. *Journal of Mixed Methods Research*, 1(4), 309-332.
- E-LEN. (n.d.). Design expertise for e-learning centres. Retrieved from <http://www2.tisip.no/E-LEN/info/e-len-leaf2.pdf>

- Eden, C., & Ackermann, F. (1998). *Making Strategy: The Journey of Strategic Management*. London: SAGE Publications Ltd.
- Embi, M. A. (2011). *e-Learning in Malaysian Institutions of Higher Learning: Status, Trends and Challenges*. Paper presented at the International Lifelong Learning Conference (ICLLL 2011), Kuala Lumpur, Malaysia.
- Flanagan, J. C. (1954). The Critical Incident Technique. *Psychological Bulletin*, 51(4), 327-358.
- Fox, O., & Sumner, N. (2014). Analyzing the Roles, Activities, and Skills of Learning Technologists: A Case Study From City University London. *American Journal of Distance Education*, 28(2), 92-102. doi:10.1080/08923647.2014.897465
- Further and Higher Education Act (1992). Retrieved from <https://www.legislation.gov.uk/ukpga/1992/13/contents>
- Glaser, B. G., & Strauss, A. L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Chicago, IL: Aldine.
- Gornall, L. (1999). 'New professionals': Change and occupational roles in higher education. *Perspectives: Policy and Practice in Higher Education*, 3(2), 44-49. doi:10.1080/13603109981847
- Gosling, D. (2008). *Educational Development in the United Kingdom. Report for the Heads of Educational Development Group (HEDG)*. Retrieved from http://www.hedg.ac.uk/ico/wp-content/uploads/2016/02/HEDG_Report_final.pdf
- Graham, C. R., Woodfield, W., & Harrison, J. B. (2013). A framework for institutional adoption and implementation of blended learning in higher education. *Internet and Higher Education*, 18, 4-14.
- Gramp, J. (2013). *Beyond the baseline: working with e-learning champions to transform e-learning at a research-led university*. Paper presented at the 2nd Moodle Research Conference, Sousse, Tunisia.
- Guri-Rosenblit, S., & Gros, B. (2011). E-learning: Confusing Terminology, Research Gaps and Inherent Challenges. *International Journal of E-learning and Distance Education*, 25(1).
- Hall, R. H. (1991). *Organizations: Structures, Processes and Outcomes* (Fifth ed.). London: Prentice-Hall International Editions.
- Handy, C. (1999). *Understanding Organizations* (Fourth ed.). London: Penguin Books.
- Haughey, M. (2006). Organizational Models for Faculty Support: The Response of Canadian Universities. In M. Bullen & D. P. Janes (Eds.), *Making the Transition to E-Learning: Strategies and Issues* (pp. 17-32). London: Information Science Publishing.
- Hawksey, M. (n.d.). TAGS. Retrieved from <https://tags.hawksey.info/>

- HeLF. (n.d.). About HeLF. Retrieved from <https://helfuk.blogspot.com/p/about-helf.html>
- Higher Education Academy. (2008). *E-learning benchmarking + Pathfinder programme 2005-08. An overview*. Retrieved from https://www.heacademy.ac.uk/system/files/benchmarking_final.pdf
- Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). *Cultures and organisations: software of the mind* (3rd ed.). New York, NY: McGraw-Hill.
- Hsieh, H.-F., & Shannon, S. E. (2005). Three Approaches to Qualitative Content Analysis. *Qualitative Health Research*, 15(9), 1277-1288. doi:10.1177/1049732305276687
- Hudson, A. (2009). *New professionals and new technologies in new higher education? : Conceptualising struggles in the field*. (PhD Thesis). Umeå University, Sweden, Retrieved from <http://www.diva-portal.org/smash/record.jsf?pid=diva2:236168>
- Ivankova, N., & Stick, S. (2007). Students' persistence in a Distributed Doctoral Program in Educational Leadership in Higher Education: A mixed methods study. *Research in Higher Education*, 48(1), 93-135.
- Jenkins, M., Browne, T., & Armitage, S. (2001). *Management and implemetation of Virtual Learning Environments: a UCISA funded survey*. Retrieved from https://www.webarchive.org.uk/wayback/archive/20080925091422/http://www.ucisa.ac.uk/groups/tlig/~media/groups/tlig/vle_surveys/VLEReport.ashx
- Jenkins, M., Browne, T., & Walker, R. (2005). *VLE Surveys - A longitudinal perspective between March 2001, March 2003 and March 2005 for higher education in the United Kingdom*. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.592.9552&rep=rep1&type=pdf>
- Jisc. (2004). *Effective Practice with e-Learning*. Retrieved from <https://www.jisc.ac.uk/media/documents/publications/effectivepracticeeelearning.pdf>
- Jisc. (2014). *Embedding Learning Technologies Institutionally*. Retrieved from https://www.webarchive.org.uk/wayback/archive/20140614081157/http://www.jisc.ac.uk/whatwedo/programmes/programme_ios/project_elti.aspx
- Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed Methods Research: A Research Paradigm Whose Time Has Come. *Educational Researcher*, 33(7), 14-26. doi:10.3102/0013189x033007014
- Johnson, T. P. (2014). Snowball Sampling: Introduction. In N. Balakrishnan, T. Colton, B. Everitt, W. Piegorisch, F. Ruggeri, & J. L. Teugels (Eds.), *Wiley StatsRef: Statistics Reference Online*: doi: 10.1002/9781118445112.
- Jones, J., & Wisker, G. (2012). *Educational Development in the United Kingdom. Report for the Heads of Educational Development Group (HEDG)*. Retrieved

from <http://www.hedg.ac.uk/ico/wp-content/uploads/2016/02/HEDGFinalReport2012.pdf>

- Jung, T., Scott, T., Davies, H. T. O., Bower, P., Whalley, D., McNally, R., & Mannion, R. (2009). Instruments for Exploring Organizational Culture: A Review of the Literature. *Public Administration Review*, 69(6), 1087-1096. doi:10.1111/j.1540-6210.2009.02066.x
- Kezar, A. (2001). *Understanding and Facilitating Organizational Change in the 21st Century: Recent Research and Conceptualizations* (Jossey-Bass Ed. Vol. 28). San Francisco, CA: Jossey-Bass.
- Kezar, A., & Eckel, P. D. (2002). The effect of institutional culture on change strategies in higher education: Universal principles or culturally responsive concepts? *The Journal of Higher Education*, 73(4), 435-460.
- King, E., & Boyatt, R. (2014). Exploring factors that influence adoption of e-learning within higher education. *British Journal of Educational Technology*, 46(6), 1272-1280.
- Kirkwood, A., & Price, L. (2014). Technology-enhanced learning and teaching in higher education: what is 'enhanced' and how do we know? A critical literature review. *Learning, Media and Technology*, 39(1), 6-36.
- Kirkwood, A., & Price, L. (2016). *Technology-Enabled Learning Implementation Handbook*. Burnaby, BC: Commonwealth of Learning.
- Kummerow, E., & Kirby, N. (2013). *Organisational Culture: Concept, Context, And Measurement (In Two Volumes)*. Singapore: World Scientific.
- Lacatus, M. L. (2013). Organizational culture in contemporary university. *Procedia - Social and Behavioral Sciences*, 76, 421-425.
- Land, R. (1999). *Agency and Context in Educational Development*. (PhD Thesis). Lancaster University, Lancaster,
- Land, R. (2006). Paradigms Lost : academic practice and exteriorising technologies. *E-learning*, 3(1), 100-110. doi:10.2304/elea.2006.3.1.100
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic Inquiry*. Beverly Hills, CA: SAGE Publications Inc.
- Long, H. (2017). Validity in mixed methods research in education: the application of Habermas' critical theory. *International Journal of Research & Method in Education*, 40(2), 201-213.
- Luckin, R., Shurville, S., & Browne, T. (2007). Initiating e-learning by stealth, participation and consultation in a late majority institution. *Journal of Organisational Transformation and Social Change*, 3(3), 317-332.
- Marshall, S. (2006). *e-Learning Maturity Model (Version Two) New Zealand tertiary institution e-Learning capability: Informing and guiding e-Learning architectural change and development*. Retrieved from <https://www.educationcounts.govt.nz/publications/e-Learning/58139>

- Mathison, R. (2017). A Step-by-Step Guide to Hosting a Successful Twitter Chat. Retrieved from <https://blog.hootsuite.com/a-step-by-step-guide-to-twitter-chats/>
- McAvinia, C. (2016). *Online Learning and its Users: Lessons for Higher Education*. Kidlington: Chandos Publishing.
- McCambridge, J., Witton, J., & Elbourne, D. R. (2014). Systematic review of the Hawthorne effect: New concepts are needed to study research participation effects. *Journal of Clinical Epidemiology*, 67(3), 267-277. doi:10.1016/j.jclinepi.2013.08.015
- McElearney, G. (2010). Interview with the University of Manchester's Faculty e-Learning Managers. Retrieved from http://archive.alt.ac.uk/newsletter.alt.ac.uk/newsletter.alt.ac.uk_before_subscribe_remove/yovzvuj71hd.html
- McNaught, C. (2002). Views on staff development for networked learning. In C. Steeples & C. Jones (Eds.), *Networked learning: Perspectives and issues* (pp. 111-124). London: Springer.
- McNay, I. (1995). From collegial academy to corporate enterprise: the changing cultures of universities. In T. Schuller (Ed.), *The Changing University*. Buckingham: Society for Research into Higher Education and Open University Press.
- McPherson, M., & Baptista Nunes, M. (2006). Organisational issues for e-learning: Critical success factors as identified by HE practitioners. *International Journal of Educational Management*, 20(7), 542-558.
- Mistry, V. (2008). Benchmarking e-learning: trialling the "MIT90s" framework. *Benchmarking: An International Journal*, 15(3), 326-340. doi:10.1108/14635770810876629
- Moore, J. L., Dickson-Deane, C., & Galyen, K. (2011). e-Learning, online learning, and distance learning environments: Are they the same? *The Internet and Higher Education*, 14(2), 129-135. doi:<https://doi.org/10.1016/j.iheduc.2010.10.001>
- Nichols, M. (2008). Institutional perspectives: The challenges of e-learning diffusion. *British Journal of Educational Technology*, 39(4), 598-609.
- Nichols, M., & Anderson, B. (2005). Strategic e-learning implementation. *Educational Technology & Society*, 8(4), 1-8.
- Obexer, R., & Giardina, N. (2016). *What is a Learning Designer? Support roles and structures for collaborative E-Learning implementation*. Paper presented at the GMW, Innsbruck, Austria.
- Oliver, M. (2012). Technology and Change in Academic Practice. In P. Trowler, M. Saunders, & V. Bamber (Eds.), *Tribes and Territories in the 21st Century: Rethinking the significance of disciplines in higher education* (pp. 220-231). London: Routledge.

- Onwuegbuzie, A. J., & Johnson, R. B. (2006). The Validity Issue in Mixed Research. *Research in the Schools*, 13(1), 48-63.
- O'Cathain, A. (2010). Assessing the Quality of Mixed Methods Research: Towards a Comprehensive Framework. In A. Tashakkori & C. Teddlie (Eds.), *Mixed Methods In Social and Behavioral Research*, (Second Edition ed., pp. 531-598). Thousand Oaks, CA: SAGE Publications Inc.
- Patton, M. Q. (2002). *Qualitative Research & Evaluation Methods* (Third ed.). Thousand Oaks, CA: SAGE Publications Inc.
- Plano Clark, V. L., & Badiee, M. (2010). Research Questions in Mixed Methods Research. In A. Tashakkori & C. Teddlie (Eds.), *SAGE handbook of Mixed Methods in Social & Behavioural Research* (pp. 275-304). London: SAGE Publications Ltd.
- Reed, P. (2015). The structure and roles of Learning Technologists within Higher Education Institutions. In D. Hopkins (Ed.), *The Really Useful #EdTech Book*. Amazon Kindle.
- Rogers, E. M. (2003). *Diffusion of innovations* (5th edition ed.). New York, NY: Free Press.
- Russell, C. (2005). *Disciplinary patterns in adoption of educational technologies*. Paper presented at the ALT-C, Manchester, UK.
- Saffold, G. S. (1988). Culture Traits, Strength, And Organizational Performance: Moving Beyond "Strong" Culture. *Academy of Management. The Academy of Management Review*, 13(4), 546-558.
- Sankey, M., Carter, H., Marshall, S., Obexer, R., Russell, C., & Lawson, R. (2014). *ACODE Benchmarks for Technology Enhanced Learning*. Retrieved from https://www.acode.edu.au/pluginfile.php/550/mod_resource/content/8/TEL_Benchmarks.pdf
- Sankey, M., & Padró, F. F. (2016). ACODE Benchmarks for technology enhanced learning (TEL): Findings from a 24 university benchmarking exercise regarding the benchmarks' fitness for purpose. *International Journal of Quality and Service Sciences*, 8(3), 345-362. doi:doi:10.1108/IJQSS-04-2016-0033
- Saunders, M., Bamber, V., & Trowler, P. (2009). Making practical sense of enhancing learning, teaching, assessment and curriculum. In *Enhancing learning, teaching, assessment and curriculum in Higher Education* (pp. 183-195). Maidenhead: Open University Press.
- Savin-Baden, M., & Howell Major, C. (2013). *Qualitative Research - The essential guide to theory and practice*. Abingdon: Routledge.
- Schein, E. H. (2010). *Organizational Culture and Leadership* (Fourth ed.). San Francisco, CA: Jossey-Bass.

- Schneckenberg, D. (2009). Understanding the real barriers to technology-enhanced innovation in higher education. *Educational Research*, 51(4), 411–424. doi:10.1080/00131880903354741
- Sharpe, R., Benfield, G., & Francis, R. (2006). Implementing a university e-learning strategy: levers for change within academic schools. *ALT-J, Research in Learning Technology*, 14(2), 135-151.
- Shurville, S., Browne, T., & Whitaker, M. (2008). *Employing the new educational technologists: A call for evidenced change*. Paper presented at the ascilite, Melbourne, Australia.
<http://www.ascilite.org.au/conferences/melbourne08/procs/shurville.pdf>
- Singh, G., & Hardaker, G. (2017). Change levers for unifying top-down and bottom-up approaches to the adoption and diffusion of e-learning in higher education. *Teaching in Higher Education*, 22(6), 736-748. doi:10.1080/13562517.2017.1289508
- Smart, J. C., & St. John, E. P. (1996). Organizational Culture and Effectiveness in Higher Education: A Test of the "Culture Type" and "Strong Culture" Hypotheses. *Educational Evaluation and Policy Analysis*, 18(3), 219-241.
- Steeple, C., & Zenios, M. (2005). *E-LEN: A network of e-learning centres: Report on the survey of e-learning centres (Deliverable WP 1, E-LEN project)*. Retrieved from CSALT (Centre for Studies in Advanced Learning Technology): http://www2.tisip.no/E-LEN/documents/ELEN-Deliverables/Report_ElenCenters_Survey.pdf
- Tashakkori, A., & Teddlie, C. (2008). Quality of Inferences in Mixed Methods Research: Calling for an Integrative Framework. In M. M. Bergman (Ed.), *Advances in Mixed Methods Research: Theories and Applications* (pp. 103-120). Trowbridge: SAGE Publications.
- Thanaraj, A., & Williams, S. (2016). Supporting the adoption of Technology Enhanced Learning by academics at Universities. *Journal of Teaching and Learning with Technology*, 5(1), 59-86.
- Thomas, J., & Willcoxson, L. (1998). Developing teaching and changing organisational culture through grass-roots leadership. *Higher Education*, 36, 471-485.
- Thomas, W., & Thomas, D. (1928). *The child in America: Behavior problems and programs*. New York, NY: Knopf.
- Tierney, W. G. (1988). Organizational Culture in Higher Education: Defining the Essentials. *The Journal of Higher Education*, 59(1), 2-21.
- Trowler, P. (2008). *Cultures and Change in Higher Education: Theories and Practices*. Basingstoke: Palgrave Macmillan.
- Trowler, P. (2012). *Doctoral Research into Higher Education: Thesis structure, content and completion*. Amazon Kindle.

- Trowler, P., & Knight, P. (2002). Exploring the implementation gap: theory and practices in change interventions. In P. Trowler (Ed.), *Higher educational policy and institutional change*. (pp. 142-163). Buckingham: Open University Press / SRHE.
- Trowler, P., & Trowler, V. (2010). *Framework for action: enhancing student engagement at the institutional level*. Retrieved from https://www.heacademy.ac.uk/system/files/resources/frameworkforaction_institutional.pdf
- UCISA. (2011). 2010/11 Top Concerns. Retrieved from <http://www.ucisa.ac.uk/bestpractice/surveys/tc/tc2010-11/top12.aspx>
- UCISA. (2012). *2012 Survey of Technology Enhanced Learning: case studies*. Retrieved from http://www.ucisa.ac.uk/~media/groups/ssg/surveys/TEL%20Survey%202012%20Case%20studies_FINAL.ashx
- UCISA. (2014). *2014 Survey of Technology Enhanced Learning: case studies*. Retrieved from <http://www.ucisa.ac.uk/groups/dsdg/asg/%7E/media/7BCB3F2FF0E141A79A66BC87DDB34A14.ashx>
- UCISA. (2016). *2016 Survey of Technology Enhanced Learning: case studies*. Retrieved from https://www.ucisa.ac.uk/~media/files/publications/case_studies/tel%20survey%202016_case%20studies_07nov16.ashx?la=en
- UCISA. (2018). VLE minimum standards – Lessons from the sector. Retrieved from https://www.ucisa.ac.uk/groups/deg/Events/2018/vle_webinar
- Universities UK. (n.d.). Higher education in numbers. Retrieved from <http://www.universitiesuk.ac.uk/facts-and-stats/Pages/higher-education-data.aspx>
- Voce, J. (2016). #TELMODELS TweetChat. Retrieved from <https://julievoce.wordpress.com/2016/12/07/telmodels-tweetchat/>
- Voce, J. (2017a). Beyond Islands of Innovation - Supporting Technology Enhanced Learning within UK Higher Education. Retrieved from <https://www.slideshare.net/JulieVoce/supporting-technology-enhanced-learning-within-uk-higher-education>
- Voce, J. (2017b). *Beyond islands of innovation - supporting TEL within UK Higher Education*. Paper presented at the Association for Learning Technology Conference (ALT-C), Liverpool, UK.
- Wahab, Z. A., Embi, M. A., & Nordin, N. M. (2011). e-Learning Governance in Malaysian Higher Education Institutions. In M. A. Embi (Ed.), *e-Learning in Malaysian Higher Education Institutions: Status, Trends, & Challenges* (pp. 19-27). Kuala Lumpur, Malaysia: Ministry of Higher Education.

- Walker, R., Voce, J., & Ahmed, J. (2012). UCISA 2012 Survey of Technology Enhanced Learning for higher education in the UK. Retrieved from http://www.ucisa.ac.uk/~media/groups/ssg/surveys/TEL_survey_2012_with%20Apps_final
- Walker, R., Voce, J., & Jenkins, M. (2016). Charting the development of technology-enhanced learning developments across the UK higher education sector: a longitudinal perspective (2001–2012). *Interactive Learning Environments*, 24(3), 438-455. doi:10.1080/10494820.2013.867888
- Walker, R., Voce, J., Nicholls, J., Swift, E., Ahmed, J., Horrigan, S., & Vincent, P. (2014). *UCISA 2014 Survey of Technology Enhanced Learning for higher education in the UK*. Retrieved from <http://www.ucisa.ac.uk/~media/groups/dsdg/Tel%202014%20Final%2018%20August.ashx>
- Walker, R., Voce, J., Swift, E., Ahmed, J., Jenkins, M., & Vincent, P. (2016). *2016 survey of Technology Enhanced Learning For Higher Education in the UK*. Retrieved from https://www.ucisa.ac.uk/~media/files/publications/surveys/tel%20survey%202016_nov16.ashx?la=en
- White, S. A. (2006). *Higher Education and Learning Technologies: an Organisational Perspective*. (PhD Thesis). University of Southampton, Southampton,
- Wohlin, C. (2014). *Guidelines for snowballing in systematic literature studies and a replication in software engineering*. Paper presented at the Proceedings of the 18th International Conference on Evaluation and Assessment in Software Engineering, London, UK.
- Zellweger Moser, F. (2007). *The Strategic Management of E-learning Support*. Berlin, Germany: Waxmann.
- Zenios, M., & Smith, C. (2010). Organizational Patterns for E-learning Centres. In P. Goodyear & S. Retalis (Eds.), *Technology-Enhanced Learning - Design Patterns and Pattern Languages* (pp. 297-309). Rotterdam, The Netherlands: Sense Publishers.
- Zenios, M., & Steeples, C. (2004). *Developing and Delivering Pedagogically Informed Technology for Meaningful Learning Experiences within Institutions: Action Points for Creating e-learning Centres*. Paper presented at the Networked Learning Conference, Lancaster, UK. <http://www.networkedlearningconference.org.uk/past/nlc2004/>
- Zhu, C. (2013). Organisational culture and technology-enhanced innovation in higher education. *Technology, Pedagogy and Education*(August 2014), 1-15. doi:10.1080/1475939X.2013.822414
- Zhu, C., & Engels, N. (2014). Organisational culture and instructional innovations in higher education: Perceptions and reactions of teachers and students. *Educational Management Administration & Leadership*, 42(1), 136-158.

Appendix 1 Survey questions

About your institution

You are asked to submit one response per institution. Please co-ordinate your responses with colleagues to ensure that only one submission per institution is received. Please indicate the name of your institution to assist with identifying any duplicate entries. The institution name will be removed from the data prior to analysis.

Institution Name: _____ (mandatory)

1. How would you describe the dominant culture of your institution?

If your institution only has one main type, please assign 10 points to that type, otherwise please distribute 10 points according to the dominance of each type within your institution.

Cultural type

Points assigned

Collegial – the dominant units are the departments or individuals and the role of the central authorities is permissive such that change occurs organically over a fairly long period of time.

Bureaucratic – committees are the dominant units and the role of the central authorities is regulatory. Change tends to be a reactive adaptation and is cyclical in nature.

Corporate – strong Senior Management Team, with an equivalent of a Chief Executive, who take a directive role. This is a political environment with decision making done by the Senior Management Team in consultation with working parties.

Enterprise – sub-units or project teams are the dominant units, with devolved leadership. The institution acts more like a business and responds instantly yet flexibly.

2. How would you describe your institution's provision of support for TEL?

- **Centralised** - a single, central unit combining a number of different support areas for TEL.
- **Integrated/"hub and spoke"** – a central unit which co-ordinates school/faculty-based TEL staff/units.
- **Parallel** - separate units located centrally or in faculties/schools, with some co-ordination.
- **Distributed** - a range of units located centrally or in faculties/schools, with no or little overall co-ordination
- **Other** (please describe) _____

3. Which of the following types of TEL support unit do you have, what is the FTE of each unit and what type of activities do they undertake?

TEL-related activities:

- A - Service role - Providing support for the use of existing centrally or locally provided TEL tools
- B - Supporting the development of innovative TEL practices or tools
- C - Undertaking course development using TEL (e.g. preparing learning materials for an undergraduate or postgraduate programme)
- D - Undertaking research into TEL

	Do you have this type of unit? (Tick all that apply)	FTE of staff supporting TEL in unit	TEL-related activities - see above (Please select all that apply)			
			A	B	C	D
Information Technology support						
Learning Technology Support Unit (LTSU)						
Educational Development Unit (EDU)						
Library						

Dedicated local support teams (e.g. Faculty, School, Department teams)						
Outsourced supplier or specialist						
Other – please write in						

4. Who is responsible for co-ordinating TEL within your institution and what type of co-ordination are they responsible for? (please select all that apply)

	Operational	Strategic	Not applicable
Head of TEL, or equivalent			
TEL Committee			
Head/Director of IT			
Pro-Vice Chancellor or Vice Provost for Education, or equivalent			

Departmental representatives			
No co-ordination			
Other (please specify)			

5. Has your TEL support model changed in the last five years?

- Yes
- No
- Don't know

5a. If yes, please describe the previous structure?

5b. If yes, what was the reason for the change?

Effectiveness of your TEL support model

6. In your opinion, what are the strengths of your existing TEL support model?

7. In your opinion, what are the weaknesses of your existing TEL support model?

8. Would you like to change your existing TEL support model?

- Yes
- No
- Don't know

8a. If yes, why?

8b. If yes, what changes would you like to make?

Effect of organisational culture on TEL support

9. In your institution, do you feel that institutional culture affects the adoption of TEL and structure of TEL support?

- Yes
- No
- Don't know

9a. Please explain your answer

10. In your institution, do you feel that departmental culture affects the adoption of TEL and the structure of TEL support?

- Yes
- No
- Don't know

10a. Please explain your answer

Volunteer for interview stage

As a follow-up to this survey I will be carrying out interviews with 6-10 institutions to further investigate support models for Technology Enhanced Learning. The interviews are expected to take place in March/April 2015 and will last between 60-90 minutes. They will be carried out either online or face-to-face depending on your preference and location.

If you would like to be considered for the interview stage, please provide your contact details below.

- Your name:
- Your job title:
- Your email address:

By submitting your contact details, you are under no obligation to take part in the interview stage should you subsequently be invited to interview.

Before submission

You are about to submit your answers for this survey. If you no longer give your consent, please do not submit the survey and close the window now. All data will be

collected and processed in line with the Data Protection Act (1998) and will be stored securely. The use of your institution's name is to enable duplicate entries from institutions to be identified. All data will be anonymised prior to analysis. Taking part in this survey is voluntary. By completing and submitting this survey you provide your consent to the use of your anonymised data for the purposes of this research study. If you have any questions regarding this research or the survey, please contact me at j.voce@lancaster.ac.uk or my supervisor Prof. Paul Trowler (p.trowler@lancs.ac.uk).

If you would like to receive a report of the results, please provide your email address below:

- Email address:

Thank you

Thank you for your submission.

Appendix 2 Interview questions

TEL support model and evolution

(RSQ1: What TEL support models exist within UK HE institutions and how have they evolved with the increased use of TEL?)

Could you tell me about the history of TEL support at your institution?

- What were the initial drivers for TEL?
- How did TEL support start? Where was it located?
- How has your TEL support evolved to the current support model?
- How have the drivers for TEL changed with time? What are the institution's current priorities for teaching and learning?
- How has the role of the TEL support team(s) changed over time?
- Were there any critical incidents or key activities that affected/influenced the evolution of TEL and the support model? (e.g. loss of TQEF funding, a push towards using e-Assessment, TEL strategy developed)

Describe your current support model for TEL:

- Number and type of staff (would be useful to see an organisation diagram)
- Function of the support team(s)
- Location within the institution
- Reporting lines/Governance/Committees. If Committee - what is the function and membership of this committee?
- Where do the operational and strategic responsibilities for TEL sit? If different, how do these interact?

Factors affecting adoption of TEL

(RSQ2: From the perspective of a Head of TEL, which factors of a particular TEL support model help or hinder the successful adoption of TEL?)

- How does your structure help the successful adoption of TEL?

- How does your structure hinder the successful adoption of TEL?
- How does your structure ensure that you provide central co-ordination as well as meeting local needs?
- How does the location of your TEL support affect your role/perception within the institution?
- Could you describe the relationships with other TEL support teams? e.g. IT, Library, Educational Development, Local teams.
- Do you have formal/informal service and support agreements?
- Are there areas of overlap? How are these dealt with?
- How do TEL activities relate to institutional strategies? e.g. Institutional, Teaching and Learning, IT, Library.

Influence of organisational culture (institutional and departmental culture) on adoption of TEL

(RSQ3: From the perspective of a Head of TEL, to what degree is successful adoption of TEL influenced by organisational culture?)

- How would you describe the mission of the institution, e.g. key values and goals?
- What are the institutional priorities in relation to teaching and learning, and in particular to TEL?
- The survey results identified several areas where institutional culture affected/influenced the adoption of TEL, such as value of teaching versus other activities, top-down versus bottom-up developments. Could you describe the effect of institutional culture on the adoption of TEL at your institution?
- The culture of individual departments or other groupings (e.g. Schools/Faculties) was also perceived to affect/influence TEL adoption, e.g. influential HoD, departmental independence. Could you describe the effect of departmental culture on the adoption of TEL at your institution?
- Who would you say are the most influential people in ensuring successful adoption of TEL? How do you ensure their support?
- Is there a TEL support identity within the institution? (e.g. CoP across different support teams, TEL specific professional development)

- Are there any areas of conflict e.g. between the academic culture and the support culture? Or between different support teams?
- How do these manifest themselves?
- What impact do they have on TEL adoption and support?

Future

- Do you think your structure will change over the coming 5 years? If so, how?
- If you changed structure in last 5 years and are looking to change again - why?

Finally...

- Is there anything else that you think would be useful for me to know about your support model?
- Are there any other institutions you think it would be valuable for me to talk to? E.g. interesting support model, recent changes.

Appendix 3 TweetChat question schedule

09:00

At 11:30am, join me for a TweetChat on institutional models for supporting Tech Enhanced Learning #altc #TELmodels <https://t.co/Hrfl17pUlv>

11:25

Hello everyone, the #altc TweetChat on institutional models for supporting Technology Enhanced Learning will be starting shortly #TELmodels

11:30

Hello and welcome to this TweetChat on institutional models for supporting Technology Enhanced Learning (TEL) #TELmodels

Today's session is based on my PhD research into support for TEL within UK Higher Education Institutions #TELmodels

For some background to this research and to consent for your Tweets to contribute to this research go to:

<https://julievoce.wordpress.com/2016/12/05/TweetChatting-about-institutional-models-for-supporting-technology-enhanced-learning/> #TELmodels

The TweetChat consists of 8 questions, around 5 minutes per question. Prefix your answer with A1, A2, etc and include the hashtag #TELmodels

Let's start with some introductions to get some background information about who is taking part today #TELmodels

Q1: What's your role and are you personally based in a central TEL unit, at a School or Department level, or something else? #TELmodels

Q2: Can you describe the TEL support units/teams in your organisation, including any local TEL support staff or teams? #TELmodels

11:45

Q3intro: The research has identified a potential disconnect between central TEL units and the Schools/Departments. #TELmodels

Q3: How do your central units ensure they understand and meet local needs? E.g. School-facing staff, regular meetings #TELmodels

11:50

Q4: For those with local TEL support staff – what roles do they have? Is there any overlap with central TEL support units? #TELmodels

12:00

Q5intro: The research identified that local TEL staff may feel isolated from the Centre. Answer Q5a or b based on your situation #TELmodels

Q5a: For local TEL staff – do you feel isolated from the Centre? What could central teams do to support you? #TELmodels

Q5b: For those in central teams – what do you do to ensure local TEL staff don't feel isolated? #TELmodels

12:05

Just a reminder to complete the consent form at <https://goo.gl/forms/N25Ysvue9a196vM73> so your Tweets can be included in my analysis of today's session. #TELmodels

Q6: The no. of TEL staff was noted as a hindrance to TEL adoption. In your institution, how many staff support TEL? What is the split between local/central? #TELmodels

12:10

Q7: How many more staff do you feel your institution needs in order to adequately support TEL? Where would they be located? #TELmodels

12:15

Q8intro: Finally, a key aspect of TEL support is the relationships between TEL support units.

Q8: How do you develop and maintain good working relationships?
#TELmodels

12:20

Thank you to everyone who took part in this session. A storify of the session will be published later today. #TELmodels

A final reminder to complete the consent form at <https://goo.gl/forms/N25Ysvue9a196vM73> so your Tweets can be included in my analysis of today's session. #TELmodels

We have now finished the live session, but feel free to respond to the questions or continue the discussion #TELmodels

If you discover anything during the rest of #altc Online Winter Conference that might be relevant to my research, please tag it with #TELmodels

Appendix 4 Examples of data analysis

Interview analysis using NVivo (Version 11, 2015)

Extract from interview with Institution 01 demonstrating the themes identified during the thematic analysis. Text which identifies an individual or the institution has been adapted to show a generic name in brackets or removed and replaced by [...].

So I came into all that and because there wasn't actually a great use of the VLE because everything was so campus-focussed, it was basically the glorified file repository because you didn't need to do the communication, collaboration and so on because people were coming into classes. What actually happened, once all those different bits had been pulled together, so [TEL team], [media team], [academic development team] and a group called [student learning support], which was direct support for students with their study skills. So very much academically focussed rather than general student support focussed. So, those bits were piled into a single service and the first few years were very much about trying to get the people to actually work together and work out what the central service should be. That's been a challenge, it would be fair to say, another change that happened just after I started was that we moved from the faculties and departments into colleges and schools, like many universities were doing. The idea behind that was pretty much about being able to go for the big research grants where they wanted a more collaborative approach, so at the point that happened, well just before that, there was a Vice Principal (we've got Principal and Vice Principal which equates to VC and PVC) so the VP is like the PVC, so there was a VP learning and teaching and she was very open to embracing TEL, pushing the agenda for TEL, so at that point, I'd come in at that point, looked round and thought, this is just very distributed, it was all over the place, everywhere was totally

Critical incident
→ Re-organisation

Influential people
→ Senior management

different and we didn't have a clue at the centre what was actually happening out there, what the aspirations were. We had some contacts but it was the ones who shout loudest, there wasn't really a properly moderated contact, so lots of things happened round about that time, we moved from faculty to colleges, [...] there was an increasing push at that point towards the digital landscape, as I call it, and so I'd made a proposal that we create a network of contacts that would be in each school, the head of school would be required to nominate somebody to be the official contact. That contact was not a job because to create a job aspect at that point was not practical because of all the VS, so it was more of a role, a bit like a committee role, the idea being that the [TEL contact] would be the conduit between the centre and the school. They would pass information backwards and forwards, they would provide an overview of the school's activities in TEL, their aspirations, their challenges, they would also provide a focal point where I could go out and ask across the university what are you doing about X, Y or Z. The person that would hold that position, there was no mandate as to what it should be except that they should really be involved in learning and teaching. It was quite deliberate to say they should be involved in learning and teaching to some aspect, as we could have got anything, but it was quite a varied collection that was put forward... Mixture of academics, mixture of quite senior and junior academics, there were some actual learning technologists, quite a lot of admin level staff who were varied as to their level of engagement with learning and teaching, a lot of the process aspects of learning and teaching are undertaken by administrative staff. So, we got this group together and it has kind of worked, but it needs a bit of tweaking now. What actually happened was quite interesting, two of the colleges actually started building their own [TEL contact] networks within the college, which was actually quite good as we have 19 schools so trying to get a consensus out of 19 school was problematic, but we've got some areas that have been better engaged, some areas not so engaged with the [TEL contacts]... that doesn't equate to them being engaged or not engaged with TEL, it's whether or not they engage with the centre, which is a challenge with any distributed university. So, what's happened with two of the

Effectiveness of support model

Critical incident
→ Strategic push

Influential people
→ TEL champions

Understanding local needs

colleges is that they have actually appointed [senior postholder] [...] So, we've got two of the colleges where there is a relatively senior person providing an overview of TEL within the college and they are tapping into and expanding the original [TEL contact] network. [...]

So the idea, where I am kinda going, I've tried to reach out to all the schools from my very small central team is very problematic because are you actually getting the college level view, so if we in fact go down to one rep from each college who is charged with making sure the college is represented in TEL and the TEL development centrally, that for me is a model for which I think would work.

Understanding local needs

Tied in with that, is we've got a VLE governance board, the reason for that is within my unit, because we are charged with running the maintenance and development of [the VLE], we are getting somebody from one college saying we need this because without it we can't run the course and the university will fail and then somebody from another college saying the same thing, but the things they want are actually, you can't have them both, one clashes with the other and that was increasingly happening because the success of the push of TEL within the university meant that it was, [the VLE] in particular was being used more than just for file storage, more and more of the functions were being used, we were getting people in who had experience of using [the VLE] and other VLEs elsewhere, so they were coming in saying we want to do this, we want to do that, so I said we need proper governance of this, we need the institution to take a view as to what developments should be prioritised.

TEL governance

TweetChat analysis using MS Excel

ID	Combined responses Q1/Q2	Role	Support model	FTE primary TEL team	Local TEL support?	Location of primary TEL team(s)	Notes
TC05	A1 In a Faculty based team, embedded in a School #TELmodels Q2 3 Faculty Teams, one Library based team. No central team or support #TELmodels	Learning Technologist	Devolved	N/A	Yes	N/A	No central teams
TC22	@julievoce A1: Technology Enhanced Learning Advisor, in the centrally based @YSJTEL team #TELmodels @julievoce A2: we're one team, made up of 3 of us #TELmodels	Learning Technologist	Central	3	No	Unknown	
TC03	#telmodels A1: Assistant Learning Technologist, central TEL unit #telmodels A2: a team of 13 people based in the IT department, made up of (Assistant/Senior) Learning Technologists, 1 RA, 1 Head	Learning Technologist	Central	13	No	IT	

ID	Combined responses Q1/Q2	Role	Support model	FTE primary TEL team	Local TEL support?	Location of primary TEL team(s)	Notes
TC07	A1: I am in charge of a team of faculty-focused LTs within a central TEL team. #telmodels A2: Most of the TEL support is handled by our central team, but with one faculty having some programme-specific LTs. #telmodels @julievoce #TELmodels Programme had high requirements for TEL support that we didn't have the resource to supply centrally. @julievoce #TELmodels They do branch into other programmes in the faculty as requested, but in coordination with our Faculty LT (FLT).	Head of TEL	Central School-facing / Local	Unknown	Yes	Unknown	Programme specific LTs
TC23	A1: Enablement officer at Cardiff University and I am in a Central team in PMITS. #TELmodels A2: 6 people in central TEL team in PMITS and 3 in central CEI team; some schools have TEL staff (2-5); some schools no TEL staff #TELmodels	Learning Technologist	Central / Local	9 (across two teams of 6 and 3)	Yes	IT / T&L	2 central teams

Table A4.1: Sample TweetChat data analysis for questions 1 and 2

Appendix 5 Framework for Action

Reviewing your TEL support model – a Framework for Action

This Framework for Action has been developed as part of research into institutional support models for technology enhanced learning (TEL) within UK higher education. The research has identified four key areas that can influence the effective support of TEL and the subsequent adoption of TEL within an institution. These are:

- Position of TEL support within the institution
- Identifying and supporting local needs
- Flexibility of the TEL support team
- Governance for TEL

Who is it for?

It is aimed at heads of technology enhanced learning or those in similar positions who are looking to review or reflect on the effectiveness of the TEL support models within their institution. The Framework is most suitable for institutions where there exists a main TEL team based centrally, however some aspects of the Framework may also be of use to other teams supporting TEL.

How do I use it?

The Framework provides a series of questions to enable you to consider how effective your current TEL support model is and to consider alternative options. It does not recommend a particular approach to TEL support, but based on the research it asks you to consider aspects of TEL support which were found to be key factors in the effectiveness of TEL support and the adoption of TEL within an institution.

The Framework asks you to think about your current TEL support model and the level of interaction with and influence over the other teams or individuals involved in supporting TEL. It is then divided in to four key areas that you might wish to think about. You can choose to complete all of them or the areas that may be more relevant to your concerns.

At the end of each section, you are asked to think about how confident you are in that area. The intention here is that you may make changes and use the

Framework to review changes and see whether your level of confidence has changed.

Finally, there is an action plan at the end of the document where you can reflect on the potential changes you have identified in each section. For each change, think about the steps you could take to implement those changes and the support you may need for implementation.

Can I get support with using the Framework?

Yes. You can find an up to date version of the Framework plus details of who to contact for advice and support at

<https://julievoce.wordpress.com/2018/08/14/tel-framework-for-action/>.

1. About your TEL support model

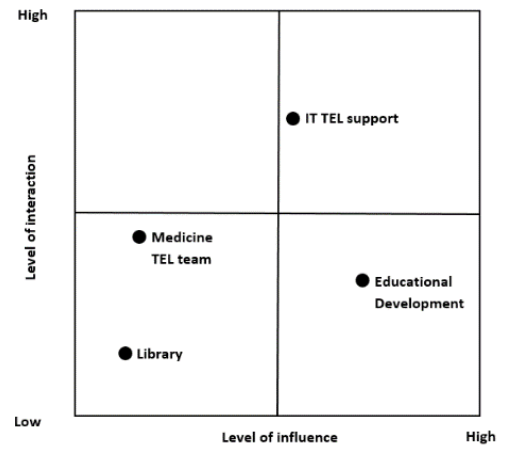
This first section helps you to think about your institution's TEL support model in terms of the teams or individuals who are involved in supporting TEL within your institution. You may find it easier to print this section and draw the structures by hand.

- 1. Map out the current organisational structure for your team (at a high level, rather than naming specific individuals):**

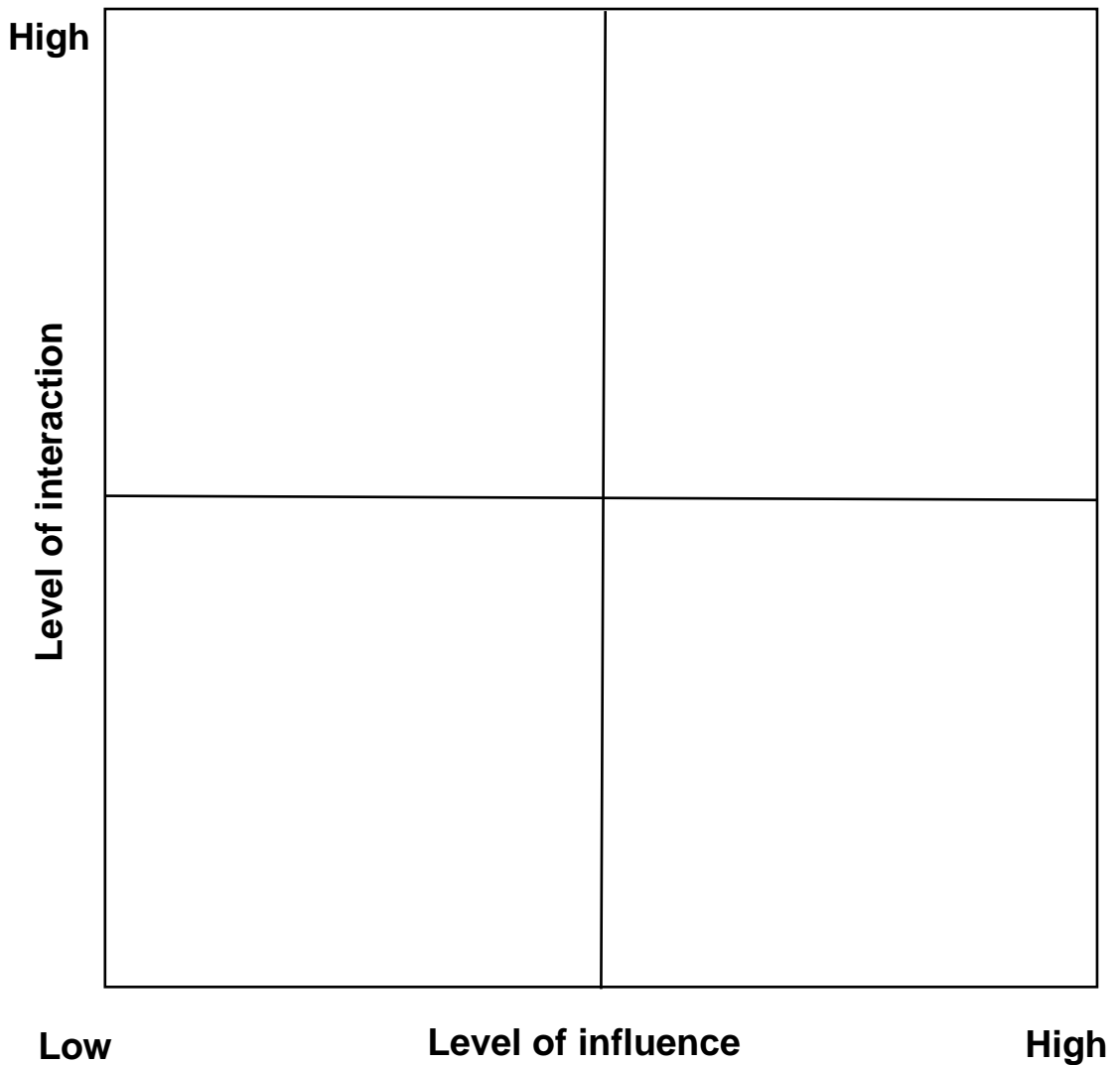
- 2. Now consider the other teams or individuals involved in TEL support (e.g. IT, educational development, local support) and map out where they sit in the institutional structure compared to your team. Where possible, include details of the department or division within which each team sits (e.g. IT, academic services, registry) and the reporting lines to senior management.**

3. Considering the other teams or individuals that you have identified in question 2, place them on the following grid based on the following factors:

- **Level of influence** – how much influence you have over that team (e.g. through shared line management or formal/informal arrangements)
- **Level of interaction** – how much interaction you have with that team on a weekly/monthly basis.



Example of a completed grid



4. Now consider what your ideal level of influence and interaction would be with those teams or individuals and mark that on the above grid in a different colour. How do you think this could be achieved?

How confident are you that your team have the right level of influence and interaction with other teams or individuals supporting TEL?

Not at all confident

Somewhat confident

Very confident

0

1

2

3

4

Are there any changes you would make?

2. Location within the institution

The location of a TEL team in the institutional structure was found to influence the perception of the team within the institution, e.g. technology-focussed or pedagogy-focussed, which in turn can affect their level of influence. This section asks you to consider how your team is perceived and to evaluate the effectiveness of the team in its current location versus an alternative location.

5. In what way or ways is your team perceived within your institution? How does this affect the work of the team?

6. Considering your current location within the institutional structure and your responses to question 3 regarding your levels of influence and interaction, what are the strengths, weaknesses, opportunities and threats (SWOT) of being in this location?

Strengths	Weaknesses
Opportunities	Threats

7. Now consider another location in the institutional structure. Use a SWOT analysis to identify whether your team would benefit from being aligned with another part of the institution.

Strengths	Weaknesses
Opportunities	Threats

How confident are you that your team are in the best position within the institution?

Not at all confident

Somewhat confident

Very confident

0

1

2

3

4

Are there any changes you would make?

3. Identifying and supporting local needs

The research found that it was important for TEL teams to ensure that they are able to identify and support the needs of their schools or departments. This section asks you to consider how your team is connected to the schools or departments and how their needs are identified and supported.

8. How does your team identify the local priorities for TEL? How effective is this?

9. How do these priorities feed into the strategic direction of your team and that of the institution?

10. How is innovation currently identified and supported? How effective is this?

11. How engaged are the schools or departments with your team? What mechanisms are in place for exchanging information?

How confident are you that your team can identify and respond to local needs?

Not at all confident

Somewhat confident

Very confident

0

1

2

3

4

Are there any changes you would make?

4. Flexibility of the team

One of the areas of concern from the research was the flexibility of the TEL team in terms of adapting to change, such as the implementation of new technologies or policies around the use of TEL. Where a central team was felt to be at capacity, local TEL support could emerge to help support demand. This section asks you to think about how your team adapts to change.

12. How do you ensure that new technologies or policies for the use of TEL are adequately supported?

13. What mechanisms exist for reviewing the institution's current and future TEL support needs? How is additional staff resource obtained?

14. What mechanisms exist for reviewing and developing your team's skills?

How confident are you that your team can respond to changes in services or skills required?

Not at all confident

Somewhat confident

Very confident

0

1

2

3

4

Are there any changes you would make?

5. TEL governance

The research found that embedding TEL within the institutional governance structures can help to ensure greater buy-in for policy decisions and for raise the visibility of TEL within senior levels of an institution. This section asks you to consider your governance structures and how strategy and policy are developed and communicated.

15.If you have a committee reporting structure(s) for TEL within your institution, map this out.

16.Who sets the strategic direction for TEL? How is this strategy monitored and communicated to the rest of the institution?

17.Who oversees and approves policies for TEL? How effective is this process?

18.How are senior managers made aware of TEL developments? How effective is this?

How confident are you that TEL has appropriate governance for decision-making and policy approval?

Not at all confident

Somewhat confident

Very confident

0

1

2

3

4

Are there any changes you would make?

Action plan

Review your answers for Sections 1-5 and note down the changes you have identified. For each change, write down the steps you could take to achieve the changes and identify any support or resources you might need to facilitate that change. Where possible provide indicative timescales for when you might want to achieve this change.

Change identified	Steps to achieving this change	Support/resources you need	Timescales
