UNIVERSITY OF HULL

# A case study of change facilitators for technology-enhanced learning in relation to one university's strategic intent

being a Thesis submitted for the Degree of

Doctor of Philosophy in Technology-Enhanced Learning

in the University of Hull

School of Education and Social Sciences

by

Margaret D. Korosec

MA Ed, University of Michigan-Dearborn

BA (Hons), University of Utah

November 2017

# Abstract

Research into implementing change related to technology-enhanced learning in higher education includes researching the contributions and strategic action of individuals within an institution. Institutions may produce a structured strategic plan or a framework of strategic intent to accommodate changes in the higher education sector and opportunities for transforming learning and teaching through technology-enhanced learning tools and resources. Change facilitators are individuals in formal as well as informal positions within an institution who assume different levels of strategic action depending on their role and their self-identification as a facilitator of change. In this case study of a single university in England, the perceptions, concerns, and practices of academic and support staff who were functioning both formally and informally as facilitators of technology-related change are explored. A sequential, mixed-methods research approach was adopted. An online questionnaire measuring change facilitators' levels of concern, including 35 pre-defined questions, categorical questions and open text questions, was disseminated to a purposive sample followed by semi-structured interviews with individuals who all identified themselves as facilitators of technology-related change. The discussion highlights strategic dissonance and sensemaking practices emerging from this study as well as the lack of patterns of concerns across change facilitator roles. Strategic dissonance was identified between the explicit strategic plan and the implicit, *de facto,* strategic intent as expressed through institutional structure in the Case Study University. Sensemaking practices served as a heuristic for addressing *wicked problems* of technology-enhanced learning transience. The recommendations of this research supports higher education institutions in establishing more effective links between innovative facilitators of technology-enhanced learning and structured support within a framework of strategic intent.

# Dedication

This is dedicated to my mother, Constance A. King.

Through her own strength and resilience, she always said,

“Dare to be!”

I continue to be mindful of her wise words.

# Inspirations

*"Whether you think you can, or think you can't—you're right"*

*-Henry Ford*

# Acknowledgements

I write this with a sense of bewilderment and gratitude as I acknowledge the support that helped facilitate this research.

- Mr David Elstone, Headmaster at Hymers College, for his steadfast belief in innovation and for sponsoring this research. Thank you.
- Dr Peter Williams, my primary supervisor, who supported my growth as a researcher, provided indispensable navigation, interjected inspiring anecdotes, and cast numerous votes of confidence throughout this process. His English wit and abundant pessimism remained as intriguing to me as my American optimism was refreshing to him.
- Dr Kevin Burden, my second supervisor, for his expertise on the effective application and transformative impact of digital technologies in learning.
- For Rowena Murray's Structured Writing Retreats in Scotland.
- To fellow research students from around the globe who have each inspired me.
- I am deeply grateful to my friends: Ellen Lewis for the synchronicity of choosing Hull and for your unfaltering friendship; Edith Sparks for being a loyal friend and research advocate; Amie & Lesele for virtual support and friendship throughout this experience; Sabine for providing steadfast friendship as well as a magical Alpine retreat in which to write…and relax; and many more friends and colleagues who encouraged me from near and far.
- Most importantly, I wish to express my deep love and appreciation for my family. To my children, Galen and Zala, I remain in awe of the magnificent and precious beings that you are. To my husband, Matjaž, for co-creating the chapters of our life and for being my partner during our nomadic treks exploring countries and cultures. It has been remarkable! I love you all. I love us. Thank you for helping this become a reality.

# Table of Contents

# List of Figures

# List of Tables

# Chapter 1: Introduction to the Research

This research investigated individual academic and support members of staff who facilitated change related to technology-enhanced learning at a university in England. The Case Study University signalled its intention to increase the use of technology within teaching and learning through the strategic plan, resource provision and support. With technology-enhanced learning incorporated into strategic plans relevant at the time of this study, the selected Case Study University conveyed its intent to facilitate change. The university further facilitated its strategy through the creation and appointment of key positions in leadership and by designating support to implement change. Individuals implementing strategic intentions and academic and support members of staff who were facilitating change were the focal point of this study. Individual implementation of technology-enhanced learning was often aligned with university strategy. However, evidence also suggested that individuals acted independent of the strategic plans. Individuals identified as facilitating change, whether independent of strategy or in response to strategy, were identified as change facilitators in this research (Hall et al., 1991; Hall & Hord, 2011). This research investigated change facilitator roles and their contribution to increased use of technology-enhanced learning. Consideration of their academic or support role was also identified as relevant, including whether they were in formal or informal facilitation roles. Finally, concerns with facilitating change related to technology-enhanced learning were measured using the Change Facilitator Stages of Concern questionnaire (CFSoC) (Hall et al., 1991).

## 1.1 Background of the Study

Technology-enhanced learning is incorporated into the teaching and learning environment of institutions of higher education in both formal and informal ways. In this study, technology-enhanced learning broadly includes the use of digital or

online tools serving pedagogic purposes. Tools and methods are introduced via formal pathways such as strategic plans, which indicate to both external and internal audiences the intentional use of educational technology (Brown, 2012). In contrast, informal conversation and engagement provide potential channels and include individual exploration, use, and application of educational technology in a more intimate, community-based environment (Hall & Hord, 2011; Salmon, 2014). Both pathways impact on institutional and individual change related to the use of educational technologies and this study looks at the relationship between these two perspectives while acknowledging a wide continuum connecting each perspective.

Although the term 'technology-enhanced learning' is common in England, which is the location of this case study, there are other terms used throughout the literature which represent a similar meaning and are often used interchangeably (Walker et al., 2016b). In addition to multiple terms used, there are multiple and often overlapping meanings of technology-enhanced learning, which makes selecting one term for any study challenging (Kirkwood & Price, 2014). The transience of technology resources used in teaching and learning is presented as meaning and application changed over time (Bayne, 2015).

Those in leadership roles may link institutional strategic planning or implementation of technology to expectations in the higher education sector rather than to the day-to-day implementation required by support or academic staff. They may draft and design strategic plans or share their thoughts on how to secure their standing as a '21st century institution' in the higher education landscape. Use of technology may be directly linked with the academic role of teaching or with the administrative or support role whose job it is to make sure the technology works for the academics. There are leadership, academic and support roles to consider with any strategy or implementation of technology-enhanced learning, however this study focuses on the

role of academic staff considered as change facilitators, as well as members of support services who self-identified as change facilitators.

Change facilitators of technology-enhanced learning play an important role in increased use of technology in institutions of higher education. Change facilitators in this study were individuals who actively engaged with and encouraged pedagogically sound use of technology (Hall et al., 1991). Use of technology-enhanced learning may be an informal part of a change facilitators' role, or it may be the primary focus in a formal role (Mantere, 2005; Hall & Hord, 2011; Fullan, 2013). The change facilitator role may be from an academic standpoint or from a support perspective.

Academics who actively use technology in their formal or informal roles as change facilitators may demonstrate practical use and application to peers in the department or faculty and thereby facilitate various types of change. While the objective would be to offer consistently beneficial and effective use of technology, knowledge obsolescence due to the emergent nature of technological resources for educational application may lead to experimental use (Adams Becker et al., 2017). Academics who are keen on using technology in their teaching practice demonstrate sensemaking capability through their exploratory and risk-averse nature (Weick, 2009a). Much as a gimbal steadies instruments in unstable circumstances, such as cameras used on drones, individuals also serve to balance effective practices with the possibility of ineffective, or even detrimental, impacts on students (see Figure 1). Simultaneously, their actions potentially help others overcome barriers to wider use of technology for teaching and learning.

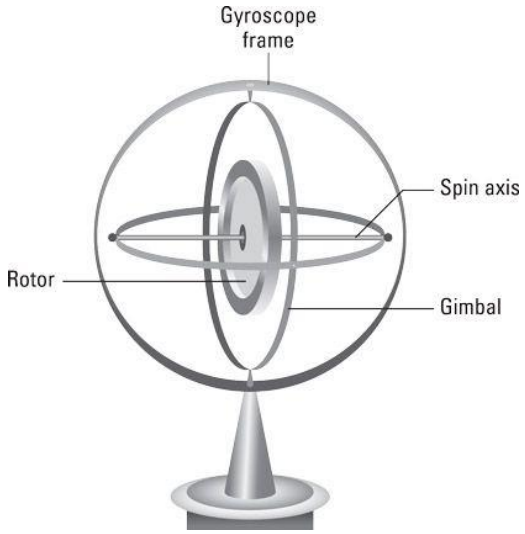


Figure 1: A basic illustration of how gimbals work (Source: LucasVB / Wikipedia)

By exhibiting engagement with students and effective use of technologies in teaching and learning practice, academics may play a formal role in facilitating institutional strategy towards technology-enhanced learning. Likewise, their role may be categorised as an informal, yet *de facto,* role in facilitating change through their effective implementation of technology in their teaching and learning practice.

In contrast to academics in formal or informal change facilitator roles, change facilitators of technology-enhanced learning who have a support role within a higher education institution may be more likely to support institutionally provided technology tools and resources. Institutionally provided technology tools and resources are commonly purchased on an enterprise scale and made available to all staff and students (Conole & Alevizou, 2010; Salmon, 2014; Walker et al., 2016a). Examples of tools and resources now widely adopted by higher education institutions in the United Kingdom, and well beyond, may include a learning management system (LMS) or virtual learning environment (VLE), use of electronic library resources including electronic books and online journals, digital collaboration tools and online submission and feedback resources (Walker et al., 2016b). Change

facilitators of technology-enhanced learning in a support role are more likely to be formally tasked with supporting the implementation and effective use of institutionally provided tools generally used by academic staff.

Whereas institutionally provided technology tools and resources are provided to all members of staff and students, many educational technology resources and tools are freely available to students and educators alike, including the public. Open Educational Resources, also known as OERs, have gained increasing traction in both higher education and secondary circles (Allen & Seaman, 2016). OERs can be characterised as resources created and made available for others to use under Creative Commons (Creative Commons, 2016) licensing, a legal way to openly share information. Availability of online or digital resources, whether OER or proprietary, does not automatically equate to widespread uptake and application as uptake frequently relates to a change in academic practice. Potentially, intense engagement is required to adequately adopt and integrate new resources into one's practice.

Implementing technology-enhanced learning introduces changes in practice and new ways of approaching teaching and learning. Changing practice may be prompted by personal innovation or curiosity guided by institutional strategy (Ravenscroft, 2013), or invocation of resistance (Blin & Munro, 2008). In either case, concern with changing patterns of working, teaching and learning could be expected when new technologies are introduced or explored: "The mental activity composed of questioning, analyzing and re-analyzing *[sic]*, considering alternative actions and reactions, and anticipating consequences is concern" (Hall et al., 1991:5). For this reason, the concerns theory was considered, which led to the Concerns Based Adoption Model (Hall & Hord, 2011); a model which offers a framework to understand the concerns individuals have who experience change as well as those who facilitate it. This was identified as a theoretical framework for understanding

possible barriers to adoption of an innovation, the impact individual concerns have on desired change and the change process itself.

Institutional change in higher education is documented as potentially stemming from reactions to outside incidents rather than proactive strategic planning (Kotler & Murphy, 1981). Even if planning were to be pre-emptive to outside influences, strategic planning and intent may be misaligned with implementation and practice, leading to strategic dissonance (Burgelman & Grove, 1996). Strategic dissonance is when strategic intent and strategic action are not aligned (Burgelman & Grove, 1996). This research does not seek to define whether change informed strategy or strategy informed change, however; this is investigated from the perspective of the change facilitator. Rather, this thesis accepts strategic planning in higher education institutions as a reflection of strategic intent (Hamel & Prahalad, 1989; Boisot, 1995b). Strategic plans and initiatives convey institutional priorities for the wider higher education sector, as well as members within the institution. For the higher education sector, the strategic plan helps differentiate institutions within their mission groups (Boliver, 2015). For members of staff within the institution, strategic plans are often the precursor to implementation plans potentially impacting individual roles.

Strategic plans which include the introduction of technology into pedagogic practice are likely to impact members of the institution in different ways. For those who do not otherwise embrace and explore the use of technology in teaching and learning, any required changes in practice will need additional support to ensure success (Blin & Munro, 2008). For those who are already actively using technology-enhanced learning, the impact of the strategic plan may not dramatically shift their existing practice. A change facilitator actively engaged with technology may not feel the impact of strategic plans related to technology-enhanced learning (Singh & Hardaker, 2017).

Influences from the higher education sector add complexity to internal factors impacting the success of change initiatives. For example, higher education institutions are faced with decreasing enrolment figures, changing student profiles, work-place demand for graduates, requirements for employability, keeping pace with innovation occurring at peer institutions and the state of innovation in higher education locally, regionally and internationally (Bush, 2003). The implication of this is that providing contemporary approaches to teaching and learning through technology could be advantageous for an institution challenged to maintain or grow its revenue streams. Additionally, implementing technology could be framed as providing students with 21st century skills and digital literacies and capabilities, which may be welcome in a competitive higher education market and for employability.

## 1.2 Statement of Purpose and Research Questions

The purpose of this case study was to provide a research-based perspective on a higher education institution in England, which did not have extensive institutional technology-enhanced learning or online learning resources yet indicated plans for expansion for such provision within the strategic plan and through institutional structures. The primary form of teaching delivery at this institution was face-to-face, classroom instruction with instances of technology-enhanced learning. In addition to providing a research-based perspective, the purpose of this case study was to investigate the perceptions, concerns, and practices of individuals identified as change facilitators of technology-enhanced learning within a higher education institution in relation to the institution's technology-enhanced learning strategy. The intention was to gain a deeper understanding of change facilitators' role in relation to institutional strategy and to provide a framework by which to understand similar universities undergoing a shift in increased use of technology-enhanced learning. As institutions with traditional face-to-face teaching approaches shift their practice to

increased use of technology within and beyond the classroom, the changes impact academics, support staff and the institution. Understanding emergent concerns resulting from changes in academic practice may help institutions and individuals prepare for change.

This study does not make claims of impact, effect or causation of using technology-enhanced learning but rather focuses on describing the practices of a small group of individuals within the case study institution, known to actively use technology in their academic or support roles. Individual learners or students within the case study institution are not investigated. Individual accounts of intended action and "negotiated meaning" (Oliver, 2011:382) are described as interpreted from the data collection phases of this study. This is a position acknowledging the social aspect of constructing an environment of using technology-enhanced learning in one's role.

The change facilitators in this study were academic and support staff actively using technology to enhance learning; both formal and informal change facilitators' roles were explored. Formal change facilitators are recognised as individuals with official roles to promote change towards increased use of technology (Hall et al., 1991). Those in informal roles act on individual initiatives, yet potentially impact change within the institution. The strategic plan of the case study institution included some aspects of technology-enhanced learning. The study drew on published strategic plans and supplementary documentation.

The main research question for this research asks*: What are the perceptions, concerns, and practices of change facilitators for technology-enhanced learning in relation to implementing and aligning with the strategic plan of the Case Study University?* To answer the MRQ, five sub-research questions were identified. As technology-enhanced learning carries individual meaning and value, and the phrase was used throughout data collection, it was important to understand who the change facilitators in the case

study institution were and what they regarded as technology-enhanced learning. Hence, the first sub-research question asks: *How do change facilitators identified and consulted in the study define technology-enhanced learning?* The second sub-research question extends the first sub-research question: *What are the change facilitators' concerns with implementing technology-enhanced learning in their role and where are these concerns situated?* The third sub-research question asks: *To what extent do change facilitators of technology-enhanced learning understand and comply with the university's strategic plan for technology-enhanced learning*? The fourth sub-research question enquired as follows: *To what extent do change facilitators feel supported by the university in their technology-enhanced learning practices?* Finally, the last sub-research question asked the following: *Do change facilitators report a dissonance between their technology-enhanced learning practices and the de facto technology-enhanced learning strategies of the university?*

Table 1 depicts the main and sub-research questions and identifies how the data was collected and where the findings are presented.

Table 1: Alignment of research questions with research methods

| **Main Research Question (MRQ)** | | | |
|---|---|---|---|
| What are the perceptions, concerns, and practices of change facilitators for technology-enhanced learning in relation to implementing and aligning with the strategic plan of the Case Study University? | | | |
| **Sub-Research Questions (SRQs)** | | | |
| # | **Question** | **Data Collection** | **Presentation** |
| SRQ1 | How do change facilitators identified and consulted in this study define technology-enhanced learning? | Open text and categorical questions in the Change Facilitators Stages of Concern (CFSoC) online questionnaire. | Findings I (Pages 163 – 185) & Findings II (Pages 186 - 214) |
| SRQ2 | What are the change facilitators' concerns with implementing technology-enhanced learning in their role and where are these concerns situated? | Levels of concern in the CFSoC online questionnaire and semi-structured interviews. | Findings II (Pages 186 - 214) & Findings III (Pages 215 - 258) |
| SRQ3 | To what extent do change facilitators of technology-enhanced learning understand and comply with the university's strategic plan for TEL? | Semi-structured interviews | Findings III (Pages 215 - 258) |
| SRQ4 | To what extent do change facilitators feel supported by the university in their technology-enhanced learning practices? | CFSoC online questionnaire and semi-structured interviews. | Findings II (Pages 186 - 214) & Findings III (Pages 215 - 258) |
| SRQ5 | Do change facilitators report a dissonance between their TEL practices and the *de facto* technology-enhanced learning strategies of the university? | Semi-structured interviews | Discussion (Pages 258 - 286) |

## 1.3 Researcher's Positionality

This section presents context to the research decisions made for this study by providing the researcher's experience, background, perspective and relation to the Case Study University and the participants. The researcher for this study is a citizen of the United States, although she spent over 15 years of her professional life in England, Austria and Slovenia. At the time of this writing, she had experience as a teacher and educational change facilitator in secondary, higher education and professional environments and she was an advocate for change and strategist for effective use of technology-enhanced learning.

The experience of living abroad and acclimatising to unfamiliar local environments has given her significant experience outside of her native country and within other educational and professional environments. The concept of a *third culture kid* could be used to describe her diverse experiences. A *third culture kid* describes "a person who has spent a significant part of his or her developmental years outside of the parents' culture. The third culture kid builds relationships to all of the cultures, while not having full ownership in any" (Pollock & Van Reken, 2009:19). This is included here as it represents formative experiences that have informed both her personal and professional perspectives.

The researcher's most relevant - and pivotal - professional experience relating to this research stemmed from the United States. With solid teaching and international business experience, the researcher joined Western Governors University (WGU) in 2009. This university is a regionally accredited, fully online university in the United States with an educational model combining online learning with self-paced, competency-based assessment models. Established in 1997, it was deemed a "most spectacular project" (Peters, 2004:183), as well as disruptive (Christensen & Eyring, 2011) and with a "somewhat slow and controversial start" (Bates, 2000:170).

Although examples of new models of education, including distance and blended learning, are plentiful, with the Open University established in the United Kingdom in 1969 or University of South Africa (UNISA) in South Africa in 1873, to name only two, the competency-based model was gaining momentum and was quickly expanding as traditional institutions explored adding competency-based degrees as well as online resources to their academic portfolios. This expansion partly acknowledged that student's time attending classes on campus was no longer the only viable measure of learning or sole basis for awarding a degree. The researcher's positive experience with the application of new technologies to support fully online learning at WGU inspired her to continue work in the field and to support secondary and higher education institutions in their efforts to adopt available and emerging technologies to help enhance student learning.

Complementing the experiences gained in higher education in the United States, the researcher further broadened her experience in technology-enhanced learning strategy and change when she moved to the United Kingdom in 2012. In secondary education, the researcher supported pedagogic practices using mobile technologies as well as online and digital resources. In higher education, and specifically at the Case Study University, she served as an external consultant developing an open and online learning strategy, led the design and development of a fully online Master's degree and was one of several focus group facilitators for the VLE review. Her professional and academic experiences secured her award of Senior Fellow of the Higher Education Academy in the UK. These combined experiences informed the researcher's perspective and underpinned her intention to embark on this research.

### 1.4 Unique Contribution

This research offers four original contributions to the literature and to knowledge in UK higher education. First, it is a detailed case study investigating the dynamics between strategic plans, identification of implicit and explicit approaches supporting

strategy implementation, and the role of individuals formally or informally facilitating and implementing change related to technology-enhanced learning. Secondly, the absence of emerging patterns of concern amongst change facilitators of technology-enhanced learning related change reveals the complexity of implementing strategic change. Next, the unique nature of using the Concerns Based Adoption Model (CBAM) in the UK Higher Education sector is a contribution to the field, and specifically the use of the data collection instrument, the Change Facilitator Stages of Concern (CFSoC) questionnaire, had not been used previously in a UK higher education research context (Hall et al., 1991; Hall & Hord, 2011). Finally, although the term strategic intent is found increasingly in the language of strategic plans in the UK higher education sector, this research offers a unique contribution by combining strategic intent with CBAM and articulating the space between the concept of strategic intent and its relation to the concerns of change facilitators implementing technology in teaching and learning.

First, this case study presents unique insight into a UK higher education institution investigating how the strategic actions of individual change facilitators aligns within the strategic intent related to technology-enhanced learning related change. The intent of this case study was not to ascertain generalisations, rather it aimed to recognise potentially transferable outcomes related to change towards technology-enhanced learning (Stake, 1995), which may be applicable to other institutions. In this capacity, it is a unique contribution to the literature of a detailed case study. This institutional case study employed a sequential mixed methods approach with a purposive sampling strategy (Teddlie & Yu, 2007). Data collection commenced with an online questionnaire to understand the concerns change facilitators exhibited when using technology-enhanced learning in their academic or support roles (Creswell, 2014). Semi-structured interviews followed to gain a fuller profile of participants and their perceptions (Kvale, 2009). This methodology enabled access to the language used and perspectives of the participants using a qualitative lens for

evaluation. Following the interviews, themes were analysed and further literature was explored (Guest et al., 2012).

Next, the findings suggest no discernible patterns of concern emerging from the change facilitators who participated in this study, as measured through the CFSoC questionnaire. This denotes the complexity of individual strategic action within the Case Study University and the challenge of coordinating implementation of technology-enhanced learning in alignment with strategic initiatives. It further suggests that while the CFSoC outcomes are useful in directing support to aid change facilitators, change facilitators are not often the recipients of support and function independently, often independent of strategic initiatives (Hall & Hord, 2011; Fullan, 2013).

Thirdly, the researcher employed CBAM for the first time in UK higher education, and specifically applied one of the CBAM data collection instruments, the CFSoC questionnaire. The CFSoC measures levels of concerns of those specifically in formal or informal roles of facilitating change. According to one of the contributing authors of CBAM, the CFSoC questionnaire had not been used previously in a higher education context in the UK noting the challenge in gaining participants in higher education (Hall et al., 1991; Hall, 2016).

Finally, this research distinguishes strategic intent rather than strategic planning as a model to effectively support strategic action of change facilitators in their formal and informal roles and with their distinct, individual concerns. The term strategic intent was not used previously in conjunction with the individual concerns of those facilitating strategic change related to technology-enhanced learning. By providing insight into the concerns of those demonstrating formal or informal strategic action related to technology-enhanced learning change, this research provides perspective into the challenges and opportunities in framing strategic intent and implementing

technology-enhanced learning in teaching and learning within a higher education institution.

## 1.5 Definitions

The following terms, defined below, will be used throughout this research. The definitions provided are intended to help frame subsequent presentation of the literature and the discussion.

Change

> *"Change … is a process of transformation, a flow from one state to another, either initiated by internal factors or external forces, involving individuals, groups or institutions, leading to a realignment of existing values, practices and outcomes"*
> *(Morrison, 1998:13).*

Change Facilitator

> *Change facilitators are represented by "the diverse set of persons, within and outside of organizations [sic], who have the formal or informal role to aid those involved in learning to use innovations"*
> *(Hall et al., 1991:iii).*

Concerns

> *Concern can be defined as "personal feelings and thought about an issue, phenomenon, or condition as it is perceived" (Hall et al., 1991:5). Concerns are an individual's "mental activity composed of questioning, analysing and re-analysing, considering alternative actions and reactions, and anticipating consequences"*
> *(Hall et al., 1991:5).*

Strategic Intent

> *"Strategic intent envisions a desired leadership position and establishes the criterion the organization will use to chart its progress….The concept also encompasses and active management process that includes: focusing the organization's [sic] attention on the essence of winning; motivating people by communicating the value of the target; leaving room for individual and team contributions; sustaining enthusiasm by providing new operational definitions as circumstances change; and using intent consistently to guide resource allocations"*
> *(Hamel & Prahalad, 1989:64).*

*Boisot (1995b) described strategic intent as an optimal approach to strategy within a context of environmental turbulence. His model "operationalizes the concept of learning at the strategic level" (Boisot, 1995a:42).*

## Sensemaking

*Adapting to changing organisational structures is depicted as 'sensemaking' during organisational impermanence (Weick, 2009a; Weick & Sutcliffe, 2015). People make sense of their environment through a combination of resources. Weick (2009b:57) describes these as a "set of socially organized [sic] resources for sensemaking." These resources are: social, identity, retrospect, cues, ongoing, plausibility, and enactment. Sensemaking helps facilitate strategic action.*

## Strategic Action

*Strategic action is what change facilitators within an organisation actually do to facilitate the organisation's strategy within the existing environment (Burgelman & Grove, 1996).*

## Strategic Dissonance

*"Strategic actions will begin to lead or lag strategic intent. Such divergences between intent and action cause 'strategic dissonance' in the organization [sic]… strategic intent must be based on top management's capacity to take advantage of the conflicting information generated by strategic dissonance"*
*(Burgelman & Grove, 1996:7).*

## Technology-enhanced learning

*Technology-enhanced learning is the effective use and positive impact of available and accessible digital, online and offline tools and resources to transform learning.*
*(Researcher's definition with influence from Conole & Alevizou (2010), Hall (2011) and Walker et al. (2016b))*

## 1.6 Structure of the Thesis

The thesis is organised in a manner reflective of case study research and its structure is presented in Table 2 (Stake, 1995; Yin, 2009):

Table 2: Thesis structure

| Chapter | Title | Pages |
|---|---|---|
| Chapter 1 | Introduction to the Research | 1 - 19 |
| Chapter 2 | Technology-Enhanced Learning and Strategy | 20 – 42 |
| Chapter 3 | Implementing Change | 43 – 75 |
| Chapter 4 | The Case Study in Context | 76 – 117 |
| Chapter 5 | Methodology and Methods | 118 – 140 |
| Chapter 6 | Research Design and Data Collection | 141 – 162 |
| Chapter 7 | Findings I – Open Text Responses | 163 – 185 |
| Chapter 8 | Findings II – Concerns, Demographics, and Categorical Questions | 186 – 214 |
| Chapter 9 | Findings III – Interviewee Vignettes | 215 – 257 |
| Chapter 10 | Discussion | 258 – 286 |
| Chapter 11 | Conclusion and Recommendations | 287 – 303 |
| References | | 304 – 334 |
| Appendices | | 334 - 348 |

Chapter 1 presents the background of the study including the statement of purpose and the research questions. The researcher's positionality is outlined to provide her background and context. The unique contribution to knowledge stemming from this research is identified. This chapter concludes with the structure of the thesis.

Chapter 2 introduces literature on technology-enhanced learning and the development of strategic planning in higher education. This is extended to strategic intent, which may be used as an approach to implement change strategies under evolving conditions of transient technology. Technology-enhanced learning is woven throughout the literature review where relevant, to draw connections between higher education, strategy and change and change facilitators.

Chapter 3 approaches literature on implementing technology change in higher education and specifically focuses on outlining concerns theory as well as change models. The role of change facilitators is explored and the role of individuals in facilitating change within higher education. The relationship between strategic intent and the actions of individual change facilitators is investigated.

Chapter 4 presents the Case Study University in relation to the higher education sector in the UK, including historical and contemporary contexts. Change and technology implementation strategies at several other institutions provide comparison of different approaches. This chapter also includes a review of the Case Study University's strategic plans, documents and other relevant publications to further situate the case study institution. This context enables a fuller picture of the institution, which is later used as a backdrop to the findings and discussion.

Chapter 5 describes the methodology and mixed methods used to conduct this research. The philosophical underpinnings in selecting the methodology for this research are identified, followed by ethical considerations, the research assumptions and how trustworthiness was addressed.

Chapter 6 presents the research design selected for this study and the data collection sequence for the pilot and main study. The approach to data analysis, data presentation in the findings and data management are outlined along with the limitations of the methods and instruments selected.

Chapters 7 – 9 include the research findings as follows:

> Chapter 7: *Findings I* presents the qualitative outcomes gathered from the online questionnaire.
>
> Chapter 8: *Findings II* highlights the descriptive statistics from the 35 questions based on a seven-point Likert scale measuring change facilitators' levels of concern in the questionnaire, including some reference to the participant

profiles presented in the previous section and concluding with an introduction to the interviewees.

Chapter 9: *Findings III* presents vignettes of the interviewees with a summary of the individual profiles which emerged from the questionnaire as well as a narrative presentation of the interview. These chapters provide the foundation for the chapters that follow.

Chapter 10 presents the discussion by synthesising the findings from the previous three chapters as compared to each other as well as in relation to the research questions. The findings are then discussed in relation to the literature.

Chapter 11 concludes the research and presents recommendations. This includes the limitations of the study and a reflection on this research. A presentation is made of the unique contribution stemming from this research, as well as recommendations.

References follow Chapter 11 at the end of this thesis.

Appendices include supporting documents, and information deemed relevant and referred to throughout the research.

Please note the following:

1. Dates will use the day / month / year format.
2. Acronyms will be written in full when they first appear and at the beginning of new chapters to guide the reader and to assist those situated outside the higher education system in the United Kingdom, or unfamiliar with it.
3. Technology-enhanced learning is used frequently and is used interchangeably with TEL.
4. Web sites and links were correct at the time of writing and permalinks were used when available.

# Chapter 2: Technology-Enhanced Learning and Strategy

## 2.1 Introduction

This chapter introduces the key concepts of technology-enhanced learning and strategy used throughout this thesis. The complexity of the term technology-enhanced learning is hidden in its simple language. Technology-enhanced learning offers complex implications for university structures and academic practice, in part because it is dependent on dynamic and rapidly changing technology and the practices of those who use it. As it is referenced in the context of other key concepts, such as strategic intent and implementing change, it is introduced here first for clarity. Strategy, and more specifically strategic intent, is introduced in this first section as well, since strategy related to technology-enhanced learning is specifically assessed in this research.

The structure begins with the introduction of technology-enhanced learning followed by a discussion of strategy and strategic intent. Section 2.2 begins with an introduction of technology-enhanced learning as it is described in the literature with emphasis on how language changed over time, reflecting the emergent and dynamic nature of technology used in education. This is followed by a discussion of the pedagogic impact afforded using technology, as well as a presentation of different tools commonly provided within a university structure and others which are peripheral yet widely available.

Section 2.3 is largely a presentation of strategy; however, it begins with the concept of social structure, since perception of social structure informs one's views of the world. This is linked with the concept of intent, or the translation of intentional thoughts made possible through actions. These two concepts link together to inform the section on strategic intent as an approach to strategy development, which considers unknown factors and volatile circumstances. Strategic intent is first presented in general terms and with a literature supported definition before

presenting it in the context of higher education. Strategic planning reflects good intention from those in leadership positions or as an indicator of change. Finally, this section concludes with thoughts on sources of strategic dissonance and the challenge of seemingly unsolvable, or wicked, problems.

## 2.2 Technology-Enhanced Learning

### 2.2.1 Introduction

This section explores multiple understandings of technology-enhanced learning, the implications for academic practice and the relation to strategic development. First, technology in education is explored in the context of the affordances of digital technology to enhance learning. A review of technology-enhanced learning in the literature, including different terms and contexts used over time in the United Kingdom and beyond, points towards the potential of digital technology to continually impact the learning and teaching environment. Individuals who incorporate technology into their teaching practice as well as those who support its use are presented. Finally, literature on developing and designing technology-enhanced learning strategies in higher education are reviewed. The rapid metamorphosis in educational practices and strategy development will be explored in this context.

### 2.2.2 The transience of technology-enhanced learning

To uncover the meaning and impact of technology-enhanced learning it is helpful to consider each word independently, to better understand the combined meaning (Bayne, 2015). The etymology of the word *technology* stems from the Ancient Greek word, τεχνολογία (tekhnologie), meaning art or skill. Later, 17th century Greek interpreted the word *tekhnologia* to mean the 'systematic treatment' of a craft and it is defined in the *Oxford Online Dictionary* as "the application of scientific knowledge for practical purposes" (Oxford Dictionaries, 2016). Technology is further cited in the same reference as representing "machinery and devices developed from scientific

knowledge." This conveys distinct intention and evidence-based application embodied in the application of emerging technology, supporting the notion that the technology itself does not have intrinsic pedagogic value. Technology's affordances, however, provide opportunity for valuable pedagogic practices, which are evidenced though emerging empirical research (Harasim, 2012; 2017). It is in this latter description that 'enhanced learning' is evaluated; learning which is positively impacted through the affordances of technology.

This thesis uses the term technology-enhanced learning; however, other terms have been used throughout the literature, which represent a similar meaning and are often used interchangeably. Although the term 'technology-enhanced learning' is common in the United Kingdom, there is no agreed-upon definition. In addition, any definition that is presented represents a concept that is not constant and is continually evolving as the technology and practices employed to use the technology evolve. The following quote summarises the meaning effectively:

> *"The range of activities involved in TEL can encompass the basic implementation of a learning management system (LMS), to individual activities that utilise a specific technology, to flexible course delivery with whole online course offerings … and everything in between."*
> *(Gregory & Lodge, 2015:210)*

In addition to 'technology-enhanced learning' and 'educational technology', one may also encounter some of the following terms, although this list is not exhaustive and changes to reflect advances in technology: computer-based learning (Isaacs & Senge, 1992), technology supported learning (Stiles & Yorke, 2006), electronic tools (Grimshaw & Wilson, 2006), electronically enhanced learning (Scott, 2007), e-learning (White, 2007), Web 2.0 learning design (Bower et al., 2010), digital technology (Selwyn, 2014), digital learning (Massachusetts Institute of Technology (MIT), 2015), or web facilitated learning (Allen & Seaman, 2016). In the examples above, the year 2007 appears to reflect a shift in terminology with *electronic* used prior to this date and the word *digital* used after. The transience of the terms outlined above reflects a

range of meanings, from the mode of content delivery to the way the technology affords collaboration, creation and other emerging aspects of what is now commonly described as technology-enhanced learning.

With language evolving along with technology, it is still useful to narrow down a definition to assist with understanding in the context of this research. The following definition of technology-enhanced learning was initially used by the Universities and College Information Systems Association (UCISA) in 2008 as part of a survey conducted across higher education institutions in the UK. The UCISA definition was reiterated and confirmed in an updated report published in 2014, and again in 2016 (Walker et al., 2014; Walker et al., 2016b):

> *"Any online facility or system that directly supports learning and teaching" (Walker et al., 2016b:1).*

The key words in this definition focus on online resources directly impacting learning and teaching. Instead of using the word *enhanced*, the authors chose the word *support* to represent the impact technology, or "online facility", has on learning and teaching. This definition does not prescribe or distinguish how much learning or teaching is online, only that the mode is online. Although the UCISA report explicitly mentioned using technology to *enhance* learning, their definition remains implicit and does not reflect this intention. In addition, "online" is somewhat limited as it does not include offline alternatives to using technology as well as other digital resources.

In contrast to the lack of reference to *enhanced* in the UCISA definition of technology-enhanced learning, other associations in the United Kingdom have adopted the term. One example is the Higher Education Academy (HEA, 2015a), described in more detail in section 4.1 on Higher Education in the United Kingdom, defined technology-enhanced learning as "the use of technology to maximise the learning experience" (HEA, 2015b). Elsewhere on the website, it was described as: "technology-enhanced learning (TEL) is often used as a synonym for e-learning but

can also be used to refer to technology enhanced classrooms and learning with technology, rather than just through technology" (HEA, 2015b).

The definitions of *technology-enhanced learning* above contrast with the American perspective and prolific use of the term *educational technology*, defined by the Association for Educational Communications and Technology (AECT) as:

> *"the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources"*
> *(Association for Educational Communications & Technology (AECT), 2016).*

The definition above offers additional pedagogic, administrative and management considerations, which have implications for academic practice, mechanisms for support, strategy development, and change implementation.

Blended learning is also a term used in the context of technology-enhanced learning discussions and in strategy development. According to Garrison and Kanuka (2004:96), "blended learning is the thoughtful integration of classroom face-to-face learning experiences with online learning experiences." Graham et al. (2013) identified *technology-enhanced* as part of the spectrum of blended learning, most notably using technology alongside traditional face-to-face delivery modalities, rather than learning being mostly or completely online at the opposite end of the spectrum.

Digital learning is another term that encompasses more than just online learning as it incorporates using tools which are both online and offline. Offline tools may include the use of digital cameras and software on a student's computer or handheld device. Digital learning encompasses online and offline interaction and activity related to learning, also independent of the teacher.

> *"Digital learning technologies can enable students to grasp concepts more quickly and fully, to connect theory and application more adeptly, and to engage in learning more readily, while also improving instructional techniques, leveraging instructor time, and facilitating the widespread sharing of knowledge. Digital technologies will enable this in new and better ways and create possibilities beyond the limits of our current imagination."*
> *(Massachusetts Institute of Technology (MIT), 2015:website)*

An additional perspective from the United States is shared via the Babson Survey Research Group, which has published annual reports on online learning for the past 13 years. The most recent report does not use the term technology-enhanced learning at all, nor do previous reports, and they focus more on answering the question, "how many students are learning online (at a distance)?" (Allen & Seaman, 2016:4). In this report, online, or distance learning, was defined based on the percentage of content delivered online. Learning was categorised as *online learning* when 80% of the content was delivered online, in contrast to blended or hybrid learning, which was classified as when between 30 – 79% of the learning was delivered online. In the same Babson study, the term "web facilitated" was used to represent learning spaces using 1 – 29% online delivery and this included the use of a virtual learning environment (VLE), learning management system (LMS), or course management system (CMS) (Allen & Seaman, 2016:7). These latter three systems will be addressed in more detail in Section 2.2.3.

Although it may have been relevant to categorise levels of online learning when it was emerging, the researcher felt the metric of measuring time of online learning was outdated for two reasons. The first was the assumption that delivery of content was the equivalent of learning. Without clear metrics for learner engagement and retention of learning, for example, the percentage of content online, offline, or face-to-face carries little meaning. For example, a word count may indicate that a certain percentage of the content was delivered, and presumably consumed, online, yet there are videos and other offline engagement opportunities, which are not considered in the tally of what was considered as 'content delivery'. In addition, other modalities

of learning using technology are not included in these percentages. For example, collaboration and engagement enabled by technology, such as within a learning community or peer group, are not factored as a percentage of how content is delivered. The percentage of online content delivery is not of singular relevance and does not reflect the complexity as well as opportunity afforded by technology. The implication of a higher percentage of online delivery was that more learning could occur or that learning might be faster, yet these shifts draw the focus away from learning and towards the technology itself. Indeed, what difference is there between reading a book at home versus reading an e-book on or off-line? If the technology is not leveraged in ways which extend the value of reading using technology, then advantage cannot be claimed.

Technology resources potentially enhance learning by the affordances offered when purposively adopted and applied with competence. Individual perspective and experience may lead one to effectively and efficiently apply or implement available technologies to enhance learning, though lack of experience and aptitude could equally discourage people. Conole and Alevizou (2010) presented a technology adoption typology, identifying the barriers to uptake and the need for new literacies and capabilities, such as digital, networked and multi-literacies, to help academics and others navigate the possibilities.

While technologies used in education vary widely, individual resources have the potential to support social learning and opportunities for collaboration and engagement. While not providing intrinsic pedagogic value, these examples enable valuable pedagogic practice not otherwise available: class blogs for reflexivity and sharing views (O'Byrne & Murrell, 2014), wikis for collaboration and creation (Luckin et al., 2009), mobile devices for learning independent of time and place (Cochrane, 2011; Kearney et al., 2012; Burden & Jones, 2016), use and creation of open educational resources (OER) (Wiley, 2014; UNESCO, 2017) , and social media (Bennett & Folley, 2014). Further collaboration and engagement can be facilitated

through creators and consumers of OER content who are encouraged to retain, reuse, revise, remix and redistribute (Wiley, 2014), thereby exponentially increasing the potential of open resources.

Technology-enhanced learning is not tightly defined, but rather a dynamic and metamorphosing set of practices enabled by developments in digital technology. The intention of the researcher in presenting different resources and perspectives on the use of technology-enhanced learning is multifaceted. From one perspective, it provides context to the complexity technology offers, as it impacts not only the use of technology tools, but also pedagogic practice and teaching patterns. Most critical to this discussion was the continuous opportunities afforded through digital technology and the metamorphic impact on academic practice, administrative support and strategy development. In addition, the terms used to represent technology-enhanced learning demonstrate change over time and the researcher suggests this reflects innovations and changes in digital capability. Although this research does not seek to identify or design a new model of pedagogic use of technology, it does seek to understand technology-enhanced learning in relation to strategic intent and practical application.

Technology-enhanced learning has implications for academic practice through a plethora of possible digital technology tools or applications. Technology-enhanced learning enables individuals to use technology by integrating their own perspective, capability and context. There is not a single model of blended learning or any technology tool or application, but rather conceptual positioning of the opportunities in applying available technology with teaching and learning approaches. Individual capabilities, institutional provision and emerging technology all contribute to the transience of technology-enhanced learning as well as disparate perspectives and opinions, hindering a single, explicit definition (Kirkwood & Price, 2014). Transience represents the shift and emergence of the technology and its applications. This concept of the individual, especially as they impact institutional change, will be

introduced as the change facilitator in Chapter 3, Section 3.4. Although approaches to blended learning or integrating technology to enhance learning may be transferable or replicable, the opportunities afforded by technology used inside or outside of the classroom are unique to each practitioner.

### 2.2.3 Core or peripheral technology

Technology offered within a university can be identified as provided within the university systems or not provided by the institution. For clarity, this research distinguishes between core and peripheral technologies (Salmon, 2005; 2014). Other researchers note "both 'formal' and 'informal'" resources in use throughout educational institutions (Conole & Alevizou, 2010:22) or central or non-central provision of technologies (Walker et al., 2016a). Core or central technologies are tools, assets and resources that are provided centrally as a university investment available for use by staff and students. Although the term core technology implies that the technology is provided and applicable to all, support for the resources is assumed. Centrally supported technology, however, is a more explicit term in communicating that both the technology and the necessary resources to support users with the technology are provided (Walker et al., 2016b).

Technology resources offered on an institutional scale provides insight into what is deemed important for learning and teaching. Case studies conducted in the United Kingdom indicate the availability of a virtual learning environment (VLE) or learning management system (LMS) is core to an institution's technology infrastructure (Jenkins et al., 2011; Walker et al., 2012). A VLE is web-based technology that enables the administration of learning, serving as a portal, or online point of entry, into the university system for staff and students to access modules and administrative features, programme resources and material (Brown et al., 2015). A VLE can be used in its most basic form of storing content and directing students to the resources, or by extending its capability of supporting learning independent of time and place or

offering alternative forms of student-to-student or instructor-to-student engagement. It could be argued that the decision to purchase and integrate system-wide technologies, such as a VLE, is made on the assumption that improvements in teaching and learning will result (Cuban, 2001). Weller (2007:1) goes further, stating that "arguments that pervade e-learning are all reflected in the choice, deployment and development of a VLE in an organization *[sic]*." In the past, universities exhibited multiple, decentralised VLEs, possibly at departmental levels. In recent reports, however, there is an increasing tendency to identify a single VLE for the institution which would be used by all departments, although conflicts between central control and departmental or academic autonomy have been noted (Stiles & Yorke, 2006; Weller, 2007). It is increasingly clear that administrative efficiencies are enabled through a VLE, although learning itself is still highly dependent on the individual design and use of the VLE (Walker et al., 2016b).

Although an institution-wide VLE may be offered, it is still dependent on personal actions related to its use and application within teaching and learning. Much of the decision to engage with the institutionally provided technology rests with academic staff and the extent of enabling learning through the VLE is subject to wide variation with few reports advanced features used consistently (Weller, 2007; Brown et al., 2015). Implicit in offering central provision of multiple technologies is appropriate training, ease of access and purposeful impact. If a university provides centralised resources, it must be positioned to support staff and student users. This may take the form of a technology-enhanced learning support team. Support teams appear to focus more on implementation of the technology and not on the measurement or impact of the technology or pedagogic advantage (Walker et al., 2012). Support, however, does not automatically equate to generic or standardised use of available technology.

In the UK, the most recent UCISA TEL Survey reported that over half of the participating universities had evaluated their VLE provision, noting evaluation was

firmly established in the sector (Walker et al., 2016b). Evaluation may also be initiated as new providers enter the market offering new features, as well as a reflection in how users evolve in how they utilise the VLE in their teaching and learning. Evaluation of VLE providers is well documented by other sources (Hill, 2012) and details and distinctions are only noted here.

Peripheral, or supplementary, resources often complement institutional VLE provision. For example, electronic assessment and submission tools, also known as e-assessment and e-submission, are increasingly available to provide digital resources for students to submit their work and for assessment feedback to be provided electronically (Jenkins et al., 2011; Williams, 2014). There are both administrative and pedagogic advantages to these tools, including secure tracking of exchanges between instructor and student and alternative structure in providing and delivering feedback to students (Williams, 2014). In addition, plagiarism detection is increasingly paired with e-submission. Plagiarism detection has become widely available from a small selection of providers with proprietary software that compares a student's written work with a range of academic writing to provide a percentage of original writing. Tools for online collaboration, blogging, lecture recording and document sharing are also increasingly available via the VLE provider or through other providers. These core technologies now play a central role in many universities in the United Kingdom. Finally, whilst access to technology is important, nevertheless, this alone is not sufficient for shifting academic practice. There must be ongoing support and training to transform the learning and teaching space.

Whereas core technologies are widely provided and financed by universities, peripheral technologies are made available through non-central channels. Peripheral technologies may be determined by academic choice or by department. Peripheral tools include such things as social media, document sharing provision, blog platforms, subject specific apps or resources. The list of possibilities is extensive and many tools could be situated within or beyond institutional provision. They are

noted here as they represent a component of academic practice and may also impact upon administration within institutions, including interoperability and integration (Brown et al., 2015). Social networking resources are increasingly mainstream outside of an educational context and provide a student-friendly venue for social networking, collaboration and sharing within an educational context (Resta & Laferriere, 2007).

Although such resources are free to use, there are potential complications with access, data security and unproven pedagogic application. Technology applications that are not provided by the university will not be supported and are not likely to be centrally accessed. Data security presents an issue, as provision could reside outside of the UK and under the jurisdiction of other countries. At the core of using alternative technology is the intention of academics to provide benefits to students. However, new technology may not have any evidence of successful application and benefits must be anecdotally evidenced before gaining more substantive evaluation (Harasim, 2017). However, Cohen et al. (2013:336) expressed their dismay at exploratory practices in education: "It is bordering on the unethical to implement untried and untested recommendations in educational practice, just as it is unethical to use untested products and procedures on hospital patients without their consent." With the rapid increase in new technology and innovations for educational use, it will be challenging always to use evidence-based tools in practice. Research dictates that there must be a starting point for new outcomes. Finally, it is important to mention that the term *peripheral* does not refer to the level of importance of technologies in teaching and learning. Peripheral technologies could comprise the primary set of tools, an academic or support staff member uses depending on their preference and capability.

## 2.3 Strategy and Strategic Intent

### 2.3.1 Introduction

This section introduces strategy within the context of higher education and in relation to technology-enhanced learning influencers. Concepts of social structure are first introduced to provide lenses for viewing change initiated through individuals or organisational structure within a higher education institution. Organisational efforts of establishing strategic plans is then outlined, followed by strategic intent as a strategic practice within higher education. Intentionality follows as a philosophical concept representing a mental state about something else (Brentano, 1874 (republished in 2009); Byrne, 2005; Crane, 2011). In this case, it is the mental state of those implementing change that is under consideration. Finally, strategic dissonance is when there is a mismatch between actions and strategic intent, especially considering unsolvable problems (Burgelman & Grove, 1996). The constant dynamic and transience of technology-enhanced learning planning and implementation is presented as an unsolvable, or wicked, problem (Rittel & Webber, 1973; Ritchey, 2013; Varpio et al., 2017). Strategic dissonance is identified as a possible negative outcome of strategic planning, yet it is also acknowledged as a potential positive source of information upon which an institution may build its strengths (Burgelman & Grove, 1996).

### 2.3.2 Social structure

A brief overview of social perspective provides a lens with which to view organisational structure and behaviours and aids in understanding ways of perceiving dynamics and interactions within an organisation. Bergquist and Pawlak (2007) presented the social perspective as culture, which informs actions within higher education institutions. These cultures, or social structures, are designated in the literature as premodern, modern and postmodern. These three social structures are reviewed against the culture of a higher education institution. Further, strategic intent and individual actions, including making sense of new circumstances and

finding meaning, are presented in relation to organisational social structure and behaviour.

Premodern social structures are considered "traditional, primitive, developing, third world, agrarian, and neo-feudal" (Bergquist & Pawlak, 2007:3). This structure is typified by extended families, community support and barter systems of economic movement. Personal agency is not recognised or developed in the premodern society, as roles are pre-defined and dynamics within the societal structure exist without challenge. In addition, communities are more likely to be fragmented and function independent of each other (Giddens, 1991). The premodern social structure relates to strategic planning regarding the expectation that roles are clearly defined and actions are anticipated; intent is expressed through the broader social structure rather than intent based on individual initiative. This structure shifts, however, in cultures of modernism.

The culture of modernism is one that shifts from community structures and defined roles to one that places value on individual reason and acknowledges scientific research as a "superior means for arriving at truth and reality" with language as a "credible and reliable means to access to that reality" (Bloland, 1995:523). This is further represented by a shift in the perception of self-identity, whereby individuals are recognised for their "unique character and special potentialities that may or may not be fulfilled" (Giddens, 1991:74). Hierarchical structures are inflexible and are characterised with clear definition of "power, control and decision-making" (Morrison, 1998:2). With regard to higher education, Tierney (2001:353) posited: "Universities have been seen as central organizations of the modern idea of the nation-state." With research as a core purpose of higher education along with preparing students to follow the scientific method, universities broadly reflect modernism. Giddens (1991:15) posited the nation state served "as 'agents' rather than 'structures'." The ubiquity of technology and the speed in which information is shared within prevalent hierarchies still align with the modernist perspective of

higher education and the preparation of professionals. The nation-state must adapt yet change neither conforms nor aligns with humans attempting to control it (Giddens, 1991).

Postmodernism emerged as an artistic and cultural response to, and critique of, modernism (Bloland, 1995). It represents a shift in social structure, moving away from mass production to a service oriented society. The postmodern discourse in higher education questions existing structures and calls for increased need for "flexibility, responsiveness, consumerism and client satisfaction" (Morrison, 1998:2). Peters (2004) asserted that universities must adapt to the postmodern world, largely because of the individuals who participate in higher education. The modernist perspective stemmed from a hierarchical structure that did not consistently acknowledge the innovations of individual contributors. Digital individualism has the potential to impact structures and experiences within a higher education institution and a postmodern perspective helps facilitate and acknowledge this. However, there is debate on the postmodern stance and the normalisation of the "constructions of the postmodern university"(Manathunga, 2017:72). Policy and strategy, and those that write these, inform the current concept and constructions of higher education. Becher reflected on Foucault's world order as "what people see and understand is conditioned by the contemporary intellectual climate" (1989:134). Further, Baudrillard's postmodern views on higher education were summarised as follows: "empty meaning and symbolic exchange" (Blanco Ramírez, 2017:5). The symbolic exchange reflects the paradigm of whether "universities create consumers" of education or are structured to "reproduce social trends" (Blanco Ramírez, 2017:6).

While sociological philosophies and theories may be debated, this section serves merely to present an overview of some of the ways of viewing social structures. Culture, and the impacts upon culture within universities, determine the orientation of an institution, including the communication of strategy, the path to strategic implementation, the structure supporting implementation, the ways individual

actions and contributions are acknowledged, and the identification of how to best serve students (Bergquist & Pawlak, 2007). Change and culture are explored in more depth in Chapter 3, Section 3.2.

### 2.3.3 Strategic plan

> *"The best plan is only a plan, that is, good intentions, unless it degenerates into work. The distinction that marks a plan capable of producing results is the commitment of key people to work on specific tasks. The test of a plan is whether management actually commits resources to action which will bring results in the future. Unless such commitment is made, there are only promises and hopes, but no plan"*
> *(Drucker, 1986:94).*

In higher education, as well as other public sector organisations, strategic plans serve as a public facing manifest of what the institution intends on achieving as well as an inward facing guide of where to direct change efforts. However, one of the challenges of strategic planning is that it is formed on the assumption of stable conditions (Mintzberg, 1994). To be effective, strategic response needs to be continually adapted and refreshed. Since a five-year strategic plan is commonplace in higher education, the adaptation cycle is not likely to reflect needed changes, so an effective strategy implementation may need some adaptation in semi-unpredictable situations.

Strategy is integral to organisations and strategic planning provides guidance by evaluating relevant factors related to the organisation to inform future actions. Strategy can be simplified into four "p" words: plan, pattern, position and perspective (Mintzberg, 1994). Although primarily focused on the element of 'plan', Drucker's perspective on strategic plans is relevant for strategy implementation across sectors; the organisation must have committed resources and dedicated people to shift good intention to implementation (Drucker, 1986). If Drucker's statement is valid, one would anticipate committed resources and infrastructure to support strategy related to technology-enhanced learning. Implementation also requires "control systems" to monitor implementation (Kotler & Murphy, 1981).

Kotler also mentions the possibility of taking corrective action to realign strategy with implementation. This is more aligned with the concept of strategic intent, presented in Section 2.3.4, rather than strategic planning.

Similar to Drucker, Gibbs et al. (2000) identified several features as contributing to successful implementation of strategic change in higher education as related to technology-enhanced learning: new leadership roles dedicated to teaching and learning, dedicated groups to implement change, investment in centralised learning resource support, time and space allocation to address change and reward systems to acknowledge teaching and learning achievements. These represent multiple structural components within a higher education institution and outlines contributing factors to successful strategic change. Ford et al. (1996) identified organisational structure as a mechanism for facilitating strategic objectives. "Strategic purpose" must be clearly articulated when introducing strategies which impact academic practice (Millwood & Powell, 2011:258).

Strategic plans remain one of the strongest influences on technology-enhanced learning strategy development in UK higher education (Walker et al., 2012; Walker et al., 2014; Walker et al., 2016b). Institutional teaching, learning and assessment strategies focus on learning and teaching specifically, and are most likely to incorporate specific technology-enhanced learning objectives. External strategies are also influential in contributing to the rise to prominence of institutional technology-enhanced learning strategies (Jenkins et al., 2011). However, in contrast to strategic plans informing technology-enhanced learning strategy development, other researchers argued that technology-enhanced learning uptake influences strategy development (Stiles & Yorke, 2006; Singh & Hardaker, 2014).

In addition to reviewing strategies presented within other institutions in the sector, external reports stemming from organisations supporting higher education initiatives related to technology-enhanced learning also influence strategy

development (Walker et al., 2016b). These organisations, such as the Joint Information Systems Committee (Jisc), Higher Education Academy (HEA) and Universities and Colleges Information Systems Association (UCISA), are described in detail in the section describing the context of the case study of higher education in the United Kingdom in Section 4.1.

### 2.3.4 Strategic intent

> *"Whereas strategic plans get rapidly overtaken by persistent turbulence if they turn out to be the abstract products of a faulty analysis, the objectives that are derivable from the intuitions of strategic intent remain robust in a regime of turbulence"*
> *(Boisot, 1995b:37).*

In contrast to a strategic plan, strategic intent is a way of articulating an organisation's desire to build a portfolio of competitive advantages (Hamel & Prahalad, 1989) by introducing intuition as a critical component of strategically reacting to change (Boisot, 1995a). Intuition is indicative of creative and innovative approaches to making sense of one's surrounding (Andersen, 2000). Change facilitators manifest strategic intent through creative or innovative translation of the institutions' strategic position for success. Boisot (1995b) described strategic intent as an optimal approach to strategy within a context of environmental turbulence. His model "operationalizes the concept of learning at the strategic level" (Boisot, 1995a:42). Adapting to changing organisational structures is also depicted as 'sensemaking' during organisational impermanence (Weick, 2009a; Weick & Sutcliffe, 2015). People make sense of their environment through a combination of resources. Weick (2009b:57) describes these as a "set of socially organized *[sic]* resources for sensemaking." These resources are: social, identity, retrospect, cues, ongoing, plausibility, and enactment. Other researchers describe this as behavioural intention, which comprises expectations of performance and effort along with social influence and conducive conditions (Venkatesh et al., 2003; Lewis et al., 2013).

The concept of strategic intent, along with the earlier work of Hamel and Prahalad (1989), presents a manner in which organisations may strategically respond to different rates of change in the environment through the capabilities of individuals within the organisation. Strategic intent relies on a clear vision from leadership and management related to measures of success, or organisational competitive advantage, while acknowledging the capability of members of the organisation to manifest the strategic intent with an ever-changing environment (Hamel & Prahalad, 1989; Knoess, 2005; Mariadoss et al., 2014). In this respect, it accommodates a postmodern perspective as it deviates from a ridged hierarchical structure. Much as a gimbal steadies a camera on a drone during unstable conditions, strategic intent acknowledges unstable conditions and steadies the implementation of strategy through the creative interpretation of individuals within the organisation. Turbulence, as articulated above, assumes unstable conditions requiring flexible response of those with practical knowledge, especially when leaders may not be directly connected with the "day-to-day reality of university life" (Burnes et al., 2014:920). Success is dependent on the clarity of intent, which informs those facilitating strategic concepts through their own intuitive translation and realisation.

The intent from the institutional perspective is translated into intentionality through the purposeful actions of the staff. In colloquial terms, intentionality represents "the relations between intentions and intentional actions: an intentional action is simply the conditions of satisfaction of an intention" (Searle, 1983:80). However, intentionality in philosophical discussions "should not be confused with the ordinary meaning of 'intention'" (Jacob, 2014:1). Intentionality focuses on the quality of the object identified within a given mental state; intentionality reflects the *aboutness* of a mental state (Byrne, 2005; Crane, 2011). Exploring the nature of the relationship between mental states and the directed object is core to the discussion of intentionality, which Jacob (2014) posits may also represent a concept or non-mental thing. It is included here to provide alternative conceptual frames of the mental states

different individuals might have within a university and in relation to technology-enhanced learning support or implementation.

### 2.3.5 Strategic dissonance and *wicked problems*

> *"The most frequent mistake made in attempts to transform universities is for a management team to proceed on its own without involving faculty and their departments from the outset"*
> *(Clark, 2004:176)*

Strategic dissonance occurs when strategic intent is misaligned with strategic action, whereby actions by individuals either direct or fall behind strategic intent (Burgelman & Grove, 1996). As with some of the previous literature on strategic intent and strategic planning, strategic dissonance stems from the business world, specifically high-technology industries, and not from education. However, the researcher draws upon this literature as a relevant lens in which to view strategy and implementation of strategy within higher education institutions, which are increasingly expected to function within a business model while serving educational missions (Deem et al., 2007; Kok et al., 2010; Hotho, 2013).

On an organisational level, Olson (2001) encourages amplification of differences rather than bringing divergent views into consensus. This places value on emerging views where differences, or dissonance, become generative and when technology is continually changing. The implication of this is continual evaluation of status and integration of new information. Most importantly, it is the identification that there is strategic dissonance between strategic intent and strategic action and that *wicked problems* are not readily resolved.

The source of dissonance manifest in several ways. Strategic policy may directly contradict practice on the ground. This may be present if strategy and resulting policy is not realistic or achievable to implement in practice or far removed from the activities of those already engaged (Clark, 2004). Alternatively, strategic policy may

be minimal, necessitating compensatory practices. Strategic policies may be inadequate or non-existent, enabling existing practices to emerge as *de facto* policy.

In addition to the dynamic between strategic policy and practices, strategic dissonance and the transience of technology-enhanced learning may develop because of *wicked problems*. The term *wicked problem* was first coined by Rittel and Webber (1973); a more recent reflection on the term stated that *wicked problems* "are those complex, ever changing societal and organisational planning problems that you haven't been able to treat with much success, because they won't keep still" (Ritchey, 2013:1). These problems "defy resolution" despite strategic attempts to reach a solution (Varpio et al., 2017:352). The Horizon Report, a future-looking annual report on the state of higher education, described the challenge for academics in higher education to "manage knowledge obsolescence" and the challenge of "staying organized *[sic]* and current" with technology's transience and rapid changes (Adams Becker et al., 2017:32). Acknowledging challenges that do not have apparent solutions is the first step in addressing such problems. Fullan (2015) describes this conundrum as *simplexity*, a term originally coined in 2008 by Jeff Kluger of *Time* magazine. In order to address *simplexity*, or *wicked problems*, one may first identify "the smallest number of key, alterable factors that would make a big difference" (Fullan, 2015:27). However, dealing with challenges potentially introduces further complexities (Jordan et al., 2014). One example from UK higher education addressed the challenge of teacher readiness to prepare students for an ever-changing society and technological advances through a combination of policy development and professional development (Bore & Wright, 2009). To address the dissonance, Burgelman and Grove (1996:9) suggest strategic intent is adjusted "to take advantage of the conflicting information generated by strategic dissonance." Emerging dissonance therefore has the potential to inform subsequent decisions, although dissonance may not necessarily contribute to refreshed strategy.

## 2.4 Chapter Summary

This chapter set the context of this research by presenting technology-enhanced learning and strategy, intent and intentionality. It began with a presentation of alternative definitions of technology-enhanced learning, noting specifically how technology terms change over time as well as individual and organisational interpretations of its applications. Insight into its importance can be gathered from an organisational level by observing what is provided to all staff and students within a higher education institution. Provided technologies were defined as core technologies and those used that are situated outside of institutional infrastructure are considered peripheral. Peripheral, however, does not refer to the level of importance, as peripheral technologies may be used as primary tools. In some respects, peripheral tools emerge from the postmodern expectations of students related to social networking and collaboration.

The chapter continued by exploring strategy and strategic intent. Strategic intent is defined as strategy which acknowledges changing organisational and technological aspects requiring flexibility. Drawing on the capabilities of those meant to implement strategy, intentionality refers to the application of strategic intent paired with the capabilities of members of the organisation. Finally, the transience of technology-enhanced learning presents a *wicked problem* leading to strategic dissonance. On an organisational level, technology systems to enhance learning take time to implement and integrate and, importantly, for informing and training users. Individual academic and support staff may assess their roles considering strategy or they may not have the connection to it. Strategic dissonance is presented when the connection between strategic intent and actions by members of the organisation is broken. This can occur when faced with *wicked problems*; *wicked problems* are ones that cannot easily be resolved, such as implementing technology-enhanced learning across the university when success is dependent on individual capabilities and interest.

Chapter 3 shifts to a review on how strategy informs the implementation of change in higher education. The nature and impact of individuals who facilitate change is extended as a focal point of this research. This includes a review of whether change is informed by individuals or strategy or a combination of both. Considerations of institutional structure are outlined in the context of implementing change.

# Chapter 3: Implementing Change

*"Change … is a process of transformation, a flow from one state to another, either initiated by internal factors or external forces, involving individuals, groups or institutions, leading to a realignment of existing values, practices and outcomes"*
*(Morrison, 1998:13).*

## 3.1 Introduction

This chapter introduces change models and the role of individuals contributing to change and identified as change facilitators. Implementing strategy and interpreting strategic intent is dependent on individual action. Individuals implement change and this section explores formal and informal roles in this process. First, change models are presented in the context of higher education environments and, specifically, implementing technology change (Section 3.2). Second, the chapter continues by introducing change facilitators, including different ways to categorise the role and presenting characteristics of formal and informal roles within an institution as sources of change related to technology-enhanced learning (Section 3.3). Finally, drawing on individuals involved in change, concerns theory is introduced as a model to understand the concerns individual change facilitators have with technology implementation within higher education contexts (Section 3.4). The Concerns Based Adoption Model (CBAM) (Hall et al., 1991) is presented as an approach to understanding individuals involved in change initiatives.

## 3.2 Change Models

*"Four capacities required as a generative foundation for building greater change capacity: personal vision-building, inquiry, mastery, and collaboration. Each of these has its institutional counter-part: shared vision-building, organizational structures, norms and practices of inquiry; focus on organizational development and know-how, and collaborative work cultures."*
*(Fullan, 1993:12)*

### 3.2.1 Introduction

Reviewing the literature for change models, one quickly identifies models offering recommendations for understanding, justifying, promoting and supporting organisational change. Weick and Quinn (1999), for example, thoroughly cover the research on change in organisations, referring to literature suggesting tick-box lists, numbered stages, ordered sequences, lists of assumptions, core practices, proposed steps or necessary milestones to follow for successful change implementation. Recommendations of strategies, processes, approaches and other considerations aim to offer templates leading to successful outcomes if leaders, managers and practitioners apply the process to their own organisational situations. Management theories for educational change (Morrison, 1998) and educational change models (Ellsworth, 2000) merit the full content of one or more books and not just a section of a thesis. There is a possibility that a model which was deemed effective a decade or more ago may no longer have relevance in a new context of technology innovations. Alternatively, there may be underlying principles that can be transferred to different contexts. Context must be considered as part of any change initiative, as absence of context hinders change in academic organisations (Fanghanel & Trowler, 2008).

As Morrison (1998) stated, the transformative process of change is most significant with internal and external factors impacting upon change implementation. Perhaps it is the diffusion of an innovation driving the change (Rogers, 2003), the concerns regarding the adoption of an innovation (Hall & Hord, 2011), the dynamics of group interaction (Beer, 1994) or the inspiration of individual change agents (Fullan, 2001a), to mention just a few approaches to implementing change. The environment, change process or structure (Lewin in Burnes, 2004) may form the basis of implementing and understanding change. Further to the reference on turbulence provided in the previous section and the reflection of strategic intent as a way to adapt to constant change, Tight (2013:11) describes "continual 'institutional churn'" as a way for an organisation to re-invent itself over time in an environment of constant change. In

other cases, inefficiencies in one model may be compensated by integrating components of other models, described as a contingency theory of implementing change (Van de Ven & Sun, 2011).

Higher education institutions with "entrepreneurial character" exhibit flexibility and adaptability related to the introduction of change initiatives (Clark, 2004:178). Flexibility and adaptability underpin the success of strategic intent. Clark identified several factors in accelerating flexible change: "interlocking and supporting interaction among new elements; a resulting perpetual momentum; and – the crux – embedded intuitional volition" (Clark, 2004:178). According to the *Oxford Online Dictionary*, volition is "the faculty or power of using one's will." Institutional volition could therefore be described as a collective power of individuals who make and implement decisions. Identifying a balance of support, momentum and volition impacts upon an institution during change implementation.

The mention of volition is comparable to the notions of agency as used by Archer (1988) or intentionality as used by Malle et al. (2001). Clark (2004) explicitly uses volition from an institutional context of change. However, he acknowledges that the source of institutional volition may stem from a single assertive individual. Malle notes the difference between the traditional view of intention and a more contemporary perspective; the traditional view, he noted, associates intentions solely with *mental states.* Mantere, commenting on Giddens' theory of structuration, identified the shift in language from individuals functioning in social positions rather than defined roles noting external expectations of people and individual "volitions arising subjectively" (2005:159). This dynamic is important in the discussion of intention and intentionality on individual levels as well as when evaluating how individual volition impacts the organisation.

What is valued by academics may not be the same as administrative priorities, hence finding equilibrium may help address conflicting perspectives. Researching

universities around the world, Clark (2004) investigated approaches to transforming and sustaining change in higher education through his case-study narratives. His research highlighted the importance of bridging between senior management and academics to ensure successful change initiatives. In principle, the strategic plan filters through to the institution, although there are different approaches to dissemination and it can be interpreted widely for specific disciplines. Challenges may emerge, however, when academic staff who ultimately facilitate change initiatives receive information through 'top down' communication, rather than being involved with the development and design of a strategy. Semi-autonomous departments are standard within higher education institutions (Becher & Trowler, 2001; Kezar & Lester, 2009; Goolnik, 2012). Those within these units have been able to work, plan and implement strategic action independent of, although also aligned with, institutional objectives. The individual is potentially the bridge between institutional strategy and change. People management skills also constitute a channel for effectively facilitating technology-enhanced learning plans (Goolnik, 2012).

### 3.2.2 Change and culture

> *"Cultural systems of knowledge also facilitate the incorporation of human invention – changing the world to create new capabilities and institutionalizing these changes which themselves serve as the basis for developing yet more capabilities."*
> *(Fischer, 2008:3)*

It is challenging to discuss change without also including some narrative on organisational culture. Cultural theories are a mechanism for understanding change within a higher education context (Kezar & Eckel, 2002; Kezar, 2011). Few educational change models exclude the notion of culture within the conceptual framework of change. Bergquist and Pawlak (2007) offered a conceptual framework for culture within a higher education institute. Culture, they suggested, "helps identify reactions to things that are important to people living and working in that culture" (Bergquist & Pawlak, 2007:ix). Despite the difficulty in defining culture,

Bergquist and Pawlak identified three main themes common among leading definitions of culture: 1) culture provides meaning and context, 2) it helps define the nature of reality, and 3) it provides guidelines for problem solving. Human cognition and organisational structure impact upon culture, which "is not defined by a single process or system" (Citing Leaf (2005) in Fischer, 2008:1). Human cognition, competencies and motivations all impact actions taken within an organisational structure.

Once patterns are identified, efforts may shift to addressing unsupportive influences on change. Fullan (2001a) described successful change initiatives as achievable only through transformative *reculturing*. His definition of *reculturing* is:

> *"one that activates and deepens moral purpose through collaborative work cultures that respect differences and constantly build and test knowledge against measurable results – a culture within which one realizes that sometimes being off balance is a learning moment"*
> *(Fullan, 2001a:44).*

In contrast to the notion of strategy impacting individual actions, organisational strategy may be "a reflection of organizational *[sic]* culture" (Mintzberg's worldviews of organisations as presented in Landrum, 2008:129). Others posited that individual intention is influenced by others and culture reflects the dynamic of individuals in the environment (Malle & Knobe, 1997).

To understand culture more thoroughly, it is beneficial to break down the overarching concept into smaller components. In Bergquist's (1992) original work for example, he identified four cultures to provide a more usable framework for evaluating and understanding culture. These four parts are: collegial culture, managerial culture, developmental culture, and negotiating culture. These represent different focal points individuals, departments and organisations may have, which inform decisions and perceptions. These are not stagnant categorisations, but rather represent possible areas within which individuals may align, or resist, at a given time. Further, if one cultural component appears more dominant at a given time, this

may result in a shift to a different cultural categorisation to compensate. Bergquist has been criticised for not acknowledging the potential value of resistance, or that some leaders may not exhibit sufficient recognition of the organisational interplay and dynamics (Neuman, 1994).

Another perspective to resistance is to identify constraints culture places on change, particularly on change related to implementing innovation (Marshall, 2010). This research brings the focus of change to technology-enhanced learning and individuals facilitating the change within the organisation and acknowledges the constraints culture may have on change initiatives and strategies. These constraints could manifest through concerns individuals have who are facilitating change, or through leadership and support structures.

Reflecting on the transience of the cultural lenses, additional categories of culture would more accurately reflect changing times. In a revised and expanded edition of their work, Bergquist and Pawlak (2007) added virtual and tangible cultures to represent a changing global environment within education and negotiating culture from the original four was changed to advocacy. The revised framework encourages educational leaders to identify cultures present within the institution and to engage with these cultures and the individuals within them when considering change strategies. Most critically, the framework provides suggestions on how best to approach change within the existing cultures, rather than attempting to change the existing culture to fit planned change.

The collegial culture is most aligned to academic staff within an educational institution. For example, the collegial culture is represented by a research and scholarship oriented focus (Bergquist & Pawlak, 2007) which can be seen today in the demands and sector importance of the Research Excellence Framework (REF) prevalent in the UK's higher education landscape. The focus on research output and publications supersedes the perception of teaching. Although teaching and learning

are often paired together, they are distinctly separate from the more esteemed research output, which is specifically measured at individual, departmental and institutional levels. Even for academics that do emphasize teaching, Bergquist points out that autonomy underpins the essence of the collegial culture. Academic freedom encompasses the concept of autonomy and is a leading norm. Change in the collegial culture must therefore be linked to the academic freedom inherent in this culture. With respect to the virtual culture, Bergquist appears to use language offering less flexibility in the expectations of surviving or thriving in such a culture: "Any sense of power that faculty members have in this culture resides in their ability to link with the various knowledge bits, orient their students toward learning outcomes, and learn themselves" (Bergquist & Pawlak, 2007:163).

### 3.2.3 Change and technology-enhanced learning

Institutional strategy in higher education is a venue to reflect ambition from leadership and intent to stay competitive in the sector. Stemming from leadership, institutional strategy includes the overall institutional objectives, of which teaching and learning is a subset. If technology-enhanced learning is prioritised within the institution, it will likely be included in a teaching and learning, or education, strategy. What leaders include in a technology-enhanced learning strategy may differ from what academic and support staff implement in their academic and administrative practices (Bates & Poole, 2003; Shattock, 2003; Singh & Hardaker, 2017). There is complexity in the intersection of these perspectives. Whereas the institution may view technology as a way of strategically positioning itself to serve existing students, gain new students from new markets and being or staying competitive, academic and support staff have needs based on their roles. These positions each have objectives to fulfil and they may occasionally conflict. These conflicts arise when institutional strategic goals are not in alignment with academic practice. This was described as strategic dissonance in Chapter 2, Section 2.3.5.

There are many factors to weigh when considering strategic adoption and implementation of new technology. Leaders may consider the balance between visionary leadership, usability of technology, academic support and competence and student motivation when implementing technology-enhanced learning (Allen & Seaman, 2013; Barber et al., 2013). According to Nichols (2008), leadership within an institution is largely responsible for supporting and sustaining institutional transition to technology-enhanced learning, however this challenges the notion that success is based on the individual or small groups (Laurillard, 2002; Shattock, 2003; Baets, 2006; Klewes & Langen, 2008). Lowman (2010:6) aptly stated, "The higher education leader must strike a balance among many competing factions seeking to control what happens in an institution of higher learning." Typically, innovations follow 'top–down' models where administrators, policy makers, and academics devise an innovation, which is to be implemented in practice. Quite often, innovations ignore the teacher's perspectives and realities, even though the innovation is bound to be received in light of teachers' existing beliefs, perspectives, attitudes, and practices (Karasavvidis, 2009).

*"There is no point integrating technology and pedagogy … if it falters due to superficial or poor implementation"*
*(Fullan, 2013:65)*

Institution-wide learning technology implementation is dependent on how the technologies are perceived. If technologies are perceived as transformative, enabling and supportive of teaching and learning, they are more likely to be considered for adoption and implementation (Luckin et al., 2006; Marshall, 2010). There is ample discussion surrounding managing technology integration, including consideration of the pedagogical impact in relation to issues and new technologies at different institutional levels (McCormick & Scrimshaw, 2001; Bates & Sangrà, 2011; Jenkins et al., 2011; Surry et al., 2011). Such discussion suggests that individual initiatives should be encouraged and that "successful universities thrive on the achievements of

their staff" (Shattock, 2003:3). Individual initiatives emerge from a need to explore new technology or solve existing challenges.

Luckin et al. (2006:318) described institutions as procrastinating on their use of e-learning and uptake of VLEs, primarily because individuals within the institution were "pre-occupied with their own core competence of research." In contrast, this may be described as a more challenging conflict than the behaviour of procrastination. For example, Adkins (2017:2) describes the challenge as the conflict "between research which is valued and teaching, which is devalued or profane." Much of this discussion is semantic. If academics are on a research contract and dedicate their attention to research and publication, they will not likely have a high teaching load. They would not likely view themselves as 'procrastinating' on their use of technology. With research as the core and most outwardly measured source of recognition, it is challenging to distract users from their focus of research output and research frameworks and metrics. In contrast, academics on teaching contracts may be more challenged to implement technology if they are not inclined on their own will and in the absence of defined expectations of technology use (Lawless & Pellegrino, 2007). Birnbaum (1991) also highlights the subsystems in universities and the numerous ways in which individuals allocate their work, depending on the objective of teaching, research or providing services.

Definitions of technology-enhanced learning vary and meanings and applications are transient, as presented in Chapter 2, Section 2.2. If a university selects specific core technologies that will be provided and supported on an institutional level within the university, then that becomes the institutional *de facto* definition of technology-enhanced learning. This could be construed to be deterministic and any institution not providing such resources would likely be perceived as radical and non-conformist (Blanco Ramírez, 2017). What one university decides to support and implement is likely to differ from other universities, however the common factor may be recognised as serving administrative efficiencies and providing ease of

student access (Salmon, 2014; Walker et al., 2016a). Support may include a complete department geared to the pedagogic support of these technologies as well as a technology support often found within the information technologies department. Likewise, technologies change so quickly that by the time a specific resource has been selected for implementation on an institutional level, other solutions may be in use in practice by academics and students.

On managing technological change, Bates (2000:xiii) asked what needs to be done to "reorganize, restructure, or reengineer the university or college" thereby swiftly moving beyond a discussion of the value of technology to improve learning and directly into a pragmatic framework for change. In contrast, Fullan's (1993; 2013) work on change and change management over several decades focused more on the pedagogy and technology within an organisational structure. Structure, however, is not the main priority in impacting change (Lakkala et al., 2008) nor will pre-defined change initiatives address the dynamics of a complex system (Fullan, 2013), especially with the transience of technology. Schein (2010) also noted the important role people have in the process of change, as concepts and strategies alone cannot impact change independently of individual strategic action and volition. It is individual intent and strategic action that facilitates change enabling strategy to manifest through implementation.

Structure, strategy and support have also been identified as critical to technology adoption (Graham et al., 2013). Although Fullan has not explicitly critiqued the multitude of change models available to practitioners and researchers, many of which include numerous steps and considerations, he does prefer a simple and principle based approach (2013). Fullan's shift to learning asks first what ought to be learned and not what technology tools are available. The focus on learning reaches the core of education and highlights the importance of the pedagogical impact. Figure 2 depicts Fullan's (2013) change model:

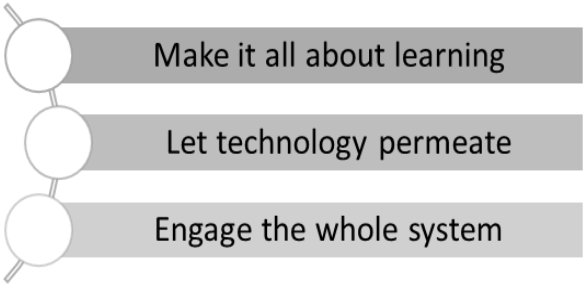


Figure 2: Fullan's (2013) solution to balancing learning, technology, and change.

Fullan (1993) presents change in education as a tandem process of becoming a learning organisation. The learning organisation, also researched extensively by Senge (1990), is one where change is an expected and regular component of the educational system. Further, the importance of accepting change as an integral part of education is the moral obligation to serve students and develop citizens who can adjust to the complexities of society. This "puts teachers precisely in the business of continuous innovation and change" (Fullan, 1993:4). This supports expectations for progress and improvements without specific organisational mandates, yet acknowledges the need to build capacity as a critical mechanism for supporting change (Fullan, 2013).

The knowledge and digital capabilities of academics using technology in teaching and learning can be complemented by understanding the impact of technology-enhanced learning change and implementation on students. The Digital Literacy Framework, for example, was developed by Beetham and Sharpe (2007) to address the process of evaluating and developing student's digital literacy (Sharpe & Oliver, 2007; Beetham & Sharpe, 2013). This process could also be aligned with adoption of innovation, or use of technology-enhanced learning, yet there are considerations regarding the focus of *who* is adopting digital literacy. However, the Digital Literacy Framework, specifically, and digital literacy, in general, was not selected as a model or focal point for this research as it has been already explored in other literature and

through Jisc-funded research (Beetham & Sharpe, 2007; Burdick & Willis, 2011; Bennett, 2014a; Jisc Guides, 2014; Kirkwood, 2014). While Beetham and Sharpe's model is useful when evaluating students' digital literacy, teachers' perspective and confidence in their digital skills that also impact technology application and adoption is equally important (Ajjan & Hartshorne, 2008). The researcher opted to review other models of change related to technology-enhanced learning.

Technology provides alternative ways of interacting with students and thereby different ways of enhancing learning (Kirkwood, 2014). One way to begin understanding the impact of implementing technology-enhanced learning is to determine the extent to which technology is replicating, supplementing or transforming teaching and learning practices (Kirkwood & Price, 2014). Although Kirkwood discussed the teaching and learning practices from the perspective of the practitioner or academic who is using the technology, a Higher Education Funding Council for England (HEFCE) report identified a parallel structure from the perspective of the institution (HEFCE, 2009). Namely, the benefits of technological intervention impacting existing processes in one of the following ways: efficiencies, enhancement, transformation (HEFCE, 2009). These models are useful for measuring learning and teaching approaches and impact, however, they do not serve as a tool to evaluate change and the impact of change on those facilitating change.

In contrast to Kirkwood & Price, Puentedura (2012) devised a model of pairing technology with learning through substitution, augmentation, modification and redefinition, which is also known as the SAMR model (Puentedura, 2014). Whereas substitution and augmentation represent ways learning is enhanced with technology, modification and redefinition represent ways learning can be transformed. According to Puentedura, learning may be enhanced with technology when it directly substitutes previous approaches to teaching and learning or augments learning with some functional improvement (Puentedura, 2014). He further suggests

that transformation in learning can be achieved with technology through modified approaches which allow for "significant task redesign" or when the technology redefines learning by enabling "the creation of new tasks, previously inconceivable" (Puentedura, 2014: slide 2 ). Further to the SAMR Model, Puentedura extended and complemented the SAMR model with the Technological Pedagogical Content Knowledge (TPACK) model for enhancing technology integration into learning and teaching environments (Mishra & Koehler, 2006; Puentedura, 2010). TPACK emerged in response to the critique educational technology had experienced due to lack of theoretical grounding and evidence of student learning (Mishra & Koehler, 2006). This model highlights where different forms of knowledge overlap to create a unique merger of different knowledge aspects, with the core knowledge point blending aspects from all component parts. These three forms of knowledge overlap with each other in a Venn diagram resulting in three combinations: technological pedagogical knowledge, technological content knowledge and pedagogical content knowledge. The essence of this model, however, is the intersection of all to form the Technological Pedagogical Content Knowledge, or TPACK. While TPACK and SAMR offer relevant frameworks for assessing different perspectives and influences of implementing change related to technology, these models do not take into consideration individual concerns with using new technology. Implementation of innovative teaching and learning must also consider the facilitators of new ways of teaching; however, this research focused on concerns of academic and support staff related to facilitating, implementing and using technology-enhanced learning within a Case Study University. Hall's (1991) CBAM was designed to evaluate teachers' concerns related to innovations.

## 3.3 The Concerns-Based Adoption Model (CBAM)

Although the models discussed in Section 3.2 acknowledge the challenges with institutional systems, strategies, and resources, they do not specifically assess the individuals facilitating strategic change. Understanding participants' concerns

during periods of implementing innovations and changing practice can help raise awareness of potential barriers and contribute to effective transition. The concerns of participants involved in the change process is the basis for the concerns theory originally presented by Fuller in 1970 – as presented in Hall and Hord (2011), and the foundation for the Concerns-Based Adoption Model (CBAM). Concern can be defined as "personal feelings and thought about an issue, phenomenon, or condition as it is perceived" (Hall et al., 1991:5). Perception is key to understanding concern, as this varies from person to person. What one person perceives as a concern may not be a concern for someone else. Concerns are an individual's "mental activity composed of questioning, analysing and re-analysing, considering alternative actions and reactions, and anticipating consequences" (Hall et al., 1991:5).

Identifying and acknowledging individual concerns involved in specific change processes fosters understanding on how people approach change, resulting in opportunity for relevant support. The concept of concern also supports the mental states which inform intent, as presented in Chapter 2, Section 2.3. While institutional change may be guided by strategic intent, it is reliant upon change being enacted by individuals within the institution (Lawless & Price, 1992; Shurville et al., 2009). Individuals implement technology-enhanced learning, either informed by institutional strategy or of their own accord. Their concerns may impact their willingness or ability to implement change (Hall & Hord, 2011). This is the basis for the concerns theory.

CBAM, which evolved from research in the United States and was originally designed for use in secondary school, although it is represented in other countries apart from the United Kingdom (Anderson, 1997; Cheung et al., 2001; Ianniello, 2009; Ball, 2014; Kwok, 2014). In this research, innovation refers to technology-enhanced learning in the context of CBAM, which broadly means the use of digital tools to support and enhance learning, see Chapter 2, Section 2.2.

The complete and original CBAM consists of three components: Stages of Concern (SoC), Innovation Configuration Map, and Levels of Use (Hall et al., 1991). The Stages of Concern identified individual attitudes and beliefs in relation to concerns related to an innovation. This was done in the form of a SoC questionnaire. The Innovation Configuration Map was designed to depict the picture of the innovation. Finally, Levels of Use was designed to measure individual behaviours related to the implementation of innovation. Figure 3 depicts CBAM in its entirety (Hall & Hord, 2011).

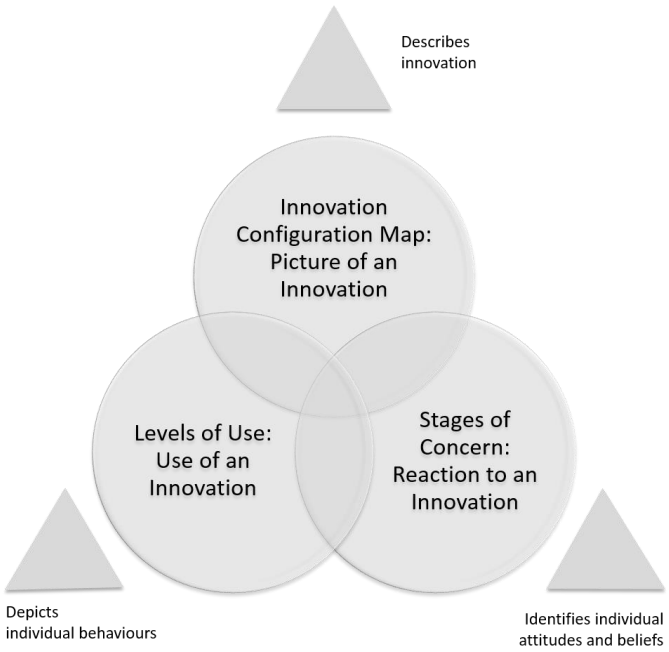


Figure 3: Concerns-Based Adoption Model (CBAM) (Hall & Hord, 2011)

While all three components could have been used for this research, the focus for this study was on individual attitudes and beliefs in relation to technology-enhanced learning practices and institutional strategic intent. Specifically, the research focused on individuals identified as change facilitators. While the three tools in CBAM would still be relevant, the authors of CBAM also acknowledged the distinct need to understand the unique concerns of those facilitating change. Therefore, only the tool related to individual concern of change facilitators, in the form of the Change Facilitator Stages of Concern (CFSoC) questionnaire, a tool which evolved from the

original SoC questionnaire, was considered in this study. Further, CBAM was originally intended for application in secondary school and not higher education. The researcher was therefore interested in applying and evaluating a single tool, the CFSOC questionnaire, from the CBAM model prior to using all aspects in potential future research.

Change facilitators, presented more thoroughly in Section 3.4, are individuals "who have the formal or informal role to aid those involved in learning to use innovations" (Hall et al., 1991:iii). The concerns change facilitators have is captured in the Change Facilitators' Stages of Concern (CFSoC) online questionnaire as a subset of CBAM. It was designed specifically for change facilitators after the more general Stages of Concern (SoC) questionnaire was identified as not fully applicable to those specifically facilitating change. Both questionnaires assess seven stages of concern and the levels of concern within each stage. Table 3 presents Definitions - Change Facilitators' Stages of Concern (also in Chapter 8, Section 8.2).

Table 3: Definitions - Change Facilitators' Stages of Concern (CFSoC) (Hall et al., 1991:17)

| **Definitions - Change Facilitator Stages of Concern *** | |
|---|---|
| Unconcerned | "Change facilitation in relation to the innovation is not an area of intense concern. The person's attention is focused elsewhere." (This stage was originally called Awareness.) |
| Informational | "There is interest in learning more about the innovation. The concern is not self-oriented or necessarily change facilitation oriented. The focus is on the need/desire to know more about the innovation, its characteristics, its use and effects." |
| Personal | "Uncertainty about one's ability and role in facilitating use of the innovation is indicated. Doubts about one's adequacy to be an effective change facilitator and questions about institutional support and rewards for doing the job are included. Lack of confidence in oneself or in the support to be received from superiors, nonusers, and users are a part of this stage." |
| Management | "The time, logistics, available resources and energy involved in facilitating others in use of the innovation are the focus. Attention is on the 'how to do its' of change facilitation, decreasing the difficulty of managing the change process, and the potential of overloading staff." |
| Consequence | "Attention is on improving one's own style of change facilitation and increasing positive innovation effects. Increasing the effectiveness of users and analyzing [*sic*] the effects on clients are the focuses. Expanding his/her facility and style for facilitating change is also the focus." |
| Collaboration | "Coordinating with other change facilitators and/or administrators to increase one's capacity in facilitating use of the innovation is the focus. Improving coordination and communication for increased effectiveness of the innovation are the focuses. Issues related to involving other leaders in support of and facilitating use of the innovation for increased impact are indicated." |
| Refocusing | "Ideas about alternatives to the innovation are a focus. Thoughts and opinions oriented towards increasing benefits to clients are based on substantive questions about the maximum effectiveness of the present innovative thrust. Thought is being given to alternative forms or possible replacement of the innovation." |
| * Following CFSoC questionnaire protocol, the term *innovation* was replaced with the term *technology-enhanced learning* in the questionnaire, as determined by the researcher. | |

Hall suggested confirming and addressing the CFSoC outcomes by conducting one-to-one sessions and workshops or reviewing the strategic plan. These recommendations are based on two assumptions. The first is that management is interested in understanding participants' concerns, and, second, that there are sufficient resources to engage in the improvement process (Hall & Hord, 2011). If the management team has gone to the effort of engaging with the Stages of Concern model, then one would anticipate adequate resources to address the emerging concern profile of individuals and groups (Shattock, 2003; Hall & Hord, 2011).

### 3.3.1 Limitations of CBAM and CFSoC

CBAM was developed in the United States and within a secondary education setting. This cultural lens influenced the overall design of the CBAM model and the formulation of questions in three tools. The CFSoC questionnaire included 35 pre-defined questions. Although the term 'innovation' could be replaced with a word or phrase determined by the researcher, the sentence structure was pre-determined. Appendix F presents these pre-defined questions, which demonstrates potential misinterpretation within the United Kingdom. The researcher provided introductory text to pre-empt confusion, however the risk of misinterpretation was a potential limitation (see introductory text in Appendix E).

Although the original intention of CBAM was for a secondary setting, this limitation is minimal offset because the language used in the CFSoC does not reference the school setting, but rather the concerns surrounding change and facilitating use of an innovation within an educational setting. The researcher assessed this and determined that concerns were based on individuals interacting in an educational setting undergoing change and that this was transferable between level of educational institution and among different cultural settings.

The CFSoC captures different stages of concern as well as levels of concern that may impact upon an individual's ability to facilitate change. There are different

interpretations of the stages and levels based on role and responsibility. Several responses to this model have critiqued the suggestion that a person must pass through a linear process (Collins, 1998). This may have been the case with some of the original interpretations; however, the model is not used in this manner consistently and such an implication was not the intention of the developers (Hall & Hord, 2011). Another critique is that measuring concern considers a single point in time; it is not necessarily predictive of future concerns, since concern is based on experience and perceptions (Morrison, 1998; Clark, 2004). Considering change as a process, not an event, acknowledges that measuring concern with the CFSoC is based on concerns the participants express at a moment in time.

## 3.4 Change Facilitators

> *Change facilitators are represented by "the diverse set of persons, within and outside of organizations [sic], who have the formal or informal role to aid those involved in learning to use innovations"*
> *(Hall et al., 1991:iii)*

### 3.4.1 Introduction

This section shifts from role of the institution to the role of the individual in facilitating change. Individuals who impact change, related to technology-enhanced learning in the context of this research, are called change facilitators. As noted in the definition above by Hall et al. (1991), change facilitators may be internal or external to an organisation. Equally, their position may be formally determined by their roles and responsibilities or they may assume an informal role through their actions. Mantere (2005) discussed social positions rather than defined roles. For the purposes of discussions, the researcher has categorised change facilitators into formal and informal positions. Formal change facilitation includes academics within departments using technology-enhanced learning in their own teaching practice while also supporting others in their department. Formal change facilitation also includes individuals in support roles focusing on administrative, technological or pedagogic aspects of technology-enhanced learning. Technology support refers to

both the setting up and distribution of technologies as well as the pedagogic application and use in the teaching and learning environment. Parallel informal roles can be found with academics as well as support staff, whereby individual strategic action based on personal motivation impacts beyond the individual. While some researchers present facilitators as individuals who formally "establish conditions" while equally "ensuring" that the conditions are complementary (Hoban, 2002:69), the researcher acknowledges change facilitators as contributing to change informally as well. Individuals acting in new ways could be "evidence of creativity – the struggle of frustrated people trying to inject new ideas into a rigid system" (Leavitt et al., 1973:7). Although this was written four decades ago, Leavitt is cited in part to demonstrate that change has historically been recognised as beginning with individual actions.

### 3.4.2 Facilitator, agent, enthusiast, or champion?

The literature abounds with terms used to describe individuals who assist technology-enhanced learning change initiatives in education. The following are some examples of these: change agent (Fullan, 1993; Gibbs et al., 2000; Fullan, 2001b; Rogers, 2003), agent (Turvey, 2012), agent of change (Ertmer & Ottenbreit-Leftwich, 2010), enthusiast (Stiles & Yorke, 2006), champion (Schon, 1963), technology champions (Lawless & Price, 1992), educational technologist (Shurville et al., 2009), ePioneers (University of Nottingham, 2016b), prime mover (Weick & Quinn, 1999), digital practitioner (Bennett, 2014a), "WWW-committed staff" (Marek et al., 2007:279), Lone Ranger (Bates, 2000), and heroes (teachers as design researchers) (Laurillard, 2012). One characteristic of the change agent is as a consultant who is continually learning through "independent decision-making" (Mantere, 2005:161) while dealing "with change in the absence of clear, predictable goals or structures" (Senge, 1990:80).

According to *Oxford Dictionaries Online* (2016), *agency* is an "action or intervention producing a particular effect." Fullan (1993) describes the nature of change agentry as:

> *"Those skilled in change are appreciative of its semi-unpredictable and volatile character, and they are explicitly concerned with the pursuit of ideas and competencies for coping with and influencing more and more aspects of the process toward some desired set of ends. They are open, moreover, to discovering new ends as the journey unfolds."*
> *(Fullan, 1993:12)*

In contrast to Fullan's statement of individuals 'skilled in change', the researcher also investigated change facilitators who were not always trained or specifically skilled in the process of change or the use of technology in teaching and learning. Advocating for a strategic objective, whether an individual or institutional objective, change facilitators influenced "strategic issues larger than their own immediate operational responsibilities" (Mantere, 2005:157). Roger's (2003) research categorises adopters of innovation based on "innovativeness", and identifies the attributes conducive to adoption of new innovations and considers the rate of adoption based on the defined attributes (Rogers, 2003:281). The general premise is that adopting innovation reflects the actions of individuals who exhibit varying degrees of willingness and motivation to engage. The levels of engagement are identified as innovators, early adopters, early majority, late majority and laggards.

Individual motivation to effectively use technology to best serve their students in their teaching and learning practices beyond their own formal role, potentially impacts others in the organisation (Bailey, 1999; Rogers, 2003; Bennett, 2014a). Volition entails will and intention. Facilitating change on an individual level occurs initially because the individual is self-motivated to use new technology and willing to explore it on his or her own (Pink, 2010). This exploration may result in either identifying technologies that work within the teaching and learning context, or the experience may equally result in technologies being dismissed as not effective or not serving the needs of the students. Transfer of knowledge may be disseminated

informally and with anecdotal evidence from one individual. Others in the department may learn of this through casual conversation or departmental learning and teaching meetings. In this way, individuals can become informal facilitators of technology-enhanced learning, resulting in their own exploration and application of technology. New technology has the power to transform but "this is only feasible if we harness the work of individual teachers who, every day, in all sectors, discover and test new ways of using digital technologies for teaching and learning" (Laurillard, 2012:preface). Laurillard's comment conflicts with Cohen et al.'s (2013) notion that technology in use with students must be previously validated as a credible resource for teaching and learning. Pragmatically, teachers will try new things and explore what works; evidence emerging from this may help inform design and implementation for others (Price & Kirkwood, 2014). Whereas organisational and individual recognition may be achieved through research and publication benchmarks marked by a sense of possession (Becher, 1989; Becher & Trowler, 2001), innovative use of technology-enhanced learning conveys exploration and creativity and an openness to share academic practices. Clark posits that universities searching for prestige "build upon the 'natural' striving of academics to acquire reputation and to be in the company of productive teams and departments" (2004:179). The common thread among these terms distils down to an individual in initiating, creating, designing, helping, supporting or facilitating change related to technology-enhanced learning and whose "actions appear directly related to the success or failure of many innovations" (Lawless & Price, 1992:342). This natural striving is also a characteristic of change facilitators, which is explored further in the next section.

### 3.4.3 Change facilitator characteristics

In line with Hall and Hord's (2011) definition of change facilitators' position and role in relation to the institution, this section provides additional characteristics of these roles and their impact on technology-enhanced learning within higher education.

This will begin with internal formal change facilitators, representing an extension of institutional strategy and intent to support technology-enhanced learning initiatives. The discussion will then contrast the formal change facilitators with informal change facilitators within the institution, who practise within their own interest and personal objectives in an academic or support role. Finally, individuals and associations who serve as external change facilitators in either formal or informal roles will be introduced. The researcher created the Venn diagram in Figure 4 depicting one approach to identifying change facilitator roles. It depicts change facilitator roles that are distinct yet offer a possibility of individuals assuming more than one role. The overlap represents the distinction of whether an individual is internal or external to an institution while equally considering informal or informal change facilitation roles.

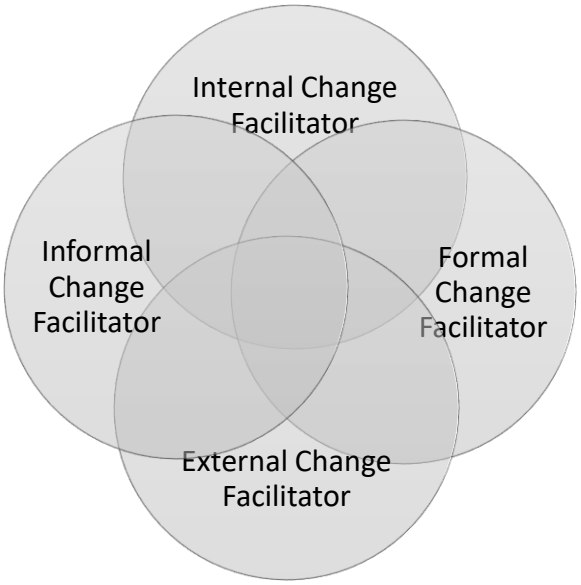


Figure 4: Change Facilitator Roles

Internal and formal support roles take on many forms, as it can range from demonstrating efficiencies with technology use to full development and implementation support. When embedded in an institution, support roles facilitate

technology change by providing support to help the adoption process. Support team members may be centrally located or within a specific department. Individuals in development support roles facilitate change by supporting academics directly on their projects (Beath, 1991; Carter, 2008; Chow & Croxton, 2017). Support may also focus on helping academic staff with their shift in teaching practice often with specialist knowledge to help facilitate change by overcoming barriers and resistance (Beath, 1991:356). Research also suggests that local departmental support helps with the change process as staff perceive its importance when there is dedicated support for institutional strategic initiatives (Nworie, 2004; Kezar & Lester, 2009; Ravenscroft, 2013). The role of support staff trained in pedagogic application of technology, also referred to as educational or learning technologist, facilitates academic staff's effective adoption of teaching and learning practices with technology (Shurville et al., 2009; Lowenthal et al., 2016). These roles and the location of support in relation to individuals using technology depends on the structure of the institution and the type and amount of support allocated. However, digital literacy and digital competency alone is insufficient, since confidence and motivation also impact use and application of technology (Eshet-Alkalai, 2004; Ertmer et al., 2012).

In contrast to the internal, formal facilitators of technology-enhanced learning, the internal, informal facilitator serves a different role. As competence within academic departments grows, individuals may take on informal support roles as others witness their creative or innovative application of technology in their teaching practice. This type of change facilitator for technology-enhanced learning functions independent of organisational structure and explores technology either as a way of addressing pedagogic needs of their students or informally within the scope of their support role. These informal enthusiasts may be academics using their academic freedom to explore technology and innovations to serve their own quest for teaching, possibly using technology which is situated beyond university core provision. This description presents the informal yet exploratory nature of some change facilitators,

who are not officially responsible for implementation of technology change or to support or teach others how to use new technology, yet their impact may unintentionally resonate and ultimately impact change. One description explains the internal, informal role as "enthusiasts and innovators 'subverting policy' and finding 'ways around' or ignoring institutional procedures and processes" (Stiles & Yorke, 2006:257). This definition conveys exasperation for institutional policy while implying that 'institutional procedures and processes' exist to help the process of change.

A further example of an internal, informal change facilitator is the practitioner who actively engages with and employs technology in his or her teaching practice, thereby serving as an example for others. With a teaching focus in contrast to a research agenda, the digital practitioner focuses on active adoption and application of technology in their discipline specific teaching practice (Bennett, 2014a). The technology used may be provided and supported by the institution or sourced from freely available resources such as social media or other educational applications. This was presented earlier as core and peripheral technology. Active adoption of technology resources, however, does not necessarily mean the same as early adoption (Rogers, 2003), as the continuum of digital practitioners may include those working 'cautiously and sceptically alongside the enthusiastic innovators" (Bennett, 2014a:3). From a different perspective, a change agent is one who designs the structure in order to effectively navigate change and facilitate the change to others (Scott, 2007).

Delving into the factors that motivate individuals to instigate or facilitate change helps foster better understanding. Motivational factors are found in the literature from slightly different perspectives. Research into institutional entrepreneurs highlighted three formative experiences as motivating individuals to facilitate their vision: "independence and comfort with marginality, desire to perform, and a sense of agency and duty" (Kisfalvi & Maguire, 2011:152). Daniel Pink, in his book *Drive*,

also articulated three motivating factors in slightly different terms: self-directed autonomy, a sense of purpose, and mastery (Pink, 2010). Fullan's (2015) extensive work in educational change informed his more recent work in workplace fulfilment, whereby he added *collaboration with others* as a fourth factor underpinning intrinsic motivation. The term "intrepreneurs" offers a comparable role with similar characteristics to institutional entrepreneurs, although it offers an additional element of a "decisive but invisible role" in strategy implementation (Dovey & Rembach, 2015:280). The motivations noted above may be based on organisational guidance such as policy, procedure or processes, however, individuals may be motivated more by personal objectives (de Freitas & Oliver, 2005).

Another description of the internal, informal change facilitator depicts an individual working completely independent from others. The Lone Ranger (Bates, 2000) differs slightly from the previous description, as this depicts academics who are funded to research ways of developing innovative use of technology to enhance learning. These individuals may have personal and professional interests in the affordances of technology-enhanced learning approaches to merit receiving funding; however, this situation differs from those exploring technology out of academic freedom since this latter role is furthering the research agenda and functioning in a research capacity where outcomes are published and measured. If the outcomes of the research are presented internally in the role of a member of the academic community interested in technology-enhanced learning, then there is potential to impact upon change.

External individuals or associations may informally serve as facilitators of change by providing resources which support exploration of technology and new practices (Stephenson, 2007). The external and informal change facilitator may be viewed as sources of information, resources and support acquired through external networks via communities of practice (Wenger, 2002), social media or virtual environments. Communities of practice are underpinned by the social theory of learning and comprise of informal groups with shared meaning and identity (Wenger, 1998). The

online community supporting use of technology-enhanced learning is an example of a community of practice which is vast and growing exponentially (Johnson et al., 2016). Studies in secondary education, which in the UK covers ages 11 to 18, suggest personal learning networks shape effective use of technology in teaching practice (Ertmer et al., 2012). Communities and learning networks are deemed a viable external yet informal facilitator of change. One definition of an external and informal technology champion describes an individual representing a member organisation or association: "members of organizations presenting new technology to fellow members who are potential users" (Lawless & Price, 1992:342). This is reflected in the United Kingdom by higher education associations such as the Joint Information Systems Committee (Jisc), the Higher Education Academy (HEA), the Higher Education Funding Council for England (HEFCE), and the Association for Learning Technology (ALT). These organisations play a useful role in providing support to members who are largely situated within higher education institutions and the sector at large in understanding new technologies in the educational environment. These associations also make sense of government policy and distil meaning for institutions. Chapter 4, Section 4.2 expands on the role these organisations play in the higher education sector in the United Kingdom.

Change facilitators situated outside an institution may also have formal change facilitation roles supporting specific aspects of implementing technology change. This would be realized through external consultants and specialists who are brought into the institution to support specific initiatives and to help project based initiatives. Discretionary funding is not easy to source within higher education institutions, however, many organisations and associations which have emerged to support increased use of technology in the UK higher education sector, are available to provide formal assistance with TEL change initiatives. Many of the associations mentioned above, such as Jisc, HEA, HEFCE, ALT, etc., as having informal roles

serving as on-demand resource, may also take on formal engagements to assist with facilitating technology change.

Professional development for academics may be one approach for integrating new technology introduced into the learning and teaching environment. Professional development aimed at teaching academics how to access and apply the technology in virtual or face-to-face spaces as well as pedagogically appropriate and discipline-specific ways is likely to support increased integration of technology (Owens, 2012). If new competencies were expected of everyone using the new technologies, job roles would probably need to be restructured. Because it is not expected that everyone will develop the same level of competence, it might suffice to make sure everyone has the same introductory level of information related to the technology and then let individuals explore how and when they will use it in their own teaching practice.

It is not professional development and training alone that will help with technology adoption. In fact, it may not be the best approach at all. Professional development assumes everyone will reach an equivalent level of understanding and ability to apply this understanding in their teaching practice. This does not acknowledge the diversity of individual perceptions, beliefs and practices (Dasgupta et al., 2011). Providing TEL support services to academics enables teachers to focus on their content and speciality whilst allowing other to support alternative delivery of the disciplinary content (Shurville et al., 2009). Offering support acknowledges that many academics will choose to work on their own and use the technologies in ways they feel able (Dovey & McCabe, 2014), however interactions among these groups remain complex (Chow, 2013). Alternatively, other academics who are less able or willing to learn can connect with a support team member who can work with them in a manner that best serves their learning objectives (Lowenthal et al., 2016).

### 3.4.4 Change facilitator as source of change

> *"We cannot introduce change … at the individual or organizational level. The trajectory of the change must start by a new individual learning, undergoing new experiences (own or shared); then we can hope that these new experiences will lead to new individual mental models which can, in turn, lead, after a lot of collaboration, to new routines and new shared models."*
> *(Baets, 2006:82)*

This section explores the role of individual change facilitators as a source of technology-enhanced learning change in higher education (Fullan, 2013). The term 'change facilitator' is used in this research for individuals engaged with facilitating technology-enhanced learning and further represents the "human capital" individuals contribute to the organisation (Fullan, 2013:69). Hall et al. (1991) defined the role of change facilitator as representing, "the diverse set of persons, within and outside of organizations [*sic*], who have the formal or informal role to aid those involved in learning to use innovations" (Hall et al., 1991:iii). This definition of change facilitator offers several layers of complexity regarding position and role, namely, the distinction of individuals "within and outside" an institution as well as the distinction between "formal or informal" roles facilitating technology-enhanced learning change in an institution (Hall et al., 1991:iii). Originally focused on teachers in a classroom setting, their research expanded to include those in leadership and facilitator roles within an educational innovation adoption model, to distinguish between those facilitating the implementation of innovations from those adopting innovations.

Research for this study stems from the Concerns-Based Adoption Model (CBAM) as presented in Section 3.3 (Hall & Hord, 2011). The Stages of Concern tool was introduced as one aspect of this model, which serves to measure levels of concern on the premise that adoption of innovation can only take place when individual concerns have been addressed. Although the Stages of Concern was originally developed to identify concerns individuals had in any role with the implementation

and adoption of an innovation, the original research team soon identified that roles may influence levels of concern (Hall et al., 1991; Hall & Hord, 2011). Specifically, those identified as change facilitators would have different concerns from those experiencing change as recipients of the change process. Hence, separate research was developed to encompass the specific concerns change facilitators might have when implementing innovation related change. The result was a dedicated tool to gather the specific concerns of change facilitators. The Change Facilitator Stages of Concern (CFSoC) questionnaire identifies the concerns of technology adoption by individuals implementing it within a higher education institution.

The objective of identifying concerns was to design the most effective approaches to implementing change within an organisation (Hall, 2013) and to create change "experiences that are engaging, precise, and specific" (Fullan, 2013:3). Integrating technology impacts practice (Lawless & Pellegrino, 2007; Kirkwood, 2014), which induces potential concerns (Hall & Hord, 2011). For this reason, and within the context of this study, measuring the individual levels of concern of those using technology-enhanced learning within a higher education institution was identified as a valuable source of information to inform the design of effective change implementation. The CFSoC model and questionnaire was selected as it represents the individual involved in change. The researcher felt it was important to overlay this model with a model of organisational change.

Frequent decisions made over time may have a lasting positive impact on university management with the advantage "to concentrate rather than dissipate institutional energies" (Shattock, 2003:x). Although Shattock's research investigating the management of universities is well-known, it does not explicitly address technology implementation or the role of individuals. However, his distinct acknowledgement of disjunction between research and teaching remains relevant today and has been confirmed by other researchers (Jenkins et al., 2011; Skelton, 2012).

Literature on traditional business organisations found people are the strongest factor in successful or unsuccessful change initiatives (Klewes & Langen, 2008). Personal investment in facilitating change helps the change process extend beyond the individual to the local environment. The local environment within a university includes academics and support staff as well as leadership, administration and students. Individual behaviour, embodied in the change agent, supports change, as individuals are likely to be personally invested in the change initiative and will positively impact successful implementation (Fullan, 2001a). Those with commitment and complete and full involvement in change help make change work (Senge, 1990).

Not only will personal investment yield results, but also regular reporting on the progress of the change initiative with teammates (Schein, 1996) or frequent reflective meetings (Van de Ven & Sun, 2011) may positively impact the change initiatives. This requires reflexivity and articulation, which helps clarify exactly what impact the initiative has and allows team members to provide feedback on specific work done. The change agent may also select process activities to help identify the situation and gain insights into perceptions, which in itself could have the same impact as targeted interventions to change a situation (Schein, 1996). Hall and Hord (2011) suggested that casual yet brief conversation amongst colleagues gathers information underpinned with formal intention of discovering what someone is doing with their technology use in their context and environment.

Blended learning may be present in some higher education institutions, although its presence is more likely due to "grass-roots effort" introduced by individual academics "rather than promoted as a strategic institutional initiative" (Graham et al., 2013:4). While individual implementation may help promote innovation, some institutions or technology-enhanced learning initiatives remain active with a small group of interested academics rather than university-wide implementation strategies (Nichols, 2008). Individual and autonomous decision making may also strongly impact "how the technologies will be used" (Bates & Sangrà, 2011:217). However,

someone who would not otherwise use technology may be more willing to learn if someone else has vetted the technology and judged usable, at minimum, and very effective for enhancing learning, in the best case (Brown, 2012; Fullan, 2013).

### 3.4.5 Individual interaction with strategic intent

This section explores the interaction of individuals with strategic intent. In higher education, strategic intent is a way of communicating clear aspirations on an institutional level while acknowledging creativity and innovation in facilitating and implementing change at the academic teaching and learning level (Boisot, 1995b). If the message is clear from 'the top' and members of staff were consulted and included in developing strategic intent, academic practice and support efforts by those identified as change facilitators are more likely to align with the institutional strategy. Strategic intent may empower academics to explore and implement technology-enhanced learning in their teaching practice, however, it may also be perceived as burdensome to interact with. This burden may result from additional workload for implementing technology-enhanced learning (Gregory & Lodge, 2015).

If strategic intent aligns with the innovative tendencies of some individuals, then it can serve as a channel underpinning innovation. The question, however, is whether the innovative behaviour of some individuals informs, or remains detached from, strategy. Innovation at the academic level of teaching and learning may precede strategic direction. One research group tasked with identifying factors in the digitization of universities stated, "There is no shortage of digital teaching and innovative learning at universities but the structure and in particular the strategic advancement thereof is deficient" (Hochschulforum, 2016:12). This has been documented in other studies highlighting the role of individual enthusiasts innovating beyond available infrastructure (Salmon, 2005; Singh & Hardaker, 2014).

## 3.5 Chapter Summary

This chapter reviewed approaches to implementing change and was presented in three parts: change models, change facilitators, and the Concern-Based Adoption Model (CBAM). First, Section 3.2 outlined literature on change models with sub-sections focusing on culture, strategy, and implementation of technology change. Challenges with culture, structure, resources and technologies are reviewed and considerations for ensuring successful change are presented. Although there are numerous focal points recommending change, successful change is generally narrowed down to individuals who implement change. This notion leads to Section 3.3, which explores deeper aspects and characteristics of individuals involved with facilitating change. An individual may be in a formal role facilitating change or in an informal position of individual curiosity and motivation to explore innovative ways to teach and learn. The common denominator among change facilitators is individual agency to inform and impact change. Individual volition and the desire to influence one's own academic or support practices underpin change facilitator's activity. Change facilitator activity may be designed based on strategic intent within an institution, however, activity may equally remain independent of institutional structures or intentions. The role and position may impact upon change facilitator's activity and this will be explored later in the findings of this study. Finally, with the identification of the importance of individuals in implementing change, addressing their concerns may be an approach to supporting strategic implementation. The Concern-Based Adoption Model (CBAM) was presented along with specific tools to measure change facilitator's concerns (Section 3.4). The Change Facilitator Stages of Concern (CFSoC) online questionnaire is one tool designed to measure where concerns are situated and the level of intensity in each stage. The focus on Chapter 4 is therefore directed to introducing the Case Study University after first presenting the context of UK Higher Education as well as other change and strategy examples within the sector.

# Chapter 4: The Case Study in Context

*"In view of the crisis facing university teaching … we must consider whether the university will be able to retain its traditional methods of learning and teaching. Is not a fundamental structural change necessary to meet the challenges of the present and the future? Should not the teaching structure of university courses place more emphasis on online-learning and self-learning?"*
*(Peters, 2004:203)*

## 4.1 Introduction

This chapter introduces the case study within the context of the sector in which it is situated and in comparison, to selected examples of change and strategy at other institutions in the sector. To accomplish this, the chapter is divided into three sections: United Kingdom Higher Education (UKHE); change and strategy examples in UKHE; and the Case Study University. Section 4.2 presents higher education in the UK by first discussing historic contexts and mission groups related to institutional identity. Influences on strategy development are then outlined followed by influences on technology-enhanced learning. This information also aims to provide an overview of the higher education system in the United Kingdom for those who are unfamiliar with this system. Following this broad context, Section 4.3 presents five different universities in the UK to highlight different change and strategy approaches related to implementing technology-enhanced learning change. For example, whereas one university successfully demonstrated a focus on building infrastructure, another focused on continuous improvement or teaching and learning. Finally, Section 4.4 introduces the Case Study University. This includes an overview of its position in the UK relative to other universities of similar size and ranking. A content analysis of its strategic plan helps identify levels of importance and message it conveys to the sector. Its position of research excellence and approach to teaching and learning are then explored followed by the technology-enhanced

learning resources and support at the time of this study. This section concludes with a presentation of facilitators of technology-enhanced learning.

## 4.2 United Kingdom Higher Education (UKHE)

### 4.2.1 Introduction

This section begins with historical origins of universities in the United Kingdom and extends into mission groups and membership associations, followed by government policies and national developments influencing universities and then narrowing the scope to initiatives supporting technology-enhanced learning. The future of a university can best be viewed by reflecting on the past (Barnett, 2011). Perception of higher education institutions relate to historical factors and external measures of university status. This is significant as this context continues to influence university missions, as well as how institutions design their strategies and focus their resources. Historical origins also influence the perception of institutions within the higher education sector. Barnett (2011:2) commented, "even new universities are likely to be influenced by continuing sediments of the idea of a university." Membership associations support institutional mission and identity as well as facilitate communities in which universities may engage with each other. A selection of government policies follow as a means of demonstrating some of the external factors affecting universities. Regarding technology-enhanced learning initiatives, infrastructure support offered through associations tasked with supporting universities in their strategic and operational efforts are highlighted. External measures of university success in the form of league and ranking tables are presented, discussed and contrasted.

### 4.2.2 Origins and mission groups

This discussion begins with a brief outline of the historic origins of universities in the United Kingdom and reflects how some of these developments may inform strategic and mission-related decisions. There are several key points upon which universities

in the United Kingdom are measured, evaluated and perceived: historic origin, institutional mission based on historic origin, national and international rankings, and membership association. Although each one of the currently 159 universities in the United Kingdom has its own historic origin which informs its university mission and membership affiliations, each university is ultimately evaluated and compared with other universities based on several measures identified nationally in the annual University League Table (2016) as well as internationally in the World University Rankings (Times Higher Education (THE), 2016). Whereas national and international rankings provide a comparative framework to evaluate one university with another, historic origins provide a foundation for initial perception of an institution's mission and motivations for member affiliations. Associations and mission groups support organisational identity and community while also providing implicit competitive pressure among member institutions.

The historic origin of universities in the United Kingdom influences the contemporary profile of a university. *Ancient universities* (Kok et al., 2010; Burnes et al., 2014) are institutions which have a longstanding history of academic rigour and research success; as 'world class' universities based on external measures of research and ranking, they have demonstrated institutional longevity, availability of financial resources and the ability to attract top talent (Shattock, 2017). The University of Oxford and University of Cambridge, known collectively as 'Oxbridge', are examples of two of the seven ancient universities in the British Isles. Performance and reputation, according to Shattock (2017), will prevail with these universities and their status and history will ensure their position and longevity in the sector. With little deviation, ancient universities consistently rank disproportionately in national and international rankings.

Many institutions in the United Kingdom stemmed from several phases of expansion in the 20th century, including the addition of new types of institutions: *red brick*, *university colleges* or *plate glass institutions* (Kok et al., 2010; Burnes et al., 2014; Scott,

2014). Red brick institutions, so called based on one of the buildings at the University of Liverpool, differed from the ancient universities by offering more practical fields of study to better serve the industrial expansion of emerging cities in England (Whyte, 2015). In addition to the red brick institutions, a subsequent group of institutions, known as university colleges, prepared students for examinations held at the University of London or other institutions (Boliver, 2015). Institutions within this group received university status by Royal Charter in the first half of the 20th century. Although research formed a core part of their identity, they also sought to serve the local community by providing a solid teaching and learning environment. In contrast to the red brick institutions and university colleges, glass plate institutions of the 1960s (Kok et al., 2010; Scott, 2014), were purpose built campuses partially in response to the Robbins Report (1963). To help stimulate economic growth, in contrast to recommendations by the University Grants Committee (UGC) (presented in more detail in Section 4.2.3), the Robbins Report recommended both the creation of new institutions as well as the conversion of some polytechnics to university status. The inference of this initiative was that the new institutions would function under an organisational framework more commonly found in business and commerce, and would play a crucial role in "establishing the modern structure of British higher education" (Shattock & Berdahl, 1984:480). These institutions emerged with varying degrees of emphasis on either research or teaching and learning as they sought to assert their own autonomy, although this was not used as criteria for conversion. Several years later, a dozen Colleges of Advanced Technology transitioned to university, degree-granting status with a solid focus on teaching and learning, thus expanding access to university education in the sixties and tipping the balance towards teaching-focused missions (Jobbins, 2013). This focus on teaching, in contrast to the expected research-focus of most universities, was not a consideration in converting the colleges and transferring them to the university

sector; the UGC decision, based on Robbin's recommendation, "was taken en bloc" (Shattock & Berdahl, 1984:481).

The Further and Higher Education Act 1992 initiated yet another expansion of higher education providers by granting university status to polytechnic and further education institutions. The *post-1992* group of universities, also called *new universities* (Kok et al., 2010; Boliver, 2015), refers to approximately 70 institutions which received university status, and therefore degree-granting rights. Collectively these institutions differed in perception from their predecessors in the higher education landscape since their core focus was historically on further education providers, technical training and a strategic focus on teaching in contrast to the research orientation of other universities. The historical focus on teaching within the post-1992 group of universities is critical to later discussions of university priorities as demonstrated in strategic plans and change facilitator actions. Further, the expansion of universities represents the shift in higher education from elite to mass education (Shattock, 2014), yet also opens questions to retaining focus on education as a public good or a more dynamic educational system based on addressing the needs of the market (Scott, 2014).

The swift expansion of the number of universities in 1992 led to two specific responses in the higher education sector: the launch of the University League Tables and the founding of The Russell Group. First, the University League Tables (2016) was launched in 1993 after the post-1992 institutions were granted university status. This publicly available ranking is derived from four primary measures including entry standards based on Universities and Colleges Admission Service (UCAS) scores of incoming students, student satisfaction based on the annual National Student Survey (NSS), research quality and intensity based on the REF (2014) and graduate prospects based on employability figures. To note, the research output rankings on the REF range from 4* (highest) to 1* (lowest). A ranking of 4* indicates the highest level of research output representing world leading research quality,

followed by 3* indicating internationally excellent research quality, 2* indicating research quality which is recognised internationally, and 1* representing nationally recognised research quality. The University League Tables provided a platform to compare universities with one another and demonstrate notable differences between historic and well-established academic institutions from the large group of former polytechnic and further education colleges offering higher education to the masses. National pressure to maintain or improve ranking within the United Kingdom is extended to an international context in the ranking of British universities in the World University Rankings (Times Higher Education (THE), 2016), which becomes more important when attempting to secure international students with their higher fees.

The second response to the expansion of the higher education market in the United Kingdom was the founding of The Russell Group (2016). The Russell Group was formed in 1994 to draw together universities with similar missions and, in this manner, to distinguish research-intense universities from the new group of post-1992 higher education institutions (Boliver, 2015). Russell Group members are still considered as elite, highly selective and largely 'world class' institutions, which are regularly found in the top national and world university rankings. Maintaining a commitment to high-quality research remains a core distinction of this group as well as offering strong links between research centres, the business community and the public sector. All the ancient universities are Russell Group members as are the existing six red brick universities. University colleges and the post-1992 group of universities do not tend to be Russell Group institutions, which enables the Russell Group to retain a degree of elitism within the current higher education sector in the United Kingdom.

In addition to the Russell Group, several other organisations bring together institutions with similar missions and generate productive, competitive pressure among members. One of the largest associations currently representing 84% of the

159 higher education institutions in the United Kingdom is Universities UK, which acts as the "voice of universities" (2013). Membership is extended to institutions whose primary purpose is teaching, scholarship and research and who are accountable to students and the wider public (Universities UK, 2016). One could correctly ascertain that these objectives would apply to all higher education institutions, yet slight shifts in focus from teaching to research remain key distinguishing factors among institutions. University Alliance, MillionPlus and GuildHE are three smaller associations with between 20 and 30 member institutions. Each association strives to differentiate institutions from one another and draw attention to the strengths of its members (Purcell et al., 2016). University Alliance (2016) members, for example, represent institutions offering a balance of teaching, research, enterprise and innovation. Initially, this balance of mission appears to be like the Russell Group, however research within University Alliance institutions tends to be more practical than theoretical and their missions are aligned to support professional and business oriented degrees. In contrast to the breadth of focus with the University Alliance, MillionPlus is described as an association for *Modern Universities* (2016) with a focus on teaching and creating a community in which to share good practice. One survey reported this group as having "a key focus on pedagogy and student engagement" (Walker et al., 2016b:21). Finally, the GuildHE (2016) represents creative institutions offering "diversity and distinctiveness" in its membership. Membership in one or more of the higher education associations is not mandatory and there are non-aligned institutions as well as some that are members in two associations (Havergal, 2016).

One of the other key benefits of membership in a higher education association is their review, analysis and response to government reports and policies, as outlined next in Section 4.2.3. Government reports and policies potentially impact strategy development and academic practice following new or revised 'indicators' for success (Brown & Carasso, 2013; Burnes et al., 2014). Deciphering whether government

policy initiatives and reforms are short term political considerations or long term changes impacting upon strategy development, organisational structure or academic practices remains an ongoing challenge for universities, especially related to asserting their autonomy and differentiating from other institutions (Clark, 2009).

### 4.2.3 Influences on strategy development

> *"Government policies promoting more competition to access resources for research and teaching, combined with overall pressures on state resources allocated to HE, have been drivers for institutions to use their autonomy to diversify income and position and brand themselves within different markets for HE products and services, by themselves and in alliances, joint ventures, consortia and networks."*
> *(Middlehurst, 2014:1477)*

The purpose of this discussion is to outline historic factors influencing university strategy development and, further, how the current sector might influence facilitators of technology-enhanced learning within the Case Study University. Government actions related to policy and financial resources have historically generated pressure and tension on higher education institutions, while also impacting strategy development (Macias & Richter, 2009; Adkins, 2017). This section introduces a small selection of pivotal governmental committees and councils and demonstrates how their decisions affected institutions within the higher education sector. Factors informing the development of technology-enhanced learning strategies and practices follow.

In 1919, the Universities Grant Committee (UGC) was established at the request of politicians and civil servants - rather than from the universities themselves - to serve "as a formal 'buffer' between universities and the State" and to assume the role reviewing grant applications and making recommendations for allocating funding and resources to universities (Shattock & Berdahl, 1984; Scott, 2014:221). Over time, amendments to its scope included collating and disseminating information about higher education in the United Kingdom as well as to ensure development plans aligned with the national agenda. One example of actions taken in their role was to

recommend funding the expansion of advanced technology studies through existing institutions, since the Committee was generally reticent to expand higher education through the creation of new institutions. This reticence contrasted sharply with the Robbins Report, mentioned previously in Section 4.2.2, which recommended major university expansion and a "tripling of student numbers" (Shattock & Berdahl, 1984:476). In hindsight, the UGC did not appear to acknowledge the unique attributes and challenges of the individual institutions within the expanded higher education sector, and this negatively affected some institutions at different points of funding cuts and other interventions in the history of the UGC.

With the 1988 Education Reform Act, mediation between universities and the State shifted to a new model of funding councils and the UGC was abolished (Filippakou et al., 2010). The Higher Education Funding Council for England (HEFCE) emerged as a replacement, although with a new remit "interpreted as representative of the new public management model of governance in action" (Filippakou et al., 2010:544). Funding councils implemented government policy aligned with the state-determined direction for higher education. Almost three decades later, it would emerge that HEFCE took on many roles within the higher education sector, including the present facilitation of the Teaching Excellence Framework (TEF), which is highlighted later in this section (HEFCE, 2009; 2016).

Calls for institutions to better position themselves within national and international higher education rankings, such as recommended in the Browne Report (2010), may overshadow local and regional strategic efforts (Scott, 2014). This report noted that participation, quality and sustainability were identified as the three areas "intrinsic to the purpose of the higher education system" and recommended changes to fees policy and student financial support by urging institutions to compete for students, "on the basis of price and teaching quality….within a framework that guarantees minimum standards" (Browne, 2010:56). Although the Report recommended different fee levels, it would later emerge that universities opted for the highest level

of student fees with an unarticulated pledge to improve investment in areas, which would improve student satisfaction and marketability to gain new students. Universities with strong reputations as world class institutions will always strive to maintain or improve their standing, however supporting students, who now pay about £9,000 in annual fees (Havergal, 2016), whilst improving learning and teaching in ways recognised by students in the National Student Survey, may prove challenging. The Browne Report essentially suggested that increased focus on measures of research impact, student retention, and employability as ranked in the University League Tables benefits institutions by attracting fee-paying students, which offsets reduced governmental subsidy (Purcell et al., 2016).

The strategic efforts of universities to engage locally and regionally by returning to the roots of civic duty to serve the community in which universities are situated potentially conflicts with the focus on national or international placement in the higher education ranking systems (Goddard, 2009). Although connected, the conflict becomes more complex as universities disperse their efforts across core priorities of recruitment and student success along with active participation in the REF (Scott, 2014). Research output is still a strong measure of outward success for some institutions, as introduced previously in Section 4.2.2, and viewed as a competitive advantage in the market-driven approach to recruiting potential students and providing relevant degrees (Gewirtz & Cribb, 2013; Scott, 2014).

Another emerging aspect in the higher education sector is the increase in fellowship in the Higher Education Academy (HEA) as well as the National Teaching Fellowship Scheme, both of which are administered by HEA (HEA, 2015b; 2015a). The HEA supports teaching and learning within the sector in many ways, however, one key area yielding increased importance is an HEA fellowship award in one of the following categories: Associate Fellow, Fellow, Senior Fellow and Principal Fellow. This nationally and internationally recognised professional award represents completion of a rigorous application process and evidence of solid professional

teaching practice. Although some have argued that HEA fellowship is "aimed at the micro-level of practice therefore has limited impact" (Fanghanel & Trowler, 2008:303), institutions demonstrate the importance of having academic staff progress through this rigorous validation. By example, the University of Huddersfield was applauded as the "first UK Uni with all staff as HEA Fellows" (University of Huddersfield, 2012). In addition, the HEA administers the National Teaching Fellowships and the National Teaching Fellowship Scheme acknowledging individuals for their excellence in teaching at a level of recognition equivalent to the REF for institutions (REF, 2014). Recipients, specifically 55 in 2017, are expected to support teaching and learning within their own institution and "raise the status of teaching" (HEA, 2017). National Teaching Fellows are also expected to positively impact the sector by demonstrating and sharing their effective practices and teaching and learning perspectives.

Finally, two major changes occurred during the timeframe of this research worth noting as they may potentially affect higher education in the United Kingdom over the coming years: the introduction of the TEF and the UK's vote to leave the European Union, known as Brexit. It would be remiss not to mention these examples as likely influences on university strategy development, in general, and potentially on investment in supporting technology-enhanced learning: TEF as an impact from within the higher education sector, and Brexit as an impact on the United Kingdom with potentially direct impacts on higher education, specifically on research funding, which according to Full Fact (2015) is about 16%.

First, the introduction of the TEF may complement the coveted and demanding REF. The proposal was put forward in a White Paper entitled, *Success as a knowledge economy: teaching excellence, social mobility and student choice* (Department for Business Innovation and Skills (BIS), 2016). Briefing presentations on the HEFCE website, the entity which will facilitate TEF, indicated how it will serve the following purposes: "Better inform students' choices about what and where to study, raise esteem for

teaching, recognise and reward excellent teaching, and better meet the needs of employer, business, industry and the professions" (HEFCE, 2016). TEF measures excellence in three areas: teaching quality, the learning environment and student's educational and professional outcomes (HEFCE, 2016). Results are informed by national data as well as evidence from the institution applying for TEF status. National data stem from the National Student Survey (NSS), the Higher Education Statistics Agency (HESA), UK Visa Bureau, and the Destination of Leavers from Higher Education (DLHE) survey. This will affect institutions over the coming years, including the Case Study University, yet another measure in which to compare with other institutions.

Suggestions that the scheme might not accurately reflect teaching quality were reiterated in guidelines to students in The Complete University Guide (2017): "The TEF does not measure teaching quality itself, but a range of measures which the government views as related to teaching quality." Results from a recent teaching survey by the Times Higher Education also confirmed this scepticism; 75% of academics either strongly disagreed or disagreed that the TEF will accurately assess teaching quality (Times Higher Education (THE), 2017). This result may be attributed to the process of self-reporting required of universities applying for TEF status recognition. More significantly, the scrutiny by academics and those focused on supporting teaching and learning, highlights concern with the validity of the metrics used to complete the assessment and the claim that the framework assesses teaching excellence.

To highlight potential outcomes of the TEF ahead of the actual TEF results released in 2017, the Times Higher Education published mock TEF results shown in Figure 5 (Havergal, 2016). The vertical axis indicates benchmarked TEF ratings and the horizontal axis indicates the 2014 REF grade point average (weighted for intensity). Membership affiliation was a way to link universities by mission. Unsurprisingly, the chart clusters the Russell Group institutions together on the higher end of the REF

spectrum, yet distributes them in the range of approximately 40 - 80 on the TEF scale. In contrast, the institutions who tend to perform lower in the REF are within a similar TEF band. If there is no differentiation in teaching quality from institution to institution, universities will need to strategically define how they wish to differentiate themselves from other universities. Below is the chart highlighting the mock TEF results in advance of the anticipated outcomes in 2017 (Havergal, 2016):

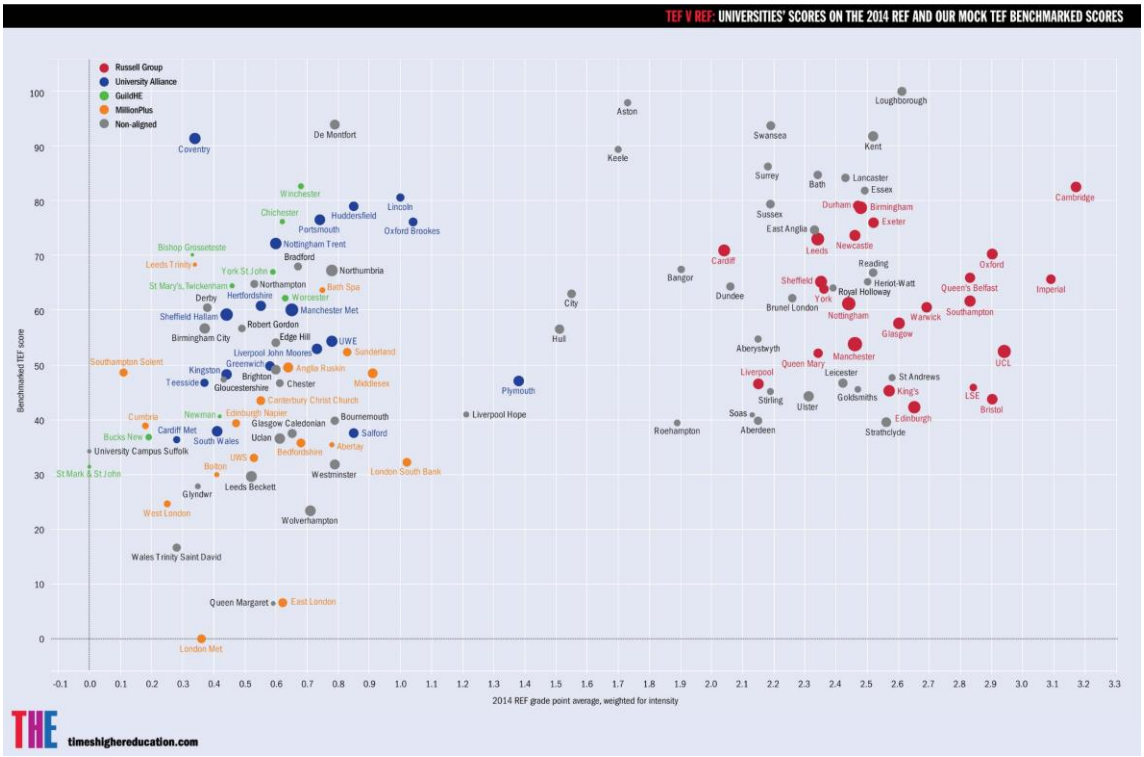


Figure 5: Mock TEF results as compared with REF results (Havergal, 2016)

In addition to the TEF, Brexit prompted responses from universities as well as their affiliated associations, including the Higher Education and Research Bill, which incorporated implications of the vote. At the time of this writing, the implications to UK universities were still vague and the Commons Select Committee within the UK Parliament called for a response to the impact of Brexit on higher education (2016). The impact of Brexit-related changes to academic staff or discontinuation of

European investment in technology-enhanced learning in British institutions remains unclear, though a recent study reported that over 40% of 1000 academics interviewed indicated they would consider leaving the country for another institution (Cressey, 2017). This research will not expand on the possible implications, although one could reason that dedicating efforts to additional measures of integrating technology-enhanced learning on an individual or institutional level may emerge with lower priority as academics ensure their position without jeopardising funding options. The researcher felt it would be remiss not to acknowledge the potential impact this decision might have.

In summary, government policy influences strategy development by creating agendas for university decision makers. Universities in England, for example, assert their autonomy through strategic planning and subsequently use planning to differentiate their institution from other institutions within the higher education sector (Purcell et al., 2016). Despite attempting to respond to external conditions, operational infrastructure and identity remains situated in academic activities of research, teaching and learning (Lenartowicz, 2015), although one could question whether there is alignment between academic identity and institutional strategy .

### 4.2.4 Influences on technology-enhanced learning implementation

The two previous sections described historical origins of universities and mission-related alliances supporting higher education institutions as well as government policies affecting strategy development in higher education. This section now funnels the larger context down to a more specific focus on strategy development and support for technology-enhanced learning. The importance of technology-enhanced learning in the higher education sector in the United Kingdom historically is marked by several initiatives as well as contemporary organisations, which are designed to support efforts in expanding the use of technology in higher education. The scale of

the efforts is indicative of the importance of technology-enhanced learning in higher education.

Beginning in the 1970s through to the nineties, several UK government initiatives related to technology-enhanced learning designed to provide national infrastructure support and administer pilot projects for technology-enhanced learning initiatives. For example, an organisation called National Development Programme for Computer Assisted Learning (NDPCAL) was active from 1973 to 1977 and adopted a structure of targeting teachers and academics already working on related technology-enhanced learning projects (Avis, 2014). Directing the target audience to those already actively working with technology in their teaching practice was a lesson learned from the experience of failed agendas in earlier decades where centralised development and dissemination of curriculum change resulted in poor uptake from "a sceptical teaching force" (Avis, 2014). There are ample examples of failed wide-spread initiatives in more recent times (see Bulger et al. (2017)). Although NDPCAL ended after four years, it served to increase the profile of technology application in higher education as well as expand the palette of strategies one could take to implement technology-enhanced learning into an educational system.

In the contemporary higher education sector, a wide range of organisations supports pedagogic and technical implementation of technology-enhanced learning. Some prominent associations include Jisc, formerly known as the Joint Information Systems Committee, the Centre for Educational Technology, Interoperability and Standards, better known as CETIS (once part of Jisc but now an independent company), the Higher Education Academy (HEA), the Universities and Colleges Information Systems Association (UCISA), and the Association for Learning Technology (ALT). ALT is a prestigious membership group with annual conferences for leaders and national and international recognition schemes for learning technology professionals. The publication of their recent association strategy aims to support policy makers, educational institutions and those in the learning technology

profession (ALT, 2017). In contrast to ALT's lead in professionalising learning technology, approximately 71% of universities who participated in the 2016 UCISA TEL Survey indicated Jisc strategies informed the development of technology-enhanced learning within the institution followed by 50% who used the external strategy documents from HEFCE (Walker et al., 2016b). HEFCE (2009) specifically recommended institutions consider technology in their teaching and learning strategies and encouraged identification of ways to enhance learning, teaching and assessment using technology. This recommendation acknowledged the potential impact technology has on learning and directed institutions to ensure technology adoption included this focus (Macias & Richter, 2009). The HEA had a similar approach although they directly support higher education institutions in the United Kingdom with the application and implementation stage by providing frameworks and toolkits to help facilitate technology uptake. These organisations serve universities by supporting understanding of the technology and pedagogy behind technologies to enhance learning. The presence of these bodies provides some indication of the need for external support related to technology-enhanced learning strategy and adoption within higher education institutions.

Like the mission group associations presented earlier, the associations supporting technology-enhanced learning also interpret government policy and reports and translate meaning for higher education institutions. Further, bespoke support is also available directly from these associations through grants and funding councils. Many of the very useful and relevant resources, such as reports, white papers and guidelines, are freely available on some of the associations' websites. For example, the Universities and Colleges Information Systems Association (UCISA) supports the higher education sector by providing toolkits, guidance and best practice on effectively using technology-enhanced learning, as well as conducting regular surveys, as noted above, of technology-enhanced learning in use in higher education.

Reflection on the success or demise of technology-enhanced learning change initiatives is important for addressing improvements, identifying key participants and planning for future success of integrating technology in teaching and learning practices. In more recent years, a higher education initiative to better address the strategic integration of technology-enhanced learning in postsecondary institutions in England was created called *Changing the Learning Landscape* (Cullen, 2013; Leadership Foundation for Higher Education (LFHE), 2016). This project was created in collaboration with several key associations supporting technology-enhanced learning, including ALT, HEA, Jisc, the National Union of Students and the Leadership Foundation for Higher Education (LFHE), which hosts the project files and webpages. The project took place from 2012 to 2014, which corresponded with the initial timeframe of this research. The project highlighted reflections from those involved in facilitating technology change in higher education. It further supported investigation into individual engagement with managing change (Chatterton & Phipps, 2015). Assessment of the project outcomes indicated that change facilitators who were actively engaged with technology use and implementation were not always the individuals who needed support: what was key to broader success with change initiatives was identifying who needs support and ensuring those whose role it is to support technology change have the capability and capacity to engage, coach and help transition those individuals. The project highlighted the advantages of setting clear intention and providing accessible support aimed at reaching a broader spectrum of potential users of technology-enhanced learning.

### 4.2.5 Summary

The purpose of this section was to provide a picture of the higher education sector in the United Kingdom with historic origins and contemporary contexts, which may impact upon individual and institutional strategy decisions, including strategy related to technology-enhanced learning. The development of the current landscape included the ancient universities, still serving as internationally recognised, elite,

selective, and research-intense institutions, as well as the establishment of a wide range of universities in the 1960s and 1990s to broaden participation in higher education and serve the needs of local industries. While membership affiliation can be indicative of a university's focus and position within the sector, marked primarily by Russell Group institutions, it is not necessarily a determining factor in teaching and learning strategies, specifically with technology-enhanced learning strategy or change initiatives. However, institutional technology-enhanced learning strategy and approach to related change does appear to be an indicator of intention and structures put in place to support strategic initiatives provide evidence of intentionality.

Change in the higher education sector was, and is, often initiated through government policy. Despite academic autonomy, universities must make strategic decisions to secure their place in the sector, most notably through the University League Table, the World University Ranking, the REF, and through the TEF. Strategic development is necessarily directed towards creating infrastructure to address the required outcomes in the outward facing measures, while simultaneously identifying ways to highlight a university's unique attributes and strategic 'selling' point to students.

The five example universities, introduced in Section 4.3, demonstrate strategic approaches to implementing and supporting technology-enhanced learning. Behind these initiatives, however, were the individuals who facilitated change towards technology-enhanced learning through strategic action. Whether it was individuals determined to facilitate change or those acting on behalf of institutional strategy, the example universities all demonstrate noteworthy approaches to innovative teaching using technology as well as the necessary support or infrastructure to sustain the change initiative. These examples help provide some context for the Case Study University, presented in Section 4.4.

## 4.3 Change and Strategy Examples in UKHE

### 4.3.1 Introduction

This section provides examples of how several universities in the United Kingdom approached change and worked with change facilitators related to technology-enhanced learning. These examples were selected to demonstrate different approaches to institutional strategy, integration of technology-enhanced learning in teaching and learning practice and institutional structures in place to support increased use of technology-enhanced learning. Crossing different points of origin and mission, these universities provide a snapshot of structures and processes within current institutions in the UK. Publications with case studies and research investigations on technology-enhanced learning within UK higher education institutions are well documented (Bacsich et al., 2011; Bayne, 2015; Jisc infoNet, n.d.). The purpose is to provide some specific examples of technology-enhanced learning related change and strategy representing a spectrum of institutions with diverse historic origins, alternative strategic approaches and national and international ranking across the higher education sector in the United Kingdom. While there are different approaches to implementing technology-enhanced learning, they all demonstrate the generic need to devise a strategic approach and to acknowledge the efforts of individuals engaged with facilitating change independent of their role or because of their role. The example institutions were selected to represent range of University League Table standings, different REF 2014 outcomes, diverse membership associations and historical context. Table 4 summarises some of the change and strategy examples prior to introducing each institution individually. The researcher intended on highlighting different approaches that served representative institutional types in the UK higher education sector. The approaches presented are not exhaustive, but rather demonstrate possible approaches to change and strategy related to technology-enhanced learning. This section concludes with a summary of these example institutions.

Table 4: Change and strategy examples in UKHE

| Change and Strategy Examples in UKHE | | | | | | | |
|---|---|---|---|---|---|---|---|
| **University** | **League Table 2016** | **World Uni Ranking** | **REF 2014 Impact** | **Membership** | **History** | **TEL development** | **Approaches to Strategy** |
| Nottingham | 25 | 143 | 27 | Russell | Civic University, Royal Charter | Infrastructure with dedicated teams to support TEL | Structure |
| Nottingham Trent | 53 | 601 - 800 | 80 | UniversitiesUK | Post-1992 | Innovative. Focus on Environment | Transform Environment |
| Dundee | 42 | 185 | 24 | UniversitiesUK | University College | Systemic approach to developing TEL | Systems Approach |
| York | 17 | 131 | 14 | Russell | Established in 1963 (Robbins Report) | Strength of individuals | Continuous improvement |
| Derby | 94 | Not in ranking | 111 | Non-aligned | Teaching College | All development stems from a focus on student learning | Teaching and Learning focus |

### 4.3.2 University of Nottingham – Structure

The University of Nottingham is an example of a university focused on designing the necessary infrastructure to support technology-enhanced learning strategies. It began as a civic college in 1881 and received its Royal Charter in 1948 enabling it to grant its own degrees. The growth and expansion is evident in its main campus located in Nottingham and its global satellite campuses in Malaysia and China (Grimshaw & Wilson, 2006). It was ranked 25th on the University League Table (2016), 27th in REF Impact (REF, 2014), 143rd in the World University Ranking (Times Higher Education (THE), 2016) and it is a member of the Russell Group of UK research-intensive universities. The University of Nottingham's Global Strategy (2014) was an indicator of the University's intentions related to excellence in education and scholarship as a primary focus, yet technology-enhanced learning support was reflected in the development of infrastructure to support innovative learning and teaching. The explicit and clear language used in the Global Strategy 2020 (2014) set forth clear intention of focusing on teaching and to bring in capable individuals who can be "catalysts for improving the quality of teaching, supporting innovation and developing technology-enhanced learning." The supporting infrastructure and

status which attracts competent individuals within this Russell Group university supports the intention to facilitate and embed technology-enhanced learning for the benefit of teaching and learning practices.

According to the University of Nottingham website, their current approach to technology-enhanced learning conveys the importance of learning technologies and the institution has been strategic in establishing an infrastructure within the university that underpins this importance (University of Nottingham, 2016c). For example, several independent teams were identified to help facilitate competent use of learning technologies (University of Nottingham, 2016c): Faculty and School Support Team, Learning Content Team, Learning Systems Team and Special Projects Team. The Faculty and School Support Team was dedicated to supporting both students and staff in using technologies that support learning, which was complemented by a separate Learning Content Team to help staff "develop creative and interactive learning resources and videos" (University of Nottingham, 2016c). In complement to the resources, the Learning Systems Team focused on maintaining and developing the virtual learning environment. A Special Projects Team also dedicated resources to creating and publishing open educational resources to learners within and beyond the University as a means of contributing to the growing body of Open Educational Resources (OER). Related to OER, the University demonstrated active involvement in producing massive open online courses, commonly known as MOOCs, within the FutureLearn platform, a UK based online course delivery system, as well as offering a substantial number of degree programs delivered as *distance e-learning*. Additional projects included an innovative Students as Change Agents scheme to encourage engagement of students with other students and staff across several areas of focus, including technology in teaching and learning (University of Nottingham, 2016d) as well as case studies of effective use of e-learning within the University by both external and internal researchers (Blake, 2009; University of Nottingham, 2016a). These dedicated resources were designed to

create an infrastructure that supported the intended change and addressed diverse levels of interaction within the institution.

Although the infrastructure was university-wide, flexibility was built in to enable smaller pilot projects to emerge. For example, an ePioneers initiative stemming from the School of Education provided an innovative approach to supporting staff. This pedagogic and evidence-based approach to e-learning originally served only the School of Education. Its extension to the entire University is indicative of the demand to support academics and increased internal activity towards technology-enhanced learning implementation (University of Nottingham, 2016b).

### 4.3.3 Nottingham Trent University – Environment

In contrast to the University of Nottingham, the nearby Nottingham Trent University merits inclusion as an example of technology-enhanced learning change initiated by transforming the environment within an institution with dramatically different historic context than the University of Nottingham. Nottingham Trent University is a 'post-1992' institution with membership in the UK mission groups University Alliance as well as UniversitiesUK. It was ranked 53rd in the University League Table (2016), 80th for REF Impact (REF, 2014), and ranked within the 601 – 800 range in the World University Rankings (Times Higher Education (THE), 2016). The strategic plan, called *Creating the University of the Future* (2014) identified exceptional colleagues as the core strength followed by the "reputation for outstanding campuses, teaching innovation, research excellence and exceptional scholarship." Placing their physical space as first in their core strengths is indicative of the focus on creating an environment conducive to teaching, research and scholarship.

In recent years, the institution supported technology-enhanced learning through a team of nearly two dozen individuals dedicated to professional development initiatives and supporting academic teaching practice. Specifically, four, fully-online Masters-level degrees were offered at the time of writing, which demonstrated the

level of commitment to designing and developing flexible access models to reach new markets.

Although teaching and learning focused, research was also an integral part of the institution. Within the School of Education, for example, the technology-enhanced learning and pedagogy group work on evidence-based research to disseminate throughout the institution as well as beyond. Although this university is geographically situated near the University of Nottingham, its focus on teaching and learning as a core competency paired with innovative and exploratory thinking in delivery modes, made this a relevant example to include.

### 4.3.4 University of Dundee – Systemic

The University of Dundee is an example of a systemic approach to the strategic implementation of technology-enhanced learning by drawing upon the strengths within the university as well as addressing external needs. Located in Scotland, the institution originally began as a University College preparing students for exams at the University of London. It partnered with University of St Andrews in the late 1800s until it gained independence in the 1960s based on a recommendation in the Robbins Report (1963) encouraging the founding of a university in Scotland. (Robbins, 1963). It further served to extend "liberal education" and advance "technical instruction" to serve the needs of the surrounding community (University of Dundee, 2016). According to the UniversitiesUK website, the University of Dundee is a member, yet it is listed as *non-aligned* in other publications (Havergal, 2016). It was ranked 42nd in the University League Table (2016) and 24th in the REF Impact measure (REF, 2014), and 185th in the University World Rankings (Times Higher Education (THE), 2016). The University Strategy lists learning and teaching first as one of the core services it provides, along with research and wider impact (University of Dundee, 2013). The approach to learning and teaching was left open as the strategy itself minimally comments on the concept of e-learning and does not

mention technology-enhanced learning at all nor online learning. The reason for this may be intentional, since separate sub-strategies provide more detail related to specific services it offers.

In 2003, the University of Dundee produced on online assessment policy followed by an e-learning strategy the following year (Walker et al., 2011). The e-learning strategy was published in 2004 and several years later the University implemented a review of the strategy which led to systemic inclusion of participants from all levels of the institution (Walker et al., 2011). The institution continued to demonstrate progressive steps for revising institutional strategy for e-learning to keep the strategy current which, upon reflection, could serve as a model for other institutions. They implemented a three-tiered system of input and feedback from leadership, staff and students to ensure voices from all levels were given opportunity to be heard and to facilitate ownership of technology-enhanced learning strategies (Walker et al., 2011). Leadership disseminated institutional aims and sector level influences for internal, stakeholder consideration. A middle level emerged after a review highlighted a lack of communication between central technology-enhanced learning developments and departmental support. A forum was started to enable open discussion about new and proposed technology-enhanced learning projects. Finally, the idea of capturing best practices and ideas from academics and other members of the community in an open conversation manifested in a monthly lunch where individuals brought their ideas to exchange with others. All three levels informed practice and future planning making the technology-enhanced learning strategy a dynamic and agile conceptual and practical framework benefitting leaders, academics, support staff and students.

### 4.3.5 University of York – Improvement

The University of York is an example implementing technology-enhanced learning on a continuous improvement model which communicates a message of balance through research-led teaching. Known as a research-intensive institution, the

University of York is a Russell Group member newly established in 1963 (Jobbins, 2013), the institution is ranked 17th in the University League Tables (2016), 14th in the REF Impact ranking (REF, 2014), and 131st in the World University Rankings (Times Higher Education (THE), 2016). The University actively and publicly provided tools and guidance to those seeking support with using technology-enhanced learning in their teaching practice. The *University Plan* was presented in an interactive manner on the University website with key and supporting objectives revealed at the reader's discretion (University of York, 2014b). The strategy set a key objective of outstanding teaching and learning which could be achieved by encouraging and supporting innovation in teaching, which was addressed in a dedicated document, *Learning and Teaching Strategy 2015-2020* (University of York, 2014a). Most critical with this strategic plan was the overarching objective demonstrating the intention "to offer outstanding teaching and learning" (University of York, 2014b), which is supported in action with university support measures related to technology-enhanced learning.

In addition to extensive documentation evidencing this institution's strategy, the strategy and implementation approach was also actualised in the form of an e-learning development team. The e-learning development team actively and frequently communicated technology-enhanced learning initiatives and recommendations in several ways. The *York TEL Handbook* was one critical example. The *York TEL Handbook* was made available online and has been updated annually in recent years to maintain the pace of change in the field of technology-enhanced learning and to continuously provide teaching staff with the most innovative ways of teaching and embedding online resources into teaching practices (2015). In addition to the handbook, the e-learning development team published regular posts on their *E-Learning Development Team* blog. With innovation in teaching and learning at the core of the institutional strategy, the implementation of strategy into multiple, practical forms demonstrates clear commitment to strategic intent. One could also posit that frequent posting through blogs and social media presence increased the

perception of the activity within the University and could lead one to register the active innovation and implementation of technology-enhanced learning.

### 4.3.6 University of Derby – Teaching and learning focus

The University of Derby is included here as an example of an institution that initiated a distance learning division in 2001 and transitioned to a dedicated entity, University of Derby Online Learning (UDOL), in 2011. With a solid priority on teaching and learning as a former Art and Technology College, research was not traditionally its focus, reflected in its ranking of 111th in the REF Impact (2014). UDOL extended course offerings geared to serve local and national industries by offering online degrees, yet this also served to extend its reach to international students. It was ranked 94th in the University League Table (2016) and was not included at all in the World University Ranking. In some publications, the University of Derby is listed as *non-aligned* to common university associations (Havergal, 2016), yet it is listed as a member on the UniversitiesUK website (Universities UK, 2016).

Although not exceptional by traditional measures of research output as measured in the REF (2014) or national ranking in The Complete University Guide League Tables (2016), the University of Derby remained consistent in its published *Corporate Plan* to focus on and support innovative teaching and learning, including to "grow University of Derby Online Learning (UDOL) as a leading sector provider" (University of Derby, 2014). For example, in 2006, the University was shortlisted by the *Times Higher Education* in the category for *Most Imaginative Use of Distance Learning* (University of Derby, 2006). With commitment to widening participation and to serving a large population of students in employment, the University has offered solutions of flexible online degrees since 2001 (Harrop-Griffiths, 2008; Bacsich, 2012b). Well established, online degrees are offered in over 12 subject areas with several MOOCs on offer, as well as short courses (University of Derby, 2016). The lower placement in the University League Table is indicative of its historic roots

on teaching and learning instead of on research; without demands on research output, academics may – and are expected to - focus on teaching. This example underpins the impact of historic context with contemporary challenges and opportunities.

### 4.3.7 Summary

This section compared five universities presented as examples of different approaches to technology-enhanced learning related change and strategy. The commonalities and differences highlight the value of including them in this study. The University of York is an example of a high-ranking university by research status, which approached technology-enhanced learning by creating an infrastructure focused approach to strategic technology-enhanced learning providing experts to support strategy and change efforts. This is also evident in institutions with lower ranking in the REF and University League Table. The University of Derby, for example, relied on individual academics as well as a dedicated online learning department to support a portfolio of online degree programmes, as well as curriculum development using innovative teaching and learning resources, the latter of which aligns well with its historic roots as a teaching college. The University of Dundee provides an example of a systemic approach to communication, developing strategy, implementing change and sharing projects and best practices. Taking all levels of the organisation into account, the inclusive approach of addressing academics with independent identity and leadership striving to integrate external technologies into university practices appears to have worked well. In contrast to the structured approach at the University of Dundee, another study depicted a 'post-1992' institution with a less structured approach to educational technology whereby digital and online tools were provided by the institution although expectation of academics using them were not provided (Bennett, 2014b). The University of Nottingham ensured a robust infrastructure was in place to directly support technology enhanced learning initiatives with an available and competent team of

technologists, designers and developers to support academics. Nearby Nottingham Trent University focused on creating and designing an environment conducive to learning and teaching, while proactively providing support and resources to enable innovative use of technology. Ranking by research status is not indicative of engagement with teaching and learning, specifically technology-enhanced learning, but rather a strategic choice of where and how to dedicate resources.

In conclusion, this section provided five examples of how example universities in the United Kingdom approached strategy and change implementation related to technology-enhanced learning. While the examples provide organisational influences and structures, the most noteworthy impact on successful implementation reflects the efforts of individuals who facilitated the change towards technology-enhanced learning. Whether it was individuals determined to facilitate change autonomously or those acting on behalf of institutional strategy as part of their role, the example universities all demonstrate noteworthy approaches to innovative teaching using technology as well as providing the necessary support or infrastructure to sustain the change initiative.

## 4.4 The Case Study University

### 4.4.1 Introduction

The Case Study University was a viable and relevant higher education institution for this research based on several significant indicators. These indicators included the following: the university's position in the higher education sector, a strategic plan indicating intent to increase technology-enhanced learning, dedicated support for technology-enhanced learning indicating commitment to the strategic plan, and individual facilitators of technology-enhanced learning change in formal and informal roles. The university's position in the higher education sector precedes a summary of key strategy documents. Indicators of technology-enhanced learning related change follow. As the identity of the Case Study University is not revealed,

the researcher confirms that uncited sources related to this university stem from the university website, unless otherwise noted.

### 4.4.2 Position in the UK higher education sector

When starting this research, the Case Study University represented a typical, traditional, mid-sized institution in England. Although originally established to prepare students for exams offered by a larger, established university, the institution aligns with the description of a civic university, which gained independent degree-granting rights after receiving its Royal Charter. The Case Study University was not part of the 'post-1992' group of universities originally opened as polytechnic colleges or speciality institutions. Although not mutually exclusive, the historical context enables the institution to strategically determine whether it will focus on research output or teaching and learning excellence, which the researcher attempts to identify in this chapter.

The University offers research or taught postgraduate degree programmes, as well as undergraduate courses across six faculties with over 50 disciplines, including several interdisciplinary research centres. National and international measures indicate the Case Study University was middle ranking in several ways. The Case Study University was neither exceptional on any publicly available ranking, such as the University League Table (2016), nor was it completely absent from such national statistical records, such as the REF (REF, 2014). Performance in the University League Table has steadily decreased over the past decade from being in the top 50 universities in the UK a decade ago shifting to the 50 – 80 range over the past several years.

It is too early to predict the impact or outcome of the TEF as it has just been introduced, yet the researcher has confirmed that the Case Study University was participating in the initial phase of the initiative. As in the REF, students also play a significant role in the TEF in their feedback and participation in the National Student

Survey (NSS). However, a recently published teaching survey indicated 82% of academics strongly disagreed or disagreed with the NSS as an accurate representation of teaching quality (Times Higher Education (THE), 2017). Referencing the university's annual reports, the researcher identified a 30% decline in student enrolment between 2009 and 2015, which happens to also represent a period of decline in the Times Higher Education University League Table ranking (THE, 2016). Economic circumstances, however, also impact whether the sector "is in a period of growth, stasis or contraction" (Becher, 1989:131). The recent contraction may be from economic influences, although impacts of national initiatives, such as the TEF and REF, will emerge.

On an international scale, the Case Study University ranked in the 401-500 category of universities included in the World University Rankings (Times Higher Education (THE), 2016). Although this ranking is not necessarily noteworthy, we have seen other instances of institutions not meeting the inclusion criteria for the World University Rankings, such as the University of Derby as an example of intentional strategy and support for technology-enhanced learning and still ranking within the top 100 universities in the UK (Complete University Guide, 2016). Approximately 22% of the Case Study University research submissions achieved 4* ranking as compared to the overall average of 30% of all submissions in this category. In contrast, over half of their submissions on a subject level ranked 3* indicating internationally excellent research quality. The REF Impact ranking was over 100$^{th}$ place (REF, 2014). Several interdisciplinary research centres highlight areas of emerging focus and where research strength is gaining hold. Without detailing academic and student numbers in each faculty, the REF remains only one of several public measures of university ranking.

Related to the REF is the proportion of funding the university receives from research grants in comparison to student fees. Figure 6 depicts indicative sources of income based on actual income in the annual reports and illustrates how tuition fees have

increased over time, in part reflecting changes in the fee structure as introduced in the Browne Report, mentioned in Section 4.2, as well as reflecting the steady decrease of funding council grants. If research grant funding were the primary source of income for the university, a strategic focus on research output would be expected. However, as the source of income became increasingly dependent on tuition fees, one might anticipate a strategic focus on learning and teaching, and the integration of technology-enhanced learning as a mechanism for both addressing the needs of existing students while attracting students from new markets.

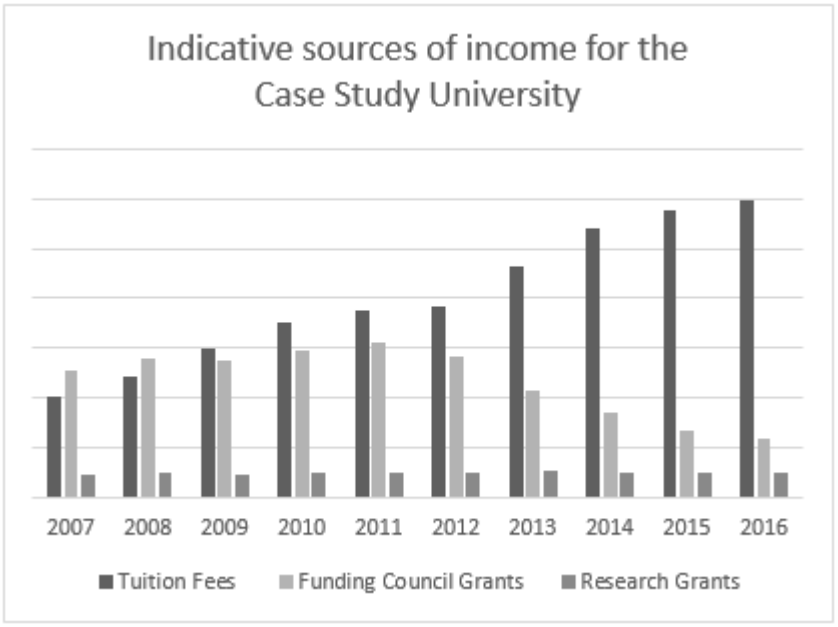


Figure 6: Indicative sources of income 2007 – 2016
(Case Study University Annual Reports)

In addition to rankings, most higher education institutions in the UK affiliate with one or more association aligned with mission group, as introduced in Section 4.2. When initially investigating which association the Case University aligned with, it did not appear affiliated with any of the higher education associations. Later confirmation of this status appeared to indicate membership in UniversitiesUK, which would be the most likely affiliation for the Case University. Not all universities are members of UniversitiesUK, with 135 members of 159 possible institutions (Universities UK, 2016). Although it was not immediately clear why the

Case University was not affiliated, it is known that it was not eligible for membership in some groups, such as the Russell Group.

Further to the description of the university and its position within the UK higher education sector as a middle-ranking university, other relevant factors for selecting this university for this study were drawn from a content analysis of key strategy documents and identification of other indicators of technology-enhanced learning change, which follows in the next sections.

### 4.4.3 Content analysis of strategic plan

This section summarises key strategy documents identified and analysed for this research providing insight into how strategic plans surrounding technology-enhanced learning were conveyed. The strategic plan in place at the time this study commenced at the Case Study University was the primary document used in this analysis of the institution's strategic intention. In addition, several other key strategy documents published in parallel or emerging from the strategic plan were considered as part of this analysis. These supplementary documents related to changes to curriculum, research strategies, teaching practice, student experience and the availability of institutional information, communication and technology. Highlights from the documents as well as descriptions of the indicators of technology-enhanced learning change initiatives are presented here. Word frequency count was employed as a means of identifying key words related broadly to technology and learning. Together these individual documents provided context for framing the strategic position of the university and for establishing the intention for technology-enhanced learning. As the name of the university was not disclosed, some document names or the specific language used have been anonymised.

The text from the vision and mission portion of the strategic plan indicated high frequency of the words *students* and *research*. While this could be expected, there is no indication of *technology-enhanced learning* apart from the word *innovative* which could

tenuously link to teaching and learning with technology-enhanced learning resources. The words here are in line with language within other institution's vision and mission statements, so this situates the Case Study University within the expectations of a university of this ranking rather than a unique example.

### 4.4.4 Research

In addition to an emphasis on teaching and learning, the change agenda at the Case Study University indicated the intention of improving the university's position in the Research Excellence Performance (REF) performance. As indicated previously, REF performance is a source of identity within the higher education sector, and the Case Study University was ranked as average in the REF 2014. Increasing REF performance would attract research funding from external bodies and contribute towards increased national visibility and ranking. Yet there is some indication in the literature that this is a potential conflict with academic staff who feel research is more highly regarded than effort in teaching, which are not evaluated or measured. In addition, the introduction of the TEF (TEF) may impact academic and support staff within the university in the coming years. Although the strategic plan described research and teaching initiatives, there was little to suggest intended change to teaching loads or engagement with technology to enhance student learning. The suggestion was that teaching loads may be reduced to support research efforts, thereby positively contributing to the REF.

Unsurprisingly, a word frequency analysis of the research portion of the strategic plan emphasises the important strategic role research plays within the Case Study University. The word *enterprise* emerged as a key component of the strategic focus on research in the university as well *academic* as the foundation from which the research stems. This aligns with establishing sector-wide recognition and status, as well as generating alternative income streams. However, completely absent from this section is any note of technology or innovation.

### 4.4.5 Teaching and learning

In common with many UK universities, the Case Study University's strategic plan acknowledged the importance of distinguishing the university from other comparable institutions within the higher education sector and, specifically, identified the need to situate itself through active innovation in teaching and learning strategies and practices. The most relevant portion of the Case Study University's strategic plan for this content analysis was on advancing education as it detailed academic structure, research and enterprise, and teaching and learning and included elements of technology in teaching and learning practice. Whereas academic structure focused on presenting objectives surrounding governance and management, including partnerships and interdisciplinary themes, the teaching and learning segment focused on innovative teaching and learning while engaging students in the process using an environment rich with learning technology resources. The researcher acknowledged the importance placed on the connection between academic structures, research output and enterprise opportunity with teaching and learning as it demonstrated awareness of the need to adapt and adjust to a changing market and shifting resources in the higher education sector. In addition to encouraging innovative teaching and learning strategies, the university was clear in its intention to not only explore and adopt new technology but rather to position itself as a leader in innovative teaching and learning within the sector.

Although the strategic plan did not specifically use the term 'technology-enhanced learning', learning modalities, which enabled learning to be enhanced using technology, were implied. By introducing the discussion of e-learning and virtual learning activities, the university recognized the need to demonstrate readiness for technological changes already evident in the higher education sector. Further, the strategic plan acknowledged the shift in pedagogical approaches resulting from the introduction of technology. This shift resonated further as the plan indicated that

academic staff would receive professional development to support innovative teaching practices.

Subsequent learning and teaching portions of the strategic plan indicated the introduction of evidence-based practice using learning technologies. From an institutional perspective, the preference appeared to lean towards the adoption of technologies successfully implemented in other higher education settings. With this approach, the university would not need to enter unchartered territory, but rather could adopt technologies already successfully employed by other universities. In practice, however, this is very challenging as there must be an underlying pedagogic as well as infrastructure framework behind the adoption of technologies; what is effective at other universities may be rendered invalid or ineffective when adopted elsewhere.

The strategic plan acknowledged that the university could no longer solely serve the needs of campus-based students, recognizing that some students will be left out of higher education at this university if technology-rich pedagogic models and practices introducing flexibility are not introduced. Per the strategic plan, not only does implementing innovative teaching and learning strategies using technology position the university as a potential leader in the UK higher education sector but this strategy ultimately serves the student. With supplementary strategies to advance education supported by innovative use of technologies, the existing student profile may be served as well as students from new markets. There was indication that small changes to existing provision may result in dramatic transformations and that this ought to be expected and planned for. Provision for online learning and the exploration of a virtual campus were presented as considerations, which would align with broader technology changes in the sector as well as serve a more diverse student body.

The following text frequency image depicts the language from the Learning and Teaching portion of the Strategic Plan. The word *learning* stands out from *teaching*, which is indicative of the priority learning has within a university. Students emerged as a core focus as well with a strong emphasis on the library as a point of interest. Although the words *technology* and *innovation* and other similar words can be identified in word frequency image below, there is no language to indicate emphasis or focus on *technology-enhanced learning*. The word *technology* is included as well as *innovation.*


Figure 7: Teaching and learning in strategic plan (word frequency)

The strategic plan ushered in a phase of restructuring within the University resulting in the creation of new senior management teams within a teaching and learning remit as well as smaller working groups and support teams. The creation of a leadership group focused on learning and teaching aspects of the strategic plan indicated strategic intention to academic members of the university. The director of the learning and teaching group reported to one of the Pro-Vice Chancellors, further emphasising the importance of the role and the critical position the team had in the university strategy. The learning and teaching group further established a team of five individuals focused solely on technology-enhanced learning. The new team consisted of one manager who reported upward to the director of the learning and

teaching group. The team manager led two technology-enhanced learning advisors and two learning technologists. The group was tasked with supporting pedagogic use of institutionally provided technology tools and resources. The primary technology-enhanced learning resources included the virtual learning environment, online assessment submission and feedback, lecture recording services and plagiarism detection. Academic staff were supported by several methods including open workshops, occasional meetings to share best practices, a repository of on-demand, online tutorials and the opportunity to book one-on-one sessions with members of the support team.

The establishment of the technology-enhanced learning support team sent a message of intent to support increased use of technology in face-to-face teaching and learning within the institution. The small size of the team, however, was significant as their ability to systemically change teaching practice within the institution would be limited and there was no indication of departmental level technology-enhanced learning support. In addition, the central team did not function in a service capacity for academic staff. Their services related to support in using institutionally provided resources and offering services to develop or design innovative modules or online resources were not part of the team's operational objectives.

In addition to the size of the technology-enhanced learning support team as an indicator of continued academic autonomy related to using technology in teaching practice, there also was no indication of a published learning and teaching strategy. Oftentimes the strategic plan is the starting point for related, comprehensive implementation strategies. A learning and teaching strategy would generally set the tone for learning and teaching approaches within an institution, and this would likely include technology-enhanced learning as an integrated element. Although there was some indication that there were several working groups to develop further the technology-enhanced learning approach within the institution, there were not publicly available documents to use for this content analysis.

In contrast to the small technology-enhanced learning support team, the Case Study University gave clear indication in the strategic plan that a comprehensive and robust technical infrastructure needed to support a modern university. To act upon the strategic plan and emerging initiatives, the university published their extensive information and communication technology upgrade and expansion plan. This infrastructure plan included investment in a student information system, increased storage for staff and students, and introduction of high-speed computers for some departments. This underpinned the introduction of wireless connectivity around campus, enabling flexible access to central online provision and online learning resources. While this would not directly reflect pedagogic practices, there were additional efforts to expand social space on campus, increase the number of private group study rooms, make interactive whiteboards available, and extend availability of student support services. These efforts contribute to the picture of an institution with clear objectives and deliberate intentions, which indicates preparedness for university-wide systems and increased access to online resources.

### 4.4.6 Facilitating TEL-related change

The Case Study University hosted internal annual learning and teaching conferences as a venue for academics as well as members of university support teams to share academic practice and ultimately to discuss and consider ways to enhance the student experience. The Pro-Vice Chancellor or other key members of the university leadership team most often introduced the conferences and guest speakers from other universities were frequently invited to present perspectives from their institutions. The researcher identified these conferences as an opportunity initially to evaluate who was actively promoting technology-enhanced learning within the Case Study University. Although not limited to technology-enhanced learning practice, the conferences afforded the opportunity for active practitioners of technology-enhanced learning to share their experiences with both regular and reluctant users of technology.

Conference programmes from the previous eight years were available on the university website, which enabled the researcher to identify individual contributors and members of the university community actively engaging with technology-enhanced learning. To identify the percentage of technology-enhanced learning related presentations, the researcher collated the presentations. Each conference, however, was structured in different ways, making it difficult to directly compare across years. Some conferences had a specific theme, such as employability, curriculum design or sustainability, whereas others focused on discipline-specific presentations. On several occasions, there were two conferences in one year or a follow up showcase focusing on technology-enhanced learning. On average, conferences which offered parallel sessions ranged from 30% - 60% related to technology-enhanced learning and those with a series of 5-minute poster presentations appeared to have between 25% and 50% technology-enhanced learning related themes. Technology-enhanced learning related themes were represented in all conferences with overarching teaching and learning themes.

Further to the internal learning and teaching conferences, additional facilitators of technology-related change were identified within the newly formed technology support team and recommendations received by those interviewed during the pilot data collection.

### 4.4.7 Comparison with example universities

While the Case Study University demonstrated intention to support technology implementation throughout the institution by establishing a technology support team and providing core technologies, other institutions, such as University of Nottingham, provided a more comprehensive structure to support uptake of effective academic practices using technology-enhanced learning as well as resources to develop and expand implementation. Although the University of York had a strong focus on research resulting in excellent REF status, this did not distract from

publishing and supporting detailed strategic plans focused on teaching and learning. In contrast, the Case Study University published an overall Strategic Plan incorporating research and teaching expectations. However, learning and teaching strategies or implementation plans for TEL remained internally communicated rather than externally shared. The University of Dundee demonstrated a systematic and iterative review process to evaluate effective tools and useful approaches to teaching and learning with technology. This is mirrored in part within the Case Study University as it appeared to review tools and resources available in the sector with opportunities within the institution. The Case Study University conducted a systematic VLE review and provided select core provision, however uptake and dissemination was dependent on individuals to engage and implement. TEL development was reliant on individual strategic action of both formal and informal change facilitators to engage with centrally provided resources rather than through a structured or required implementation plan. Strategic action was implicit rather than explicit. Table 5 compares the Case Study University to the example universities.

Table 5: Change and strategy examples in UKHE (with Case Study University)

| Change and Strategy Examples in UKHE (with Case Study University) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **University** | **League Table 2016** | **World Uni Ranking** | **REF 2014 Impact** | **Membership** | **History** | **TEL development** | **Approaches to Strategy** |
| Nottingham | 25 | 143 | 27 | Russell | Civic University, Royal Charter | Infrastructure with dedicated teams to support TEL | Structure |
| Nottingham Trent | 53 | 601 - 800 | 80 | UniversitiesUK | Post-1992 | Innovative. Focus on Environment | Transform Environment |
| Dundee | 42 | 185 | 24 | UniversitiesUK | University College | Systemic approach to developing TEL | Systems Approach |
| York | 17 | 131 | 14 | Russell | Established in 1963 (Robbins Report) | Strength of individuals | Continuous improvement |
| Derby | 94 | Not in ranking | 111 | Non-aligned | Teaching College | All development stems from a focus on student learning | Teaching and Learning focus |
| Case Study University | 50 - 80 | 401 - 500 | 50 - 80 | UniversitiesUK | Civic University, Royal Charter | Strength of individuals | Core technology as strategic focus |

### 4.4.8 Summary

This section introduced the Case Study University at the centre of this research. The University's position within the higher education sector in the United Kingdom is presented as middle ranking in the University League Table. The strategic plan indicated plans to advance education, however it did not highlight the way this ought to be done. This is not atypical, as implementation plans are not common within the strategy. Technology-enhanced learning was absent from the strategy plan completely, with the word *innovation* used sparingly in the context of learning and teaching. Although technology-enhanced learning was not strongly represented in the language in the strategic plan, organisational infrastructure did provide stronger intent to increase the use of technology. In contrast, building technology infrastructure was strongly indicated in the strategic plan.

## 4.5 Chapter Summary

This chapter presented the Case Study University in the context of higher education in the UK. Beginning with this historic origin of universities in the UK and influences on strategy development, including technology-enhanced learning, provided background for the higher education sector. Following the origins, examples of change and strategy approaches taken at five other universities in the UK illuminate different focal points on strategy development and implementation. With this background, the Case Study University is then introduced. Details include content analysis of the strategic plan in place at the time of this study, including word frequency analysis of language used in the strategic plan. Specific effort was directed to the research section of the strategic plan as well as the teaching and learning component. Indicators of action resulting from the strategic plan and acknowledgement of individuals identified as change facilitators of technology-enhanced learning indicated strategic intent to increase the application of innovative teaching and learning methods.

As a degree-granting institution, the Case Study University was middle ranking in the University League Table. The strategic plan represented intention to be a leader in the sector and integrate with the communities it served. Although teaching and learning strategy was included as a sub-section within the strategic plan, it was not specifically indicative of innovation, and, typically, placed emphasis on the student. It was not specifically recognized for innovative teaching and learning, although university structures were emerging, which indicated increased efforts surrounding technology-enhanced learning. Lack of a teaching and learning strategy could indicate acknowledgement of academic autonomy. Research output remained steady yet unexceptional and largely ranked as internationally recognised research. Specific research institutes have been identified as producing world class research and new interdisciplinary centres indicate increased efforts in research output.

Chapter 5 introduces the methodology and methods selected for this study, followed by the research design and data collection approaches in Chapter 6.

# Chapter 5: Methodology and Methods

## 5.1 Introduction

The main research question (MRQ) presented in the Chapter 1, Section 1.2 was: *What are the perceptions, concerns, and practices of change facilitators for technology-enhanced learning in relation to implementing and aligning with the strategic plan of the Case Study University?* This chapter introduces the research methodology and research methods identified as the best means for investigating this question and informed by the responses to the sub-research questions. Addressing philosophical and ethical considerations as well as the research assumptions demonstrate how trustworthiness and credibility were ensured.

Section 5.2 presents the researcher's philosophical positioning regarding the perceptions and beliefs of reality, or ontological standpoint, as well as a discussion on the nature of knowledge, or epistemological position. Considerations of different ontological and epistemological positions are addressed.

Section 5.3 presents methodological considerations for this research, including the decision making process for concluding with case study methodology. The pragmatic choice for conducting case study research and the alignment of case study methodology to address the research questions is presented with specific reference to the researcher's philosophical standpoint, which also influenced methodological decisions.

Section 5.4 describes the research methods selected for this case study research. The choice of a mixed-method design is presented with details related to the online questionnaire, semi-structured interviews and a review of key documents; the purposive sampling strategy employed for data collection is also outlined.

Finally, the last three sections outline ethical considerations and research assumptions followed by an explanation of how the researcher addressed

trustworthiness in her selection of research methods. The chapter summary concludes with a brief overview.

## 5.2 Philosophical Considerations

A researcher's philosophical positionality provides context and insight into how research decisions were reached. Ontological and epistemological paradigms influence the research process, making this discussion a relevant and important aspect to clarify prior to detailing the research methodology and methods. A philosophical framework gives structure to belief systems, which incorporates ethics, our perspective of reality and our assumptions about knowledge (Mertens, 2012). Individual beliefs inform action taken in conducting research in conjunction with one's ontological and epistemological assumptions (Guba, 1990; Opie & Sikes, 2004). The role of the researcher within the research is also determined by the philosophical position with which the researcher identifies. This section begins with a discussion of philosophical positions and potential ontological and epistemological perspectives, followed by the researcher's own positionality in conducting this research, with indications of how these influenced research decisions.

A discussion of the meaning of ontology and epistemology sets the context for the discussion of philosophical positionality. Ontology is the study of "the nature or essence of things" (Opie & Sikes, 2004:19). Ontology helps us contextualise our social reality and helps to define our own view of reality. Plowright describes ontology as the "inescapable and ultimate reality that we are all a part of" (Plowright, 2011:176). In addition to our own reflexivity in understanding our perceptions of reality, understanding ontological assumptions can help us better understand how others view reality, particularly when we identify perceptions of reality, which differed from our own views. The emergence of different realities is inevitable in an interpretive, constructivist qualitative research framework, thereby making awareness of one's own position, and documentation thereof, even more relevant. There are two distinct ways in which social reality may be perceived: "as external,

independent, given and objectively real, or, instead, as socially constructed, subjectively experienced and the result of human thought as expressed through language" (Opie & Sikes, 2004:19). The scientific method, or positivist stance, is one ontological paradigm in which it is assumed that our reality or world reflects "an existence that is not dependent on our perception, understanding or descriptions of that reality or world" (Plowright, 2011:177). The positivist stance tends to favour a quantitative research approach that applies statistical logic to provide replicable results. In the positivist perspective, the role of the researcher is limited to quantitative data collection, deductive conclusions and verifiable explanation of how and why things happen; personal perspective is absent from a positivist approach.

Discussions of ontological perspective frequently include a complementary discussion on epistemology, or the nature of knowledge and knowing. Epistemological perspectives reflect how one believes knowledge is gained, generated or constructed. If the intention of research is to gain knowledge, then understanding how knowledge is formed and how one perceives the knowledge which has been gained is vital to the research process. In contrast to a positivist philosophy, which adheres to objectivity and non-personal contributions which are quantifiably measurable, an interpretive or constructivist paradigm suggests epistemological assumptions which are "socially constructed through relationships, psychological activities and shared understandings" (Plowright, 2011:177). Constructivism reflects a stance, which values and acknowledges the individual perspective of the researcher, identifies with inductive interpretation of data, supports alternative outcomes, and aims for transferability of knowledge, rather than duplication of knowledge. The constructivist standpoint focuses "on the interpretation and negotiation of the meanings of the social world" (Kvale, 2009:52). This position, typical of qualitative research, remains intentionally personal and subjective, with the intention of understanding how and why things happen. In a framework of constructionism, the role of the researcher is an integral part of the

research process, interacting with research participants and co-creating the evolving outcomes (Kvale, 2009).

The intention was to demonstrate the philosophical positionality of the researcher within the context of selecting research methodology and adopting research methods. The researcher identified strongly with a constructivist position whereby both ontological and epistemological perspectives of reality and knowledge, respectively, were emergent throughout the research process. The selection of a case study methodology and research consisting of a mixture of methods strongly reflected a constructivist philosophical stance, while acknowledging pragmatic decision-making practices.

## 5.3 Methodology

Qualitative and quantitative research methods were considered for this research, as well as mixed-methods. Common approaches to qualitative research methods in education are observation, engagement with research participants through focus groups and the use of interviews (Cohen et al., 2007). In contrast, observation and conducting experiments in a controlled environment would be expected in quantitative research (Creswell, 2014). The research questions presented in Chapter 1, Section 1.2, align most strongly with qualitative research rather than quantitative research methodology, which would seek to gain measurable responses presented in statistical format. Research questions beginning with *How, What* or *Why* can be addressed through qualitative research methodology (Outhwaite & Turner, 2007; Yin, 2009; Creswell, 2014). Grounded theory (Glaser, 2004) was considered as a possible research methodology, however pragmatic considerations of the research setting undergoing change, the time span available for conducting this research and the research questions, did not support progressing with this approach. Most significantly, the researcher was not aspiring to identify a new theory or confirm an existing theory (Teddlie & Yu, 2007; Tashakkori & Teddlie, 2010). The methodology identified for this study was qualitative research approach as multiple variables

cannot be observed or documented in a controlled environment within a higher education institution undergoing a major change initiative (Yin, 2009; Mertens, 2012).

### 5.3.1 Case Study Methodology

Case study methodology acknowledges the dynamic and complex nature of a specific institution with the purpose of understanding the situation, influences and system within which the institution operates (Yin, 2009). A case study can be used when the research does not require control of behaviour and when the focus is on contemporary events in a complex social environment (Yin, 2009). Approaching the study with the intention of gaining a holistic understanding of the people involved and their perspectives, the environment and the content created as a result of, or in support of, these change initiatives provide a more complete picture of the phenomenon of change, strategy and technology-enhanced learning (Creswell, 2014). A holistic approach to understanding the variables in the study and real life events make the case study approach a relevant choice. Further, case study research considers "how things happen and why" (Anderson, 1998:153), yet it has not always been used in consistent ways by researchers (Platt, 2011) and is often scrutinised for being too subjective (Flyvbjerg, 2006). Platt contends, for example, that there are researchers who identify case study research solely with qualitative research, frequently leading to "social betterment" or "social action" (Platt, 2011:105). The researcher accepted the view adopted by social scientists who perceive research as a way of uncovering the complexities of humans and the human experience within a social constructivist paradigm (Marshall, 2016), which may result in better understanding of a situation or circumstances or may inform action-oriented decisions.

The case study methodology supports an approach to respond to the main research question of this study: *What are the perceptions, concerns, and practices of change facilitators for technology-enhanced learning in relation to implementing and aligning with*

*the strategic plan of the Case Study University?* Focusing on a specific institution could be viewed as a limitation, however this potential limitation was addressed through the research design and data collection instruments, presented in Chapter 6. Specifically, the inclusion of a mixed methods approach extended the forms of data collection.

This case study is of a typical, traditional, mid-sized university in England based on sector-wide quality measures, such as the University League Table (The Complete University Guide, 2016) and Research Excellence Framework (REF, 2014). The Case Study University is typical in its approach to campus-based, face-to-face instruction. The natural setting of this case study and lack of a controlled environment for data collection contributed to potential transferability of findings from the case study institution (Stake, 1995). Although this study was not intended to identify generalisations, it did aim to identify potentially transferable outcomes related to change towards technology-enhanced learning (Stake, 1995), which may be applicable, or transferable, to other universities.

The choice of case study methodology also acknowledged the researcher's social constructivist standpoint. In addition to a constructivist perspective, the researcher adopted pragmatism as an ontological research perspective, which she viewed as complementary in assessing and identifying research methodologies for this study (Tashakkori & Teddlie, 2010). For example, the Case Study University identified for this research was accessible to the researcher as she was providing consulting services at a time when it was simultaneously undergoing change in the focus area of this research. University-wide technology-enhanced learning initiatives were underway in parallel to the publication of strategic plans, which included aspects of technology-enhanced learning. The researcher recognised the dynamic nature of individual research participants identified through purposive sampling (see examples also by Bennett, 2014a) and accepted the evolving role of the researcher as

a key instigator bringing her own perspectives into the research process, and the phenomenological creation of knowledge.

## 5.4 Research Methods

This section presents justification and explanation of the research methods adopted for conducting this research within the framework of a case study methodology. The researcher's position was reflected in the adoption of qualitative methods for the majority of the data collection for this research, although the identification and selection of a questionnaire reflected her pragmatic view in designing research and selecting research methods (Morgan, 2007; Kvale, 2009). This supplementary, yet complementary, instrument would generally align with quantitative or mixed methods research. Rather than gathering statistical data, the adoption of an existing and previously validated questionnaire was a pragmatic choice based on accessibility and applicability to addressing the research questions. A pragmatic perspective recognizes that research decisions may be made based on solutions identified as compatible with the circumstances at the time of the decision and in finding answers to research questions (Onwuegbuzie & Johnson, 2006).

The availability of both qualitative and quantitative data collection instruments, which were identified as able to answer the research questions, combined with an iterative research design approach, influenced the decision to consider and adopt a mixture of methods. The selection of methods and data collection instruments aligned with responding to the sub-research questions introduced in the *Introduction* and listed in Table 6. Combining elements of pragmatism and constructivism with a mixture of methods for data collection enabled flexibility and agility in addressing the sub-research questions as well as in designing the research. Research designs, expanded upon in Chapter 6, are composed of inquiry types used to scaffold the research procedures (Creswell, 2014). The data collection methods included an online questionnaire with quantitative and qualitative aspects, semi-structured interviews

and a review of key documents. Each will be presented separately in the section below, as well as the decision to identify participants using a purposive sampling strategy.

Table 6: Alignment of research questions with research methods

| **Main Research Question (MRQ)** | | | |
|---|---|---|---|
| What are the perceptions, concerns, and practices of change facilitators for technology-enhanced learning in relation to implementing and aligning with the strategic plan of the Case Study University? | | | |
| **Sub-Research Questions (SRQs)** | | | |
| **#** | **Question** | **Data Collection** | **Presentation** |
| SRQ1 | How do change facilitators identified and consulted in this study define technology-enhanced learning? | Open text and categorical questions in the Change Facilitators Stages of Concern (CFSoC) online questionnaire. | Findings I (Pages 163 – 185) & Findings II (Pages 186 - 214) |
| SRQ2 | What are the change facilitators' concerns with implementing technology-enhanced learning in their role and where are these concerns situated? | Levels of concern in the CFSoC online questionnaire and semi-structured interviews. | Findings II (Pages 186 - 214) & Findings III (Pages 215 - 258) |
| SRQ3 | To what extent do change facilitators of technology-enhanced learning understand and comply with the university's strategic plan for TEL? | Semi-structured interviews | Findings III (Pages 215 - 258) |
| SRQ4 | To what extent do change facilitators feel supported by the university in their technology-enhanced learning practices? | CFSoC online questionnaire and semi-structured interviews. | Findings II (Pages 186 - 214) & Findings III (Pages 215 - 258) |
| SRQ5 | Do change facilitators report a dissonance between their TEL practices and the *de facto* technology-enhanced learning strategies of the university? | Semi-structured interviews | Discussion (Pages 258 - 286) |

### 5.4.1 Questionnaire

The questionnaire stemmed from the Concerns Based Adoption Model (CBAM) and was designed to understand the concerns of those involved in the process of change resulting from the introduction of an innovation within an educational setting (Hall, 2010). The model included several diagnostic tools: Stages of Concern (SoC) questionnaire, Levels of Use (LoU) and the Innovation Configuration (IC). These three pieces of the model enabled a holistic review of the concerns in using an innovation, how the innovation was applied and practically used and how the innovation was configured within the environment. Identifying the areas of greatest concern and challenges with application or configuration would help leaders to facilitate change more effectively.

Although the three primary CBAM diagnostic tools were sufficient to acquire a general picture of innovation change within an educational institution, the CBAM development team concluded that the SoC questionnaire did not adequately reflect and measure the specific concerns of change facilitators (Hall et al., 1991). Change facilitators are key to the change process as they are the informal or formal individuals involved with the change process and addressing their concerns will have longer lasting positive effects on others in the organisation undergoing change (Hall & Hord, 2011). For this reason, the team developed the Change Facilitator Stages of Concern (CFSoC) questionnaire to capture the specific concerns of those directly involved with the change related to implementing innovations. More specifically, the CFSoC, "measures the concerns of individuals, at a particular time, about specific innovations, and their role in implementation" (Hall et al., 1991:50). More recently, the questionnaire was put into an online delivery format, which made dissemination easier, as well as offering a web-based platform to both manage the responses in different formats and based on categorical questions.

The CFSoC questionnaire was selected deliberately for this study for its alignment with the second sub-research question, which asks, '*What are the change facilitators' concerns with implementing technology-enhanced learning in their role and where are these concerns situated?*' Concerns were investigated using 35 pre-determined questions based on a seven-point Likert scale. These questions were set by the developers of the CFSoC, whereby individual researchers could replace the term *innovation* with an innovation of their choice. The researcher for this study used the term *technology-enhanced learning* in place of the word *innovation* throughout the 35 pre-defined questions. These questions, grouped by the concern they relate to, are listed in Appendix F. As previously described, the questionnaire offered open text questions, which could be tailored to a specific context by the researcher. This supplemented the quantitative data and provided an opportunity for checking meaning and later triangulating data between the quantitative and qualitative responses. Further, supplemental questions using both continuous scales (strongly agree to strongly disagree) and categorical scales (years in higher education or using technology, for example) enabled categories of responses to be analysed independent of other groups (Creswell, 2014). Finally, this online questionnaire was originally intended for secondary education settings. Applying this in a higher education institution provided an opportunity to evaluate the tool as well as the results.

Although this study was originally designed as a qualitative study, the availability of an existing online questionnaire was considered as a valuable opportunity to gather data from the individuals identified as facilitators of technology-enhanced learning change. The available tool also offered flexibility in including several forms of data collection: 35 pre-determined questions based on a seven-point Likert scale, open text questions and questions based on categorical scales, which enabled response grouping during analysis. Whereas the 35 pre-determined questions provided quantitative data in the form of descriptive statistics, the open text responses and categorical questions provided qualitative data.

The rationale for using a standardised data collection instrument was also that its validity and reliability had already been established. Descriptive statistics provided insight into the concerns of those identified as change facilitators. The incorporation of open text responses in the CFSoC questionnaire supported the researcher's constructivist position and alignment with qualitative research methods. In addition, the open text responses served as an initial scoping exercise to inform the next stage of empirical enquiry

### 5.4.2 Interviews

One of the most common methods in qualitative research is through data gathered by interviewing research participants. Although typical in qualitative research, the structure of the interview could lend itself to either qualitative or quantitative research. Kvale (2009), for example, contrasted two conceptual frameworks for interviewing and noted how each perspective may impact the type of data gathered. A structured, rule-governed method of interviewing is likely to differ greatly from a view of interviewing as a craft, more likely to reflect semi-structured or unstructured interviewing techniques. Those who view research interviewing as a craft then become craftsmen, whereby individual skills and judgements contribute to the interview process and subsequent knowledge generation (Kvale, 2009).

The significance placed on the voice of individual research participants was supported by the adoption of semi-structured interviews following dissemination of the CFSoC questionnaire. Offering only categorical questions or Likert-scale responses would reduce the opportunity to learn about individual contributions and differences. The researcher identified her role as an active and integral participant in the research process itself, interacting in a professional manner with research participants and interpreting, learning and adapting to emergent information from the interaction and resulting engagement. Data gathered via interview provides one perspective of the participants' perceptions, which can then be compared or

combined with background information and other data sources relevant and useful in informing a more complete picture of the research participants. The connections and emerging patterns highlight what is relevant within the scope of this research and surfacing themes can be identified and tracked. The value of interviews is not only situated in the interviewee alone, but rather also in the interviewer, who brings his or her own perspective into the interview space. Kvale contends that the two individuals involved in an interview are "co-constructors of knowledge" (Kvale, 2009:18).

Interviewing does not only represent qualitative research design, it is also a frequent method of data gathering in case study research. Again, Kvale (2009:120) pointed out the dependence of case study research quality on "the quality of the interviewing by which the data have been obtained." Interviewing enables researchers to gather the interviewee's perception of reality, lending credibility to the use of interviews from a social constructivist standpoint:

> *"The production of knowledge resulting from a social setting of the interviewer and interviewee aligns with the philosophical stances of phenomenology, hermeneutics, pragmatism, and post-modern thought" (Kvale, 2009:14)*

The researcher for this study chose semi-structured interviews as aligning with her constructivist and pragmatic philosophical framework. Conducting an interview with individuals purposively selected for this study created an opportunity for engagement and uncovering new meaning and understanding of change facilitators' concerns and relation to institutional technology-enhanced learning strategy. For example, although questions were prepared in advance, each interview was unique and no two interviews followed the same pattern of questions. Questions the researcher considered core to the interview were asked of all interviewees, although many subsequent questions were included to follow up each interviewee's responses and interests. This is evident in NVivo, a software tool that assists researchers in qualitative data analysis (Bazeley, 2013b). The researcher enters data, such as

research questions and responses, that the research may code and categorise to facilitate identification of patterns and themes (Bazeley, 2013a; 2013b).

### 5.4.3 Content analysis

As described in Chapter 4, Section 4.4, where the case study was introduced, key documents were analysed to identify strategy and technology-enhanced learning intention within the university. Content analysis helps "identify and document the attitudes, views, and interests" through the analysis of documents, communications and publications within the research context (Drisko & Maschi, 2015:2). Whereas basic content analysis tends to represent a quantitative approach to analysis, interpretive content analysis enables researchers to make inferences through the identification of characteristics within the content. Latent content differs from manifest content in that the former refers to what is implicit in the content under evaluation and the latter corresponds to what is more literal or obvious in the content (Drisko & Maschi, 2015).

Key documents used in this content analysis included publicly available documents: strategic plans, annual reports, information technology plans and documents related to technology-enhanced learning within the university. Word frequency was analysed and key words identified. How technology-enhanced learning strategy and change initiatives were conveyed and publicly transmitted was of primary interest. The interviews and questionnaire would then identify whether there was a connection between the documents and change facilitators at the case study institution.

### 5.4.4 Purposive sampling strategy

Selection of participants was critical to gathering relevant data for the case study. The researcher selected a purposive sampling strategy (Teddlie & Yu, 2007) to include individuals functioning in informal or formal technology change facilitator roles within the case study institution (Guba and Lincoln, 1982; see also Ertmer et al.,

2012). One definition of this strategy is handpicking participants to engage in the research based on the researcher's "estimate of their typicality" (Opie & Sikes, 2004:104), another identifies individuals "based on specific purposes associated with answering a research study's questions" (Teddlie & Yu, 2007:77).

The population of interest for this study was individuals actively participating in technology-related change, whether facilitating the change was formally or informally their role. Participants for the Change Facilitator Stages of Concern (CFSoC) online questionnaire were purposively identified. Individuals from the University were primarily selected based on publicly available information about their innovative or regular use of technology in teaching and learning as well as on recommendations. This information was gathered from some of the following locations: newsletters, blogs, internal learning & teaching conferences, postgraduate research training manual, technology-enhanced learning support teams, annual reports, faculty updates, public recognition and recommendations. Eight to ten individuals were selected in each of the five academic faculties at the case study institution, as well as in leadership areas and central support services, such as technology-enhanced learning and library services. Individuals were asked to complete the questionnaire if they self-identified as being a user of technology-enhanced learning and indirectly or directly as a change facilitator.

The checklist of selection criteria included the following technology-enhanced learning dissemination activities and roles supporting change either formally or informally. The designation of 'formal or informal' roles below refers to the type of role in facilitating change.

Table 7: Purposive sampling criteria (Teddlie & Yu, 2007)

| Purposive sampling criteria |
|---|

- Presentation of technology-enhanced learning application or innovation at University sponsored learning and teaching conference (formal or informal role).
- Recommendation by peer or colleague for innovative use of technology in teaching practice (formal or informal role).
- Evidence of providing peer support (formal or informal role).
- Departmental technology-enhanced learning support point-of-contact (formal role).
- Central technology-enhanced learning support point-of-contact (formal role).
- Leading or managing technology change initiatives (formal role).
- Departmental academic taking the role of technology-enhanced learning support point-of-contact (informal role).

## 5.5 Ethical Considerations

This section briefly describes the need for ethical considerations in conducting research and local, national and global considerations. In the absence of guidelines or codes of conduct, research could be steered to reflect desired outcomes. For example, when research is sponsored by an organisation with the objective of substantiating claims of effectiveness of a product or intervention, the researcher may perceive pressure to confirm these claims. Decisions of inclusion or exclusion of data to influence the outcome influences the findings and conclusions. In Great Britain, guidelines for research in education are addressed through the British Educational Research Association (BERA) (BERA, 2011), which provides ethical guidelines and an outline of responsibilities when conducting research. The guidelines are underpinned by the core principle of respect for the following: the person, knowledge, democratic values, quality of educational research and academic

freedom (BERA, 2011). In conducting educational research, the researcher implicitly agrees to abide by these guidelines and adhere to the principle of respect.

Although BERA guidelines are established in Great Britain for educational research, a need for international standards of research integrity applicable to qualitative and quantitative research was identified. The Singapore Statement on Research Integrity was a response to this need (World Conference on Research Integrity, 2010). The principles of honesty, accountability, professional courtesy and fairness, and good stewardship form the foundation of the Singapore Statement. While the Singapore Statement acknowledges cultural impacts on research, the intention was to identify responsibilities applicable to researchers around the globe. The researcher of this study recognises the need to be cognisant of both national and international guidelines on research integrity and to adhere to the stipulations set forth in designing the research. Further, the cultural context in which this research was based, along with the differing cultural heritage was also a significant point to address in designing and writing this research.

On a local level, the researcher followed the requirements of her academic department by submitting an ethics application. The ethics application for the institution primarily focused on research impact on participants. Ethical considerations included, in summary, avoiding any harm to research participants, respecting confidentiality, and consideration in presenting findings, which would not negatively affect any participant. Ethical concerns were significantly reduced by the research design; participants were purposively selected, yet voluntarily agreed to participate in the online questionnaire. By participating in the online questionnaire, participants consented to the researcher collecting their responses. All participants provided written consent prior to the interviews. Interviews took place in the participant's natural environment, which reflected qualitative research design. There were no experimental or control groups, or controlled environments, and participants' perspectives were respected for their contribution to the research.

Regarding the presentation of findings mentioned above, to ensure the researcher's interpretation of the interviews accurately reflected the participants' perspectives, the researcher sent each participant their own narrative, or vignette, for approval. Vignettes are described in Section 6.5, *Data Presentation* and presented in Chapter 9, *Findings III*. Providing a summary of the interview to the interviewee in narrative form enabled the participants to respond to the researcher's interpretation of the interview. Having received approval of the vignettes from all interviewees, as well as consent to publish their story in this research study provided a third form of consent aligned with ethical academic practice. The ethics application approved by the Ethics Committee can be found in Appendix A.

## 5.6 Assumptions

There are four underlying assumptions behind this research. The first assumption was that this research will provide sufficient information on the research context to enable readers of this research to judge appropriately the applicability and transferability of this research to a different context. The second assumption was that the university defined a strategic plan with the intent to implement technology-enhanced learning practices by providing sufficient resources and support. The third assumption was that academic or support members of staff, in either formal or informal change facilitator roles, engaged with technology-enhanced learning with the intent to support student learning within the university. Finally, the researcher assumed that participants responded truthfully in the CFSoC questionnaire and when expressing their concerns and role in facilitating change during the pilot and main study interviews. These assumptions informed the researcher's perspective when conducting this research and further detail on each assumption is provided below.

The Case Study Institution was presented in Chapter 4 to emphasize potentially applicable and transferable features of a university undergoing strategic change related to technology-enhanced learning. It was assumed that the change process and

perspective of the change facilitators of technology-enhanced learning might also reflect the challenges and opportunities other traditional higher education institutions experience during similar strategic initiatives. The inference and intention was that the findings of this case study may be transferable to other, similar institutions (Onwuegbuzie & Johnson, 2006:55). Limitations of this case study research, such as being based on a single university and drawing from a small sample size, were addressed by increasing data collection instruments and seeking transferability of research outcomes rather than generalisation. Characteristics and themes emerging from facilitators of technology-enhanced learning related change in this study may reflect the challenges and opportunities experienced by other individuals in similar roles at similar institutions. The results are expected to provide insights and further understanding of the topic of change towards increased use of technology-enhanced learning. These insights could be explored within other universities.

It was also assumed that the Case Study University documented strategy decisions with the best intention and that the introduction of technology-enhanced learning throughout was approached with knowledge and understanding. It was assumed that technology-enhanced learning resources were implemented University-wide with the objective of offering effective learning opportunities to students in the context of a changing 21st century educational landscape. The researcher considered appropriate use of technology a desirable and advantageous contribution to learning and teaching. Ample research evidence has documented the widespread presence and use of technology for educational purposes (Bacsich, 2012a; Laurillard, 2012; Walker et al., 2014) notwithstanding management considerations related to technological change as well as strategy implications for the institution's teaching and learning practices (Bates & Sangrà, 2011; Hall, 2011; Hardaker & Singh, 2011). Technology-enhanced learning was assumed to be a pedagogically relevant and potentially effective component of teaching and learning.

Paired with the university's strategic plan, the assumption was also that individual academics and support members of staff functioning as informal or formal change facilitators of technology-enhanced learning influenced change efforts for the best interest of the students at the University. The researcher categorised two types of individuals; individuals whose role was to formally support change efforts towards increased use of technology for teaching and learning purposes, as well as individuals who informally impacted change in positive ways without necessarily intending such outcomes. In either role, the student would be the primary beneficiary of implementing technology into teaching practice.

Finally, the researcher assumed that research participants provided truthful responses via the online questionnaire and face-to-face interviews, which accurately reflected their relationship with technology-enhanced learning change and strategy within the institution. She also acknowledged elements of co-creation as part of an iterative cycle of data collection and progressive focusing, whereby participant responses informed the researcher, enabling opportunity to respond with agility and flexibility. The participants may also have adjusted their perspectives as part of the data collection process and this was noted where relevant; however, this was not formally part of the study and was not measured.

## 5.7 Trustworthiness

Mixed methods offered several possible options for supporting the trustworthiness and credibility of the research findings. Confirming the trustworthiness and credibility is strongly stipulated in the Singapore Statement on Research Integrity (World Conference on Research Integrity, 2010; Resnik & Shamoo, 2011). The researcher could have opted to demonstrate *validity* and *reliability* to convey that the data collection methods, data analysis and findings were robust, yet these terms are strongly associated with quantitative research (Creswell & Miller, 2000; Creswell, 2014). In contrast, trustworthiness and credibility are more commonly used in qualitative research. Bridging the two research paradigms with commonly accepted

language remains controversial (Onwuegbuzie & Johnson, 2006). This research adopted the terms *trustworthiness* and *credibility* to reflect the researcher's pragmatic approach to research, combined with her philosophical stance of constructivism, both primarily reflective of qualitative research (Outhwaite & Turner, 2007). Research design, engagement with participants, construction of meaning through data analysis and the role of the researcher during the research process are all impacted by the values the researcher holds. Naturalistic inquiry, in contrast to rationalistic inquiry, "is always value-bound" (Guba & Lincoln, 1982:238).

Multiple data sources supported triangulation of both data and methods, further supporting the trustworthiness and credibility of the findings (Opie & Sikes, 2004). The online questionnaire incorporated quantitative and qualitative forms of data collection instruments, including categorical and open text questions as well as 35 questions based on a seven-point Likert scale. In depth, semi-structured interviews increased the scale of available data and enabled cross-checking of participant responses from the questionnaire, supporting data triangulation (Creswell, 2014). As discussed previously, the researcher's intention in using multiple data sources was both a pragmatic choice as well as a way to mitigate the limitations of drawing on only one data source, while simultaneously increasing the trustworthiness and credibility of the findings (Yin, 2009; Creswell, 2014).

Trustworthiness in the interview findings was ensured by providing interviewees with the researcher's interpretation of the interview; Graham et al. (2013) suggested those who provided the data ought to approve the data. The researcher facilitated "member checking" (Creswell, 2014:201) by providing interviewees with a narrative of the research interview in the form of a vignette, or portrait of themselves (Waterhouse, 2007). The vignette described the interviewee as the researcher perceived them in relation to the case study institution and the research questions. This process enabled the interviewees to confirm the accuracy of their account as

conveyed by the researcher, thereby increasing trustworthiness and credibility regarding the researcher's account of the data (Creswell, 2014).

Finally, the researcher acknowledges her own professional experience and cultural background as potential sources of bias influencing trustworthiness and credibility in this case study. There are three factors, which ought to address this possible concern. First, the researcher is an experienced teacher in secondary and post-secondary environments giving her an empathetic understanding of the challenges and concern teaching staff face when undergoing change, specifically related to the use of technology-enhanced learning. Second, the researcher also had experience in a leadership role within a fully online, accredited, higher education institution, giving her the perspective of the change facilitator and leader roles. Although the specific change in this latter environment did not include transitioning from a face-to-face teaching model to an online model, the environment was under constant organisational and curricular change. Again, this provided the researcher with empathy toward the participants, as well as provided the participants with a researcher familiar with their professional situation. Third, the researcher's teaching and leadership experiences were gained in several different geographic contexts: her native United States, as well as England and Austria. This posed the risk of bias or distortion because of filtering information through either a distinct cultural lens or multiple lenses when researching a university in England. However, this third consideration was mitigated by designing a pilot study, which enabled the researcher to confirm selection of terminology, and meaning prior to conducing the main study.

## 5.8 Chapter Summary

The purpose of this chapter was to present the overarching methodological framework for this research study. To present decisions on methodology, methods and design, philosophical considerations were presented first, where the researcher's ontological and epistemological positions were described. The researcher's

constructivist standpoint and belief that experiences inform as well as assist in forming our sense of reality and our understanding of knowledge provided the foundation for this research. The decision to conduct a case study reflected her pragmatic acknowledgement of an accessible institution as well as the constructivist and interpretive perspective to investigate complexities within a single university.

Methodological considerations were presented and the identification of case study research was outlined, with a justification of the advantages of the case study approach for this research. The mixture of methods selected for this research extended the choice of case study research and demonstrated alignment with the researcher's philosophical stance. The selection of qualitative and quantitative methods using an online questionnaire, semi-structured interviews as well as a content analysis key strategy and change documents from the case study institution was identified as contributing to robust research design. Combining an online questionnaire offering 35 questions based on a seven-point Likert scale as well as open text and categorical scales was complementary to follow-up semi-structured interviews reviewed in the context of key documents from the case study institution. This section concluded with an outline of the purposive sampling strategy used in identifying research participants.

This chapter closed with ethical considerations, the research assumptions as well as matters of trustworthiness and credibility. Ethics committee approval was granted for this research prior to embarking on data collection and ethical consideration in presenting the data whilst protecting research participants was ensured. The research assumptions adopted during this research were then outlined, which included the assumption that this study and its recommendations could potentially transfer to other institutions, the assumption that technology-enhanced learning has potential benefits, that the case study institution designed strategy and created change initiatives with the best intention of contributing to a positive student and staff experience and, finally, the assumption that research participants responded

truthfully in the questionnaire and interviews. Trustworthiness and credibility were presented against the foundation of the researcher's pragmatic approach to research combined with her philosophical stance that reality is constructed based on one's worldview and life experiences.

Chapter 6 builds upon the methodological structure presented in Chapter 5 by detailing the research design, data collection instruments used, data collection sequence applied, how data were analysed, presented and managed and the limitations of the methods and instruments selected.

# Chapter 6: Research Design and Data Collection

## 6.1 Introduction

This research design and data collection chapter expands on the previous chapter of methodology and methods. Referencing the overall case study design and mixed methods selected, the details of two distinct data collection steps along with qualitative and quantitative instruments are expanded upon. In addition to debate amongst scholars regarding methodological selection in using mixed methods, literature suggests further discussion on the sequence in which methods are applied. Creswell (2014) presented design options related to the sequence in which qualitative or quantitative methods may be conducted. Having selected a mixture of research methods and data collection instruments, a sequential mixed methods approach was designed to conduct the research (Teddlie & Tashakkori, 2009; Yin, 2009; Creswell, 2014). The sequential mixed methods approach refers to a research design in which qualitative data collection are collected prior to quantitative data collection, or vice versa. In a sequential approach, data are not collected simultaneously, but rather the outcomes from the first instrument are used to inform the second step.

Data collection is presented as *Data Collection I – Pilot* (Section 6.2) as well as *Data Collection II – Main Data Collection* (Section 6.3). These sections highlight both the pilot study and the main study and primarily how the sequence of data collection was changed for the main study, based on the outcomes of the pilot study. The pilot study included qualitative data collection in the form of interviews followed by a mixture of quantitative and qualitative data collection within an online questionnaire. The main data collection used the same instruments but with the sequence altered. The iterative process of investigating research design options further was consistent with the pragmatic approach the researcher identified as resonating with her research intentions and simultaneously reflected in her approach to research design. Although the initial study was conceptualised as larger, the

concluding number of respondents drawn from the purposive sample was much smaller in the main study. Informed by the analysis of the pilot study, the researcher could progressively focus the research approach. By combining methods, the researcher was able to gain additional data and multiple perspectives from research participants which addressed methodological pragmatism and the constructivist framework, as well as to collect a more robust data sample from a smaller, purposive sample to support data triangulation (Opie & Sikes, 2004).

An overview of this chapter follows.

*Data Collection I – Pilot, (*Section 6.2), presents the pilot study, which entailed qualitative interviews followed by the online questionnaire, which included both qualitative and quantitative data. Pilot data collection was conducted to serve four purposes: confirm the selection of the case study institution, help purposively identify research participants, provide an opportunity to gain feedback on the online questionnaire, and assess the semi-structured interview questions. The iterative process of conducting the pilot prior to the main study is discussed, as well as a reflection on how the outcomes of the pilot informed a redesign of the main data collection sequence.

*Data Collection II – Main Data Collection* (Section 6.3) presents the shift in data collection sequence selected for the main study. Details of dissemination of the online questionnaire precede the presentation of the semi-structured interviews.

The next three short sections explain the post-data collection processes: *Data Analysis* (Section 6.4), *Data Presentation* (Section 6.5), and *Data Management* (Section 6.6). The quantitative data analysis approach for the questionnaire and qualitative data analysis for the open text questions in the questionnaire as well as the follow-up interviews are all explained separately, followed by discussion of how the data are presented in the three findings chapters, Chapters 7, 8, and 9. This portion of the

chapter concludes with a brief statement on how data were managed and protected during the research process.

Finally, the *Limitations of Methods and Instruments* are presented in Section 6.7, followed by the Chapter Summary in Section 6.8.

## 6.2 Data Collection I – Pilot

At the onset of this study, the researcher identified herself as an individual with more management experience than academic research experience. Hence, the decision to pilot the data collection procedures was based on the pragmatic belief that conducting a pilot would provide both practice in using the data collection tools and evidence for or against the choice of data collection methods. The assumption was that applying the tools would provide experience as well as contributing towards more dependable and credible data for the main data collection. Without extensive experience in conducting research studies, the researcher felt the pilot enabled her to check both the practical steps in the data collection process as well as the question formulation and language selection. Pilots are recommended in the literature as a way of gaining clarity and confidence (Plowright, 2011). In addition to confirming the process of data collection, the pilot phase enabled the researcher to identify language used within the case study institution and evaluate the seven-point Likert scales as well as the categorical scales in the questionnaire. This expanded the language the researcher could draw upon in the main study and ensured the terms surrounding technology-enhanced learning, institutional strategy and the individual change facilitators within the case study institution were aligned.

The data collection sequence for the pilot is depicted in Table 8:

Table 8: Data collection sequence – Pilot Study

| Data Collection Sequence – Pilot Study | |
|---|---|
| **1st** | Pilot - Interviews<br>(Qualitative) |
| **2nd** | Pilot - Questionnaire*<br>(Quantitative & Qualitative) |

* Follow up interviews check for understanding of the questionnaire.

This section presents the pilot phase as it occurred chronologically during the 2013/14 academic year. The first step of data collection for the pilot involved the interviews, which are described below, along with details of how the participants were purposively selected. Following the presentation of the interviews, an account is given of the piloting of the online questionnaire. In the discussion that follows, the researcher reflects on the outcomes of these two pilot steps and describes how these outcomes informed the research design and data collection sequence for the main study. The pilot phase is then summarised.

### 6.2.1 Pilot interviews

The purpose of the pilot interviews with selected leaders was to gain an understanding of the leadership perspective of technology-enhanced learning within the Case Study University two years into the strategic plan in place at the time. The researcher sought insight into technology initiatives in relation to the university strategy, to learn the language used to describe the change initiatives and strategic plans and to leaders recommended as potential participants for the subsequent main study. Once individuals were selected based on active roles within the case study institution related to technology-enhanced learning, five individuals were invited to participate in a semi-structured information interview. Of the five invitations sent, four people agreed to participate and interviews were conducted in December 2013 and January 2014. Interview questions for the pilot are available in Appendix B.

The pilot interviews marked the beginning of an iterative data collection process, a reflexive process whereby there was "continuous meaning-making and progressive

focusing" (Srivastava & Hopwood, 2009:76). The pilot interviews also served as an opportunity to practise the craft of interviewing (Gillham, 2001; Kvale, 2009). Hence, during the pilot data collection, the researcher was continually evaluating the methods and reflecting on the usefulness and applicability of the research questions and language used to best position the main study. Finally, in addition to informing data collection for the main study, the outcomes of the pilot study helped inform the literature review as part of an iterative process of narrowing down the breadth of topic originally set out.

On a strategic level, the researcher wanted to explore whether connections were evident between technology-enhanced learning strategy and the leaders' perspective on the current state of the institution. The current state of the institution at the time of the study would be explored through technology change facilitators during the main data collection, so the pilot was setting the scene and establishing the language and approach used to describe the strategic plan and technology-enhanced learning initiatives. Words and language became windows into this perspective. Responses helped the researcher to evaluate technology in relation to the descriptions provided.

Operationally, the initial interviews served to explore question design and ensure questions were prepared in a manner that provided participants with clear meaning and as little ambiguity as possible. Although planning a pilot for data collection is solid research design, this phase was also included as a way to check the language the researcher used and validate the meaning of the words chosen (Bryman, 2012). Although the researcher is an English native speaker, coming from the United States posed some risk of confusion because of words having different meanings across the UK and US cultural contexts. For example, the researcher felt the word *course* appeared straightforward. However, in the United States the word *course* means one class or module and in the United Kingdom it means a *programme,* as in the entire degree or certificate programme.

Upon conclusion of the recorded interviews, the recordings were transcribed, and analysed for language and meaning. Reflection on the interviews informed the construction of the pilot questionnaire, which is described in the next section.

### 6.2.2 Pilot questionnaire

Following the pilot interviews, the researcher sought to evaluate the relevance of the Change Facilitator Stages of Concern (CFSoC) questionnaire. The analysis of the pilot interviews was useful in designing the open text and categorical questions in the pilot CFSoC. The objectives of piloting the questionnaire were three-fold. First, from a technical perspective, the researcher wanted to confirm the process of administering the questionnaire, including sending and receiving the email invitation to participate, participant activation of the hyperlink to the online questionnaire, completion of the online questionnaire in the intended manner and response collection in the online repository. Secondly, the questionnaire originated from the United States, which meant some words had different meaning than the British meaning. Several words the researcher used were judged problematic in the pilot interviews and were therefore highlighted in the introductory text of the questionnaire for clarity (see Appendix E). The researcher checked understanding and meaning with the research participants by conducting brief follow up interviews to confirm understanding, creating a form of collaboration between the researcher and the participants (Creswell & Miller, 2000).

The researcher had access to a secondary educational institution with teaching staff who were tasked with innovating with technology in their teaching practices. This institution was also undergoing change towards increased use of technology-enhanced learning. For the pilot, change facilitators were not purposively selected to participate in the pilot, but rather all 102 members of the teaching staff at the secondary school were invited to complete the pilot questionnaire. The introductory text invited those who identified themselves as facilitators of technology-enhanced

learning related change to participate. Responses were received from 28 individuals and five follow up meetings were held to confirm understanding and meaning.

### 6.2.3 Reflections on pilot

Overall, conducting the pilot proved a reliable way to evaluate the use of language and ensure clarity of the data collection instructions and questions. The pilot helped identify the messages from leaders that would later be useful in contrasting against the academic and support staff responses within the institution, as well as against key documents. Interviewees also suggested individuals within the Case Study University whom they perceived to be facilitating technology-enhanced learning related change. Their recommendations informed the purposive sampling of participants, although the researcher's own checklist of criteria, as presented previously, was the key instrument used to select participants.

Discussions with leaders and change facilitators in the interviews provided rich feedback on the language used as well as the perceived concerns surrounding technology-enhanced learning and change at the Case Study University. Initial reflection on the interview questions on an operational level was that they could be more clearly articulated. One example stemmed from the request for interviewees to define technology-enhanced learning. Leaving the response completely open to interpretation left several participants who appeared uncomfortable at being asked to craft a definition without warning. The researcher did not want to provide suggested responses to the definition of technology-enhanced learning that might unfairly direct the participant in a manner that they may not have otherwise taken. For this reason, this question remained open in follow up interviews and later in the questionnaire, although it was not placed as one of the initial questions.

Piloting the Change Facilitator Stages of Concern (CFSoC) questionnaire was a useful exercise, as it exposed challenges with language use in the open text questions, of which the researcher had full control, as well as some of the 35 pre-determined

questions on the CFSoC questionnaire, in which the researcher only had control over the name of the innovation. The name of the innovation used was *technology-enhanced learning*. The opportunity to evaluate and gain feedback on the questionnaire was very important to the development of the instrument for the main study.

## 6.3 Data Collection II – Main Data Collection

Reflection on the pilot data collection directly informed the decision to alternate the sequence of the data collection for the main study. In contrast to the pilot, the researcher opted to begin the main study with the questionnaire, which provided substantive information on levels of concern as well as categorical and open text questions. The subsequent interview could reference the answers from the questionnaire enabling more detailed expansion of responses and the opportunity to request additional clarification, if needed.

The main study would begin by extending the list of individuals who would be considered and invited to participate in the study as part of a purposive sampling strategy. Once identified, the selected group of individuals were invited to complete the online questionnaire. The language of the invitation clarified the intention for the study and the objective of gaining responses from those who self-identified as facilitators of technology related change. Once the online questionnaire was closed, the overall number of participants could be identified (see Appendix J) and data were analysed and in-depth, semi-structured, follow-up interviews were conducted. The following sections describe these steps in more detail, as shown in Table 9.

Table 9: Data collection sequence - Main Study

| **Data Collection Sequence – Main Study** | |
|---|---|
| **1st** | Questionnaire<br>(Quantitative & Qualitative) |
| **2nd** | Interviews<br>(Qualitative) |

### 6.3.1 Questionnaire

The Change Facilitator Stages of Concern (CFSoC) online questionnaire was detailed in Section 5.4.1. The online questionnaire allowed for three distinct forms of enquiry: 35 pre-defined questions, categorical questions, and open text questions. The 35 pre-defined questions were measured using a seven-point Likert scale and they related directly to levels of concern. They were included under copyright of the CFSoC. The 35 pre-defined questions can be found in Appendix F, followed by the categorical questions in Appendix G, and the open text questions in Appendix H.

Using the purposive sampling strategy described in the previous chapter, the researcher chose individuals from across the Case Study University who indicated formal or informal involvement with technology-enhanced learning. Five to ten individuals were identified from each of five academic faculties as well as from each support area to form a stratified cluster sample (Teddlie & Yu, 2007). Everyone under consideration fulfilled two or more criteria on the checklist. The resulting total of 65 individuals formed the purposive sampling sample for the main study (see *Data Collection II*). Invitations were sent via email to these 65 individuals in March 2015 requesting participation in the online Change Facilitator Stages of Concern (CFSoC) questionnaire. The email invitation to participate in this research included an introduction to the questionnaire, the research purpose and a statement explicitly stating that completion of the online questionnaire served as consent to participate and a hyperlink to the online questionnaire (see Appendix D). Discretion was requested in that individuals were asked to continue to the online questionnaire if they felt they were users of technology in teaching and learning and/or facilitators of technology-enhanced learning related change. Follow up emails to encourage more participants were sent late in March and another reminder in April 2015 encouraging completion of the questionnaire using the hyperlink provided. The questionnaire remained open for a total of five weeks. At the end of the allocated time, 25 of the 65

individuals had responded to the online questionnaire, for a 38.5% response rate. Among the 25 individual respondents were representatives from each of the main discipline areas of the university. See Appendix J for an overview of participants.

Table 10: Questionnaire sample size and response rate

| Sample Size | Respondents | Response rate |
|---|---|---|
| 65 | 25 | 38.5% |

### 6.3.2 Interview

Prior to conducting the research interviews, data collected from the online questionnaire were reviewed and analysed and potential interviewees identified. Based on several factors, such as strongly identifying as a facilitator of technology-related change, as well as the emergence of different levels of concern on the CFSoC questionnaire, seven of the 25 respondents were selected and invited for in-depth, semi-structured interviews. Of these seven, six agreed to participate in the interview. All participants provided written consent to participate and to have the interview recorded, which follows ethical guidelines of responsibilities to participants as outlined by the British Educational Research Association (BERA) (BERA, 2011). All interview recordings were transcribed.

Interviews were conducted in either the interviewee's office or in a bookable meeting room at the library. The duration of each interview differed, with two audio recordings measuring 45 minutes, two at 60 minutes, one at 90 minutes and one at 110 minutes. The researcher acknowledged the interviewee's previous participation in the online questionnaire and provided the interviewee with a copy of their questionnaire report, which included a graph of their levels of concern. This report was used to gain deeper understanding of interview responses which differed from

the questionnaire or to help deepen the researcher's understanding of the response provided.

By design, the researcher felt the interviews combined with the questionnaire data were substantial, sufficient and rich. The following reflection on the perception of the required number of interviewees in qualitative research is relevant to the researcher's standpoint: "… many would have profited from having had fewer interviews in the study… Perhaps as a defensive overreaction, some qualitative interview studies appear to be designed on a misunderstood quantitative presupposition – the more interviews, the more scientific" (Kvale, 2009:113). The researcher agreed with the perspective that a larger sample of interviewees was not always more meaningful. She felt the purposive sampling strategy, the number of responses and selection of interviewees from the response sample was sufficient to gain a meaningful perspective to address and answer the research questions set out for this study.

## 6.4 Data Analysis

This section describes the steps taken to analyse the data collected for this study. The methods of data analysis presented in this section refer to both the pilot and main data collection stages. However, the pilot stage was less exhaustive than the main study, as the purpose of the pilot phase was to identify the use and understanding of terminology and language as well as to evaluate the types of data which could be collected. The researcher informed herself of possible methods for analysing data as well as tools available to conduct the analysis. Exploration of available tools enabled multiple approaches to be reviewed and different perspectives on the data to be perceived. Quantitative data stemming from the 35 pre-defined questions based on a seven-point Likert scale as well as researcher-designed questions using continuous and categorical scales were analysed extensively using Microsoft Excel as well as the online platform provided by the provider of the CFSoC. For the qualitative data, including the open text questions in the CFSoC questionnaire as well as the interview

transcripts, both Microsoft Word and NVivo were used. The qualitative and quantitative data analysis procedures are presented in more detail below.

### 6.4.1 Quantitative data analysis

The provider of the Change Facilitator Stages of Concern online questionnaire, Southwest Educational Development Laboratory (SEDL), was a non-profit educational and research institution based in the United States and affiliated with the American Institutes for Research. Their platform provided a swift and easy way to view questionnaire responses on an individual response level as well as by categories created ahead of administering the questionnaire. With participant responses arriving over the space of several weeks, the researcher was alerted via email when a response was submitted and she could easily log in and monitor progress. The online tool provided instantaneous graphs charting the individual levels of concern based on the 35 pre-determined questions as well as categorisation of responses by the continuous or categorical scales set in the researcher-designed questions.

Although the online tool was useful in the initial analysis of the data, it also proved to be a distraction. The researcher found exporting the data from the online questionnaire into a spreadsheet enabled further manipulation and evaluation of the responses. Graphs which the researcher found more useful than those in the online platform were also possible using a spreadsheet. The researcher could quickly apply data filters and colour code responses. Using the spreadsheet proved to be the most robust way to analyse the data collected from the online questionnaire. Concerns could be mapped against other categories, such as length of time using technology-enhanced learning or whether the respondent felt they were facilitating change in their role. This was vital in both presentation and discussion of the findings.

### 6.4.2 Qualitative data analysis

Just as philosophical positionality influences decisions on research design and methods, the same applies to decisions on the multiple, if not “infinite”, ways to

analyse data (Guest et al., 2012). Just as there are multiple differences in philosophical stances, there are similar variations impacting data analysis. One example from fifty years ago was the constant comparative method of qualitative analysis. Glaser stated, "The constant comparative method is designed to aid analysts … in generating a theory which is integrated, consistent, plausible, close to the data, and in a form which is clear enough to be readily, if only partially, operationalized for testing in quantitative research" (Glaser, 1965:437). Although Glaser noted the constant flux generated through analysis and the impact on design or redesign of qualitative enquiry (Glaser, 1965:437), his premise that qualitative data could not stand alone is evident. Thus, his approach to qualitative data analysis supported the idea of creating a consumable outcome for the quantitative examiner. In fact, the entire foundation he presents is theory building, which is not the intention in this study.

While aspects of constantly comparing the data and defining or redefining themes appeared relevant, applied thematic analysis seemed to the researcher to be more appropriate (Guest et al., 2012). The intention with applied thematic analysis was to provide processes and "usable tools to carry out rigorous qualitative data analysis" (Guest et al., 2012:4). Further to the researcher's constructivist stance and phenomenological study, the process of data analysis was directly aligned with an exploratory approach to data analysis. The exploratory process was a process of identifying emerging themes and beginning the steps to engage with the themes as a way of understanding the data. Themes can only emerge when the researcher identifies them as themes, hence the process is subjective and co-created by the language the participants used and the way the researcher perceived the themes. The freedom offered to research participants by open text responses and semi-structured interviews aligns with a phenomenological approach to research, whereby the participant is at the centre of the research.

Qualitative data in this study consisted of responses to open text questions in the CFSoC as well as from the transcripts of semi-structured interviews. The researcher began analysing the data during the interviews themselves, as thoughts would enter and connections would be made as the respondents spoke. One could ideally finish analysing "by the time the sound recorder is turned off" (Kvale, 2009:190). The researcher found definitive thoughts were formed during the interview itself and she frequently made brief comments during the interviews to remind her of emergent thoughts. Since the interviews were recorded, the researcher could focus completely on the interviewee and these emergent thoughts.

Text from both interview and questionnaire sources was initially imported or transcribed into word-processed documents soon after being received or recorded. Responses from the questionnaire were imported as written by the respondent. In the case of the interview recordings, the researcher transcribed the audio files verbatim. This process provided another point in time for analysis to occur in a natural manner. If thoughts emerged while transcribing, the researcher would add a comment in the document, marking the source of the thought as well as the thought itself. This process occurred throughout the transcription process, leading to a completed transcription which included reflections to add to those already noted during the interview. Comments were likewise added to the open text responses collected from the questionnaire as part of an initial analysis.

The files served as a physical place to store the data, document initial thoughts in anticipation of analysis as well as build the foundation on which to conduct the full analysis. Colour coding for key words, relevant phrases which could be later quoted and patterns which appeared important to the research were immediately identified through highlighting or through comments. By this means, the researcher could readily identify what was important to the participants, where concerns relating to facilitating change were located and their relationship within the Case Study University.

Although conducting data analysis in a word-processed document appeared adequate, the researcher initially judged it to be less versatile than other available tools, such as NVivo. Hence, after extensive analysis using a word processing application, the researcher began exploring the coding functionality available within NVivo. She created a project and imported all the documents. The process of naming nodes and creating codes began, which provided a valuable step in re-reading all the responses and transcripts. This process itself, regardless of the tool, allowed even further reflection on the content and "seeing as" (Bazeley, 2013b:83), which generated additional comments that proved useful later in the discussion of findings.

Although the process of coding in NVivo was useful in deepening the researcher's understanding of the participant responses, it was in viewing the nodes in isolation from the context in which it was provided or spoken that the researcher suddenly felt disconnected from the data and from the respondents themselves. It was evident to the researcher that the key words or phrases from all the transcripts reduced to a page represented little more than just that: a list of key words or phrases. The words were out of context from the original conversation and their value became limited. In this respect, Kvale (2009) pointed out the notion of continuing the interview through the analysis of the transcript, thereby uncovering further and deeper meaning. It is for this reason that the analysis and presentation (see *Data Presentation*, Section 6.5) of the interviews, specifically, was realigned to reflect the narrative that it originally was. This entailed returning to the conversation with each interviewee and identifying the emergent themes from this conversation. Interspersed with quotations, the conversations were brought to life on the page for the researcher as well as the reader. This also answered the question posed by Kvale (2009:193): "How can I reconstruct the original story told to me by the interviewee into a story I want to tell my audience?"

Whereas narratives describe a story or account of interconnected events, portraiture describes one individual and their connection with significant themes identified by

the storyteller, or researcher. Portraiture is a way of describing research findings which portray the individual participants and their perceptions on the themes brought forward by the investigator. Portraiture, as described by Waterhouse, is "a metaphor for rigorous qualitative research methodology and method" (Waterhouse, 2007:277). Waterhouse was inspired and supported by the work of others on portraiture, which is described as: "designed to capture the richness, complexity and dimensionality of human experience in social and cultural context, conveying the perspectives of the people who are negotiating those experiences" (Lawrence-Lightfoot & Hoffman Davis, 1997:3). One of the key inspirations from Lawrence-Lightfoot and Hoffman Davis's work was to portray the goodness in the research (Dixson et al., 2005). Bottery et al. (2009) expanded on Lawrence-Lightfoot and Hoffman Davis's work on portraiture methodology by applying it in the field of educational leadership. The researcher perceived portraitures, or vignettes as she describes them, as a natural reflection of her philosophical stance, while presenting the participants as individuals instead of a collection of words.

## 6.5 Data Presentation

Following this chapter, the findings are presented in Chapters 7, 8, and 9, as introduced below.

Chapter 7, *Findings I,* presents the findings from the open text responses within the CFSoC questionnaire. These open text questions enabled participants to use their own words to describe their ideas related to benefits and barriers to technology-enhanced learning, as well as associating their role with strategy and change initiatives.

Chapter 8, *Findings II*, presents the descriptive statistical information collected from the 35 pre-determined questions measuring levels of concern. These pre-determined questions supported the objective of identifying the concerns of change facilitators participating in the study. In addition, level of agreement on key categorical

questions provided opportunity to analyse participants' perspectives. This concludes with an introduction of the interviewees.

Chapter 9, *Findings III,* emerged after much reflection of the meaning of this research, as well as after analysing the data gathered from the interviews. Whereas Chapters 7 and 8 focused on data collected from the CFSoC questionnaire, Chapter 9 focuses on the interviews and the individual interviewees. Initial analysis was conducted by clustering themes, which provided insight into some of the perceptions of the interviewees. However, the researcher felt this separated the individual responses into isolated phrases without context. To address the disconnect, vignettes were created to reflect the individual interviewee from a holistic perspective with quotations interspersed throughout to emphasise the main points and to bring the findings "to life" (Opie & Sikes, 2004:52). All the vignettes, or portraits, were reviewed and approved by the individual research participants as a way of "member checking" for accuracy and adding to the credibility of the data (Cohen & Crabtree, 2006; Creswell, 2014). Writing the vignettes helped the researcher, and hopefully the reader, in gaining a more complete understanding of the perspective of the interviewees against the themes, which emerged through analysis.

Narratives are relatively new in qualitative research: "Narratives are one of the natural cognitive and linguistic forms through which individuals attempt to organize and express meaning and knowledge" (Kvale, 2009:153). Other researchers also supported this concept of creation and meaning-making, describing language selected for retelling someone else's story as "an act of epistemology" (Waterhouse, 2007:274). With the researcher as the main instrument in qualitative studies, the researcher's views and understanding are vital to the approach of creating the narrative for research participants. It is a way of constructing knowledge and identifying who the research participants were at the time of the study.

## 6.6 Data Management

Data management and data protection are becoming increasingly important. Data breaches and cyber-attacks are frequently in the news and discussions at the national level openly discuss whether monitoring citizens' online behaviour is a matter of privacy or national security. Data are increasingly stored electronically and protection of digitally and electronically stored information is of personal, national and worldwide concern. As a researcher, one has an obligation to protect data compiled from research participants (World Conference on Research Integrity, 2010). As data is primarily stored electronically, the researcher has an obligation to protect and secure individual data. In academic research, several mechanisms may be activated to protect research participants. The consent form is one tool used to gain approval from the individual to participate in the research study, yet it is the researcher's responsibility and duty to abide by the obligation (BERA, 2011).

For this study, data gathered through interviews were collected, stored and managed in several ways. First, if the participant agreed, interviews were recorded using a digital recording device. Audio files were downloaded and stored in a dedicated folder created for each participant in Google Drive, a cloud based, digital storage system. Second, the researcher transcribed the audio file directly into a document within a designated folder on Google Drive. Third, the researcher's initial reflections and perspectives were noted as soon as feasible after the actual interview within the online transcription document. All recordings, transcriptions and consent forms were saved to an external hard drive (World Conference on Research Integrity, 2010; BERA, 2011). Following this protocol, data collection was assigned a specific process and format that could be replicated throughout the entire phase of the research.

## 6.7 Limitations of Methods and Instruments

This section addresses the limitations of the methods and data collection instruments selected within the case study methodology. The limitations first identified include the number of research participants involved in this study and the impact this

number had on the usefulness of the questionnaire. Consideration of the number and types of data collection instruments is then addressed. This discussion follows the final point related to the transience of technology-enhanced learning within the UK higher education sector, as well as within the case study institution, as a potential limitation in this study.

Regarding participation in this study, the researcher's purposive sampling strategy necessarily limited the number of participants selected for this case study research. Although 65 individuals were selected by means of purposive sampling and invited to participate in the main study, responses to the online questionnaire were received from 25 individuals, of which six participated in the follow-up semi-structured interviews. In order to address this limitation, while also addressing the potential limitation of using too few data collection instruments, the researcher extended the open text and categorical questions available in the online questionnaire to help mitigate the limitation of drawing on only one instrument (Yin, 2009; Creswell, 2014). A combination of the mixture of data collection instruments in the online questionnaire complemented the in-depth, semi-structured interviews. Further, the researcher identified and selected the portraiture approach to presenting the individual interviewees in the form of vignettes. The aim in so doing was to +support the validity of the portraiture method as a way of highlighting the detail and complexity of six diverse change facilitators within the case study institution and deepen the understanding of the research participants' perceptions in addressing the research questions (Waterhouse, 2007).

Another possible limitation, which could be perceived, was the fact that the university strategic plan and the status of technology-enhanced learning identified at the beginning of the study was no longer the same towards the end of the study. Many changes took place in the Case Study University during this study between 2012 and 2016. The aim of the research was not to document the detailed changes as part of a running narrative, but rather, to examine the participants' perceptions at the

time of responding to the online questionnaire and then again at the time of the interviews. These two points in time were compared in the light of the documentation available in key documents reviewed as part of the data collection for the study. If relevant, changes were noted or updated documents were presented.

The researcher acknowledged the limitations of methods and data collection instruments and addressed them to reduce any possible unfavourable impact on the study.

## 6.8 Chapter Summary

The research design and data collection presented in Chapter 6 augmented the Methodology and Methods outlined in Chapter 5 by presenting the practical approaches taken to designing this research and conducting data collection. Qualitative and quantitative data collection instruments were presented and selected to provide complementary data types for this study. The first sections provided a description of the pilot study followed by a description of the main study and data collection instruments selected. The researcher outlined the data analysis approach, followed by a description of the presentation of findings and an outline of how data were managed.

A pilot confirmed the suitability of the case study institution as well as enable an evaluation of the data collection instruments. The instruments for the pilot were presented, followed by a description of the pilot design and sequence of conducting the steps. Conducting a pilot study prior to the main study was believed to provide a valuable initial step to inform the design for the main study. The interviews conducted with those identified publicly as leading or facilitating change related to technology-enhanced learning initiatives were valuable in providing insight on perceptions and concerns within the institution at a managerial and leadership levels within the organisation. The interviewees were helpful in recommending academics

who were innovative in their use of technology in teaching and learning within the case study institution, as well as helping the researcher identify those supporting innovative teaching and learning within the recently-created organisational structure. The recommendations provided good insight into academic and support role activity at the institution and indicated who ought to be contacted to participate in the main study. The researcher then presented a reflection on the pilot and how it informed a shift in design to the main study.

Based on the pilot outcomes, the researcher initiated the main study with confidence and awareness not previous available. With evidence from the pilot to support decisions for the main study, the researcher believed the revised steps in design and sequence were appropriate. First, the questionnaire was administered, providing diverse forms of responses including the 35 questions based on the seven-point Likert scale, open text questions as well as questions based on continuous and categorical scales. Analysis of this data informed the selection of the interviewees and the questions for the semi-structured interviews. The researcher concluded that the data collection method for the main study was supported by the evidence from the pilot and was appropriate for conducting this research. The chapter concluded with a description of how the findings would be presented and how the data were managed. The limitations of the methods and data collection instruments were then reviewed to conclude this chapter.

The next three chapters present the findings of the main study. The researcher initially conceptualized several approaches to presenting the data and identified the outline presented here:

Chapter 7, *Findings I*, presents the qualitative data sourced from the open text questions in the CFSoC online questionnaire. This is presented first since the participants' definitions and perspective will help provide context for this study.

Chapter 8, *Findings II,* presents the categorical questions and level of agreement on key questions, which help support emerging patterns of activity among the change facilitators involved in this study. This section also introduces the stages of concern based on the quantitative data within the CFSoC online questionnaire. The stages of concern are linked with the categories and levels of agreement initially presented in this section.

Chapter 9, *Findings III*, draws upon data presented in *Findings I* and *II* in the form of a narrative vignette introducing the interviewees and integrating individual data from the open text questions, categorical questions, and levels of agreement on key questions and stages of concern measures.

# Chapter 7: Findings I – Open Text Responses

## 7.1 Introduction

The Change Facilitator Stages of Concern (CFSoC) questionnaire was used in this research followed by in-depth semi-structured interviews. The CFSoC online questionnaire, described previously in Research Methods, Chapter 5, Section 5.4, was selected for offering a flexible tool for designing data collection. The questionnaire provided an opportunity to collect qualitative data via two types of researcher-defined questions: open text questions, presented in this chapter, and categorical questions, presented in Chapter 8, *Findings II*. The researcher designed open text questions for respondents to answer in their own words and in their own time (see Appendix H). She also designed and integrated categorical questions related to gender, years in higher education or years using technology-enhanced learning (see Appendix G). Finally, quantitative data on the levels of concern were collected via 35 pre-defined questions (see Appendix F). Based on a seven-point Likert scale, these questions measured participants' level of concern regarding technology-enhanced learning. Following the administration of the CFSoC online questionnaire, semi-structured interviews were conducted with a smaller selection of participants from the questionnaire sample. The findings from the semi-structured interviews follow in the form of interviewee vignettes found in Chapter 9, *Findings III*.

This chapter presents the qualitative findings collected via open text responses within the Change Facilitator Stages of Concern (CFSoC) online questionnaire. Questionnaire respondents had the opportunity to complete six open text questions. These enabled participants to express themselves using their own words and provided insight for the researcher, especially during the follow-up semi-structured interviews with a selection of the respondents. The first open question explored the participants' definition of technology-enhanced learning. Additional open text

questions explored the barriers and benefits to using technology to enhance learning as well as the technology resources or tools they have found most beneficial. The final questions explored whether participants had a strategy or concerns for putting TEL initiatives into practice. A selection of representative quotes from the open text response portion of the questionnaire are presented and identified by either academic or support role.

The categorical questions are presented specifically in Chapter 8, Section 8.4, however responses to the first question can be found in Table 11 to set the context of the individual responses included in the open text questions presented in this section. There were 20 respondents who 'strongly agreed' or 'agreed' with being a facilitator of TEL-related change in contrast to five individuals who did not self-identify as facilitators or TEL-related change and responded with 'neither agree nor disagree' and 'disagree'. The researcher included a selection of responses from these five participants in some of the open-text quotes to contrast the perceptions these individuals had from those who self-identified as facilitators of TEL-related change. Richard (Support), Lewis (Support) and Louise (Academic) all responded with 'neither agree nor disagree' and Peter (Support) and Thomas (Academic) both responded with 'disagree'. There were no respondents who 'strongly disagreed' to this first question. Table 11 presents the responses to the first categorical question, which is also expanded with all categorical questions in Table 14 in Chapter 8, Section 8.2.

Table 11: Participants who self-identified as a facilitator of TEL-related change

| Levels of Agreement | Do you identify yourself as a facilitator of TEL-related change? |
|---|---|
| Strongly agree | 12 |
| Agree | 8 |
| Neither agree nor disagree | 3 |
| Disagree | 2 |
| Strongly disagree | 0 |
| Totals (N=25) | 25 |

## 7.2 Definition of technology-enhanced learning (TEL)

Technology-enhanced learning (TEL) has many definitions and, as explored earlier in the literature review, there is not a single, agreed upon definition. Given the breadth and potential range of definitions or interpretations, it was important for the researcher to provide respondents the opportunity to describe their own understanding of TEL. Outlining the participants' range of interpretations was critical to understanding how their teaching or support roles might be informed by their understanding of technology-enhanced learning and how change might be approached and facilitated. Further, highlighting a participant's definition of technology-enhanced learning was directly connected to the MRQ, which sought to understand how the change facilitators identified and consulted in this study define technology-enhanced learning. The presentation of these findings was therefore critical and best suited to foreground the presentation of the remaining open text questions, and remaining data, since all the open text questions included reference to TEL. A final comment clarifies that responses were collected from 12 of the 14 academics and from all 11 support members of staff, equating to 23 responses from a total participant pool of 25 individuals.

The researcher devised the following broad categories, which captured the participants' responses to the question of how they defined technology-enhanced learning: 1) learning-focused, 2) teaching and learning focused, 3) teaching, learning and assessment focused, 4) transformative tool, or 5) pedagogy. The following provides an overview of the responses: 10 respondents related TEL to learning, eight related TEL to teaching and learning, one related TEL to teaching, learning and assessment, one related TEL to transformation in teaching, learning and assessment, and three related TEL with pedagogy or to meet pedagogic needs.

Whereas academic staff used the word 'technology' or 'technologies' in equal measure when defining technology-enhanced learning, three were explicit in using 'digital technology' rather than 'technology' on its own and one used 'media' instead of 'technology' or 'digital technology'. In contrast, support staff were very consistent in using 'technology' or 'technologies' in their definition of technology-enhanced learning. This variation was explored in the follow-up interviews.

The following quotes are drawn from the 10 respondents who related technology-enhanced learning to learning only:

*"Utilising technology to enhance learning."*
*(Emma, Academic)*

*"The use of any digital technology to enhance learning or to aid the delivery of content."*
*(David, Academic)*

*"Using a range of media to support high quality learning."*
*(Mary, Academic)*

*"Enhancing learning through the effective and innovative use of technology."*
*(Ian, Support)*

*"I would define TEL as learning enhanced or enabled by the use of technology. Some paradigms are only made possible by technology (eg flipped classroom). Others are enhanced by technology (eg BYOD, online collaboration)."*
*(Gary, Support)*

An additional eight responses specified technology-enhanced learning as being directly connected with teaching and learning. The following extracts represents this additional perspective:

*"The integration and application of digital technologies in learning and teaching."*
*(Hannah, Academic)*

*"Any technology, new or established that is used to support teaching and learning activities."*
*(Brian, Support)*

Two members of support staff that could be included in the previous group focusing on teaching and learning were also very specific to the potential benefit to students, one is expressed here:

*"Use of technology to enhance learning and teaching where appropriate and where learners will benefit from its use."*
*(Clare, Support)*

Participants who did not self-identify as facilitators of TEL-related change (see Table 11) defined technology-enhanced learning as follows:

*"Incorporating the use of appropriate technologies into teaching and learning activities so that the students gain extra benefits from using the technologies compared with not using them."*
*(Peter, Support)*

*"Teaching and learning that is supported and facilitated by the use of digital technologies."*
*(Louise, Academic)*

One respondent wrote about technology-enhanced learning in the context of teaching and learning as indicated above, though also added the element of assessment:

*"The use of technology to offer additional or alternative modes of learning, teaching and assessment."*
*(Helen, Support)*

One further respondent defined the transformative properties of using technology to enhance learning and impact assessment within her own teaching practice:

*"TEL has a role to play in improving what we (by 'we' I mean academic staff) already do; however, I see it more as a transformative tool. Use of eSubmission and eFeedback, for example, has fundamentally changed my attitude and approach to assessment feedback."*
*(Sarah, Academic)*

Several respondents also explicitly included aspects of pedagogy with the following quotes representing this view, although the transformative power of technology is implicit in both following responses:

*"The use of technology to meet current and future pedagogic needs and to challenge existing pedagogic models or ideas."*
*(James, Academic)*

*"TEL is pedagogy and method combined. If the pedagogy is current and effective it will encompass technology without the need for a specific definition."*
*(Andrew, Support)*

In summary, the key feature emerging from the academic and support staff definitions of technology-enhanced learning is the simple, yet unspoken, acknowledgement of the presence of technology in the teaching and learning space. It must also be stated that although Helen, for example, explicitly included assessment in her comment, it does not mean that any of the previous responses

intended on excluding assessment from the context of teaching and learning, even though it was not explicitly stated. On the contrary, learning and teaching in academia implicitly includes assessment as part of the teaching and learning process. Further, acknowledgement that technology has the potential to support learning helps encourage efforts to introduce new tools and may reflect the willingness these purposively selected participants offer as users of technology-enhanced learning and as change facilitators, the latter of which will be confirmed in subsequent sections. The comment indicating that pedagogy will include technology as new tools emerge to best serve pedagogic principles reflects an environment where new tools are readily available to individuals willing to explore applications in learning and teaching. The separation of tools from pedagogy becomes narrower as the focus remains on the principles of learning and teaching. These indicative responses demonstrate both awareness of the potential impact technology may have on teaching and learning, as well conveys personal experience of the transformative role technology has on teaching and learning.

### 7.3 Beneficial TEL resources or tools

The intention of the researcher was to understand how change facilitators defined technology-enhanced learning. In addition to this and in support of the emerging definition, the researcher captured which resources or tools found to be most beneficial for respondents to conduct their job. Although the respondents were not asked to indicate whether the resources or tools were provided by the institution or not, the researcher distinguished between institutionally provided technology tools, services or products at the time of this exploration as well as technology tools, services or products that were situated outside the institutional systems. Resources provided by the institution were generally fully integrated, which means students did not need to log in separately to these tools but rather they experience a smooth single sign on that authenticates the student behind the scenes with the student information system or other necessary or related systems. In contrast, tools, products

or services outside the university system are not integrated within the institutional infrastructure and systems and there may be considerable variation in instructor and student engagement. Capturing learning analytics or other emerging features of fully integrated services was not a focal point of this study, although the researcher is aware that this is an underlying and potentially beneficial attribute of fully integrated technology resources supporting learning and teaching.

The information on resources participants identified as useful is presented in Table 12 and is based solely on the information submitted in the open text questions in the CFSoC online questionnaire. Before highlighting the table of resources and tools, however, several responses merit separate articulation as they fall outside of a straightforward response, which could be integrated into the table. For instance, a member of support staff regarding TEL tools and resources indicated there were "too many to list. TEL is more about workflows for me than single products. In order for it to be effective, whole institutions have to adopt the practice" (Andrew, Support). This implies a certain efficiency in 'whole institution' adoptions, which connects back to the desire to understand whether the institution is providing the resources and tools.

Finally, two individuals did not self-identify as a facilitator of TEL-related change, as described in Section 7.1 (see Table 11), neither of whom provided a response indicating resources or tools. For example, Peter, a member of support staff indicated he had not used TEL resources or tools "in a significant enough way to be able to pick out any" and Thomas, an academic, simply stated, "none".

Table 12: TEL resources or tools identified by research participants

| Technology Resources or Tools | Used by | | Provided by Uni | |
|---|---|---|---|---|
| | Academic | Support | Yes | No |
| Virtual learning environment (VLE) | X | X | X | |
| Plagiarism detection | | | X | |
| eAssessment, eSubmission, eFeedback | X | X | X | |
| ePortfolio | X | | X | |
| Lecture Recording Software | X | X | X | |
| Library Guides | | X | X | |
| Library skills development | | | X | |
| Adobe Suite (Connect, Creative Cloud) | | X | X | |
| Tablet computers (by course) | X | | X | |
| TEL support | X | X | X | |
| Video camera | | X | X | |
| Audience response systems (clickers) | | X | X | |
| Online polling | X | X | | X |
| Unity | X | | | X |
| Blogs / Wiki spaces | X | | | X |
| Skype | X | X | | X |
| Social Media | X | | | X |
| Applications | X | | | X |
| Lecturer created websites | X | | | X |
| iTunesU | X | | | X |
| MOOC platforms (Massive open online course) | X | | | X |
| Prezi | | X | | X |
| Online Peer Assessment | X | | | X |
| Multiple Choice Questions (MCQ) | X | | | X |
| HTML editing | | X | | X |
| Google Docs | | X | | X |
| Web camera/microphones | | X | Not to all | |
| YouTube videos | X | | | X |
| Jisc | | X | n/a | n/a |
| Association for Learning Technology (ALT) | | X | n/a | n/a |

The researcher reflected on several points related to the information in Table 12. First, it would later emerge in one specific follow up interview that plagiarism detection was in fact the *only* required tool stipulated by the university. All students were required to submit their written work through plagiarism detection software and the resulting report submitted with the student's work for evaluation. Although the virtual learning environment (VLE) was also in widespread use by staff and students, it would also later emerge in an interview that academics could implement other platforms or tools for their students in lieu of the VLE, if they chose to do so. Further, two associations are listed at the bottom of Table 12, identified also as external formal ways to facilitate change in Chapter 4, Section 4.2, confirming the usefulness of these support resources within the sector.

In summary, there is a wide range of tools and resources in use within the Case Study University as indicated by the questionnaire respondents. One would anticipate that the tools that were institutionally provided would also be supported within the university. Several indications from the previous section on barriers to effective use of TEL convey challenges with sufficient support or appropriate university infrastructure. The longer list of tools, which are not institutionally supported highlight the exploration of academic and support staff looking for tools that best serve their students. There is an implication that the user would go beyond their own job requirements to ensure availability of tools that would support effective learning.

## 7.4 Barriers to effective use of TEL

The second open text question in the CFSoC online questionnaire was: "Have you identified any significant barriers to effective use of TEL? If so, what are they"? Again, two academics did not respond to this question, however the remaining 12 academics and all 11 support members of staff responded. This section presents the responses to this question initially by word frequency supported by indicative transcript excerpts from the respondents.


Figure 8: Barriers to TEL (word frequency)

Several words emerged as prominent in the word frequency image above. Beyond the expected word of *technology*, the word *staff* was used predominantly followed by the word *lack*, which was used in nine of the 23 responses. For example, a member of support staff wrote the following as her most significant barrier to effective use of TEL: "lack of investment in providing staff with suitable software, hardware and time to develop online resources" (Helen, Support). Additional responses indicated a general lack of "institutional resource" (John, Academic) and, more specifically by a member of support staff, a lack of "technical resource" and "budget" (Lewis, Support), noting that Lewis did not agree or disagree to being a facilitator of TEL-related change. One academic reflected on the lack of "status/importance associated with teaching in HE" (David, Academic) and another held the institution accountable for the barrier he perceived by highlighting a lack of "University understanding of benefits of TEL" (Brian, Support). Another academic felt a significant barrier to more effective use of TEL was a lack of "co-operation of colleagues" (James, Academic) or, from another academic's perspective, a lack of "interest on the part of the students" (Louise, Academic). These responses point to different areas perceived to be lacking something or somebody, but these areas were evidently creating cause for concern, noting that Louise did not self-identify as a facilitator of TEL-related change.

Related more specifically to members of staff, the following three responses from members of support staff highlight a possible divide between academic and support

staff related to perceived barriers to effective use of technology-enhanced learning. For example, one response indicated barriers were "cultural within the University where some staff are indifferent to the use of technology and others are actively against" (Ian, Support). Another member of the support staff implied staff culture focused on research was a barrier he perceived for efficient update of TEL in his role: "Teaching staff who don't believe they need a teaching qualification to teach. They generally think that because they have a subject-based PhD, that validates them as a teacher. It doesn't. They need to listen to their students more and the staff with the expertise in Teaching and Learning" (Andrew, Support). Finally, a support staff leader commented that her most significant barriers to increased use of TEL was "staff understanding, capability and time" (Katherine, Support Leader).

In contrast to the comments related to members of staff, the following comments are similar in nature and represent views from academics. For example, the following two responses confirm Katherine's comment above related to staff: "time…not so much the technology itself, but the demands that it makes in terms of changing practice" (Sarah, Academic). The theme of time is also integral to this comment: "it is hard to keep up with innovation of tools and how these can serve teaching, learning and assessment. Time. Preparing TEL takes time. Lots of time" (Hannah, Academic). Two academic members of staff also indicated the challenges they face with staff as well as student. The first one stated, "Colleagues' resistance to change, since you often team teach and that can cause friction" (Tracey, Academic) and the second academic described one barrier as, "both staff and students' adversity to change" (Nancy, Academic).

Several of the responses above potentially highlight a divide between academic and support staff serving different audiences. Whereas support staff may have a role to specifically support academics, these responses indicate challenges in working with academic staff to further efforts of implementing and effectively using technology-enhanced learning. In contrast, academic members of staff have the role of teaching

students, yet are perhaps challenged to serve students while also working towards performance measures, such as research output. One academic even mentioned that the University "is perceived as extremely research orientated" (Gary, Support). There may be reason to believe this is a potential conflict for academic staff.

From a technical perspective, institutional systems and infrastructure also emerged as barriers to effective use of technology-enhanced learning. One academic reflected on the barrier of "obtuse University systems" (Emma, Academic) which inhibited efficient use of TEL. Another in a support role of the institution indicated the barriers she perceived given the "available IT infrastructure, software and resources" (Clare, Support), which was reiterated by an academic who commented on how the "stability of the network can sometimes be a problem. The system goes down" (Hannah, Academic). This adds further complexity to the barriers presented previously as it means time and effort finally invested in creating, designing or integrating TEL may ultimately not go as planned considering limitations of university infrastructure and technical support.

In summary, the barriers to effective use of TEL were wide-ranging. However, the predominant barrier was that the respondents perceived no indication of a clear structure in place to enable and support the effective use of TEL. At this stage of presenting the findings, it is too early to project further and this feedback will be synthesised at the end of the chapter.

## 7.5 Benefits to effective use of TEL

In contrast to the question pertaining to barriers, the next question related to the benefits: "Have you identified any significant benefits to effective use of TEL? If so, what are they?" As previously reported, 12 of 14 academics responded and all 11 support staff members responded to this question in the CFSoC online questionnaire. Quite fascinating is the difference in the word frequency chart, which clearly

indicates learning and students (or 'learning students') as the overwhelming response emerging from this open text question.


Figure 9: Benefits of TEL (word frequency)

Since the role of the academic differs from that of support staff, this section will begin with the perspective gained from the academic members of staff followed by members of support staff. With direct student engagement, academic staff members have a particularly useful perspective on the benefits of using technology to enhance learning. Many of the responses from academics directed their response towards the student as the beneficiary of using technology for teaching and learning, although the following responses lean towards the practicality rather than the pedagogy. For example, one noted that "accessibility particularly for our many part time students" (Mary, Academic) was the most significant benefit of using technology from her perspective. Another expanded on the benefit to students by listing the following responses: "Benefits concerned with the logistics of university study e.g. access to resources. Flexibility of studying (anyplace, anytime). Supporting different types of learners" (Louise, Academic). Louise did not self-identify as a facilitator of change, however her response indicates a pragmatic view of TEL benefits.

Pedagogic advantages were evident in some of the responses from academic staff, for example, indicating a shift in practice as well as pedagogy: "More engaging learning, more opportunities for learning, new learning opportunities, changing the relationships between teacher and learner" (James, Academic). One academic

commented on the advantage of using technology, which enabled students to build an online portfolio, especially useful when students were on work placements around the county: "being able to see the students' portfolios without having to be in the same room, location etc. is a great benefit" (Nancy, Academic). This also implicitly reflects a changing relationship between student and teacher. Finally, another academic was very keen on interacting with students in new ways, confirming the changing relationship between teacher and learner as indicated above. Regarding providing students with online feedback, she stated,

> *"the vast majority 'pick-up' their work with 2-3 days of release - the collection effort is minimal. I then arrange F2F feedback sessions within 7 days. It is really effective because, rather than being on the spot, the student has had time to look through their work and reflect upon my comments before we meet. Accordingly, when we do meet it is proper 'feed forward'"*
> *(Sarah, Academic).*

The final comment profoundly reflects not only a changed relationship between teacher and learner, as identified above, but an added shift in personal reflexivity as a teacher in using technology in new ways. In fact, it is Sarah who continues with the following statement: "I strongly believe it [TEL] has made me stop and think about my practice and deploy changes that have improved student outcomes" (Sarah, Academic).

Support staff engage with technology-enhanced learning, as well as with students, in different ways than academic members of staff although the responses indicating significant benefits are similar. For example, one support staff member articulated the benefits of using TEL as "the ability to support distance students, reach potentially more students and engage more students with alternative approaches to learning and teaching (i.e. use of interactive content, video etc.)" (Helen, Support). Another who did not self-identify as a facilitator of TEL-related change associated his perceived benefits to the literature: "Everything as seen in the literature. Extended engagement, equality of access, enhanced collaboration, better attainment, increased

access etc." (Richard, Support). Similar as well to the responses from academics, the following statement highlights access to learning as indicated in this statement: "Flexible access to learning content. Flexibility in student collaboration. Paperless assessment and feedback. Plagiarism detection that also facilitates acquisition of academic writing skills. Portfolio of achievement." (Martin, Support).

Although most respondents described the most significant benefits of effective use of TEL from their perspective, there are two instances – one from support staff and one from an academic - where the response contrasted to those above. It merits reiterating from the introduction to this chapter that both of these two respondents marked 'disagree' to the question of whether they felt they were a facilitator of TEL-related change. This categorical question will be presented more fully in the next section; however, it was relevant to include this comment here. In one instance, Peter, a member of support staff, had clearly never reflected on whether there were benefits to TEL: "No, I haven't stopped to think about what they are". In contrast to not noticing whether there were benefits to using TEL or not, Thomas, an academic, clearly responded to this question that he had not identified any benefits since his focus was drawn towards problem-solving TEL related issues, like the barriers of infrastructure presented in the previous section: "I've been dealing with the problems caused by the university's 'lip-service only' position on TEL". Thomas was identified earlier as not identifying himself as a facilitator of TEL-related change.

Although the responses offered different perspectives, one response from a member of support staff seemed to encompass many benefits indicated wholly or partially by academic respondents and other support members of staff:

> *"There are many. Technology offers new learning environments and interactions that are otherwise impossible to create. Technology can also enhance one-to-many engagement, personalised learning, distance taught learning, formative and summative assessment, collaboration, mobile learning revision…if used correctly, technology can enhance anything!" (Gary, Support)*

In summary, the questionnaire respondents from both academic and support members of staff signalled significant perceived benefits to effective use of TEL. The researcher judged these signals as beneficial, which was manifested through reflexivity and metacognitive activity of thinking about what one was doing with TEL or how one was engaging with it. This also reflects an implicit desire to make it work despite the barriers presented in the previous section. There is also indication that the participants wanted to find meaning in their work with TEL, that this would support their personal efforts to engage and dedicate limited time to ensure students would benefit.

### 7.6 Strategy of how to put TEL initiatives into practice

The penultimate open text question in the CFSoC online questionnaire asked whether the participants had a strategy for putting TEL initiatives into practice. This question was intended to give change facilitators an opportunity to articulate their own strategy for implementing TEL initiatives. The researcher noted that the responses to this question were much shorter and did not convey much detail. As with the previous open text questions, two academics refrained from answering the question and an additional three responded with a simple "no" (Tracey, Academic; Louise, Academic; Emma, Academic) and one with "n/a" (Nancy, Academic). Louise was introduced in Section 7.1 (Table 11) as not identifying herself as a facilitator of TEL-related change. All 11 members of support staff responded in some form although two of these responses were not explicit as one simply responded with "yes" (Martin, Support) and another with "n/a" (Katherine, Support Leader).

Of the academics who expressed more detail, one appeared to perceive the word 'strategy' as too strong for her approach. She stated, "Strategy implies a coherent plan. I think my approach has been rather *ad hoc* - a response to my own needs and workload, plus questions from other people in my Department" (Sarah, Academic). Another academic expressed his strategy, which seemed to bridge formal and informal strategy while incorporating an evidence-based approach: "Yes - rolling out

both technology and support (for staff and students) and then looking for projects which will allow impact to be shown" (James, Academic). Another had a similar goal to implement and then use examples to demonstrate success. He stated, "Implement and evaluate, share practice and disseminate" (Michael, Academic). One pinpointed successful TEL strategy on the allocation of "appropriate resources" (John, Academic). Finally, one academic maintained a very simple strategy of leading as a means of demonstrating and showing others. He conveyed his approach to strategy in the following manner:

> *"I try to lead by example. If other academics see what I am doing, I hope they will ask me to show them how I do it. Most are not tech savvy and need to be lead through the process very carefully"*
> *(David, Academic).*

Support staff revealed slightly less continuity than the academic respondents with two replying vaguely with "not really" to the question of whether they had a strategy (Peter, Support and Helen, Support). Another two indicated their relationship with strategy extended beyond their direct remit with one noting that they did "not have a broad strategy" but worked within the "wider development of services" (Lewis, Support), which aligned with his role. The other indicated his role was to "work within the strategy of the university" (Andrew, Support). Finally, one member of support staff was very explicit with his strategy: "promote the benefits of TEL adoption, listen to the concerns, be available for *ad-hoc* training needs, offer solutions and generally encourage the culture to shift organically" (Gary, Support). This last example identified a personal strategy within his own practice:

> *"I always consider how technology can save me time and maintain teaching quality. I am also keen to keep engaging students in the use of technology"*
> *(Brian, Support).*

In summary, responses tended to reflect personal strategic perspective regarding working in the best possible way within one's remit. Apart from one response, the majority provided no indication of any direct connection to the university's strategy

for technology-enhanced learning. There was a sense of trial and error regarding application of technology and disconnect with the concept of whether they ought to have a strategy. The overarching sense of those who responded was one of just carrying on with the job, progressing to the best of one's ability and creating impact when possible.

### 7.7 Concerns of how to put TEL initiatives into practice

The purpose of this last open text question in the CFSoC online questionnaire was to enable participants to describe any concerns they had regarding how to put TEL initiatives into practice. The researcher wanted to explore the participants' own words surrounding concern or to reveal that there were no concerns. Consistent with previous questions, two academic members of staff refrained from submitting responses to this question although the remaining 12 academic participants responded in some form with three filling in a very clear and simple "no" (Tracey, Academic; John, Academic; Emma, Academic) to the question thereby implying they have no concerns, or were not willing to answer the question. All members of support staff commented.

In contrast to the lack of reference to institutional strategy in the previous section, two academic responses expressed their hesitancy to invest in technology for their teaching practice as it was viewed as impermanent at the institutional level. The first stated it in this manner:

> *"My main concern is institutional commitment. I worry that I put time and effort into this and the [university] might decide in a year or two that it is not so important after all. This is based on past experiences. I have become the departmental person almost by default, but I have not had any training as a facilitator. This has contributed to issues in promoting TEL within more senior staff who are resistant to change"*
> *(Sarah, Academic,).*

The other academic with similar concerns indicated considerable issue with time to create TEL resources if the effort would not be long lasting. She concluded her response with, "I'm also cautious of investing too much as I believe our systems may

change soon" (Mary, Academic). From a support staff member, the following reflected an implicit "university direction" regarding TEL, which differs from other responses:

> *"There needs to be proper accountability for staff who say 'no'. If you are not willing to follow the path of the university then you should be invited to look for work elsewhere instead of making the lives of those committed to the university direction harder than it needs to be"*
> *(Andrew, Support)*

One academic was very clear that even with all the time and resources, "not all tech will lead to enhanced learning, and academics are a sceptical bunch. They need evidence to convince them" (David, Academic). This is reiterated slightly differently by another academic who did not self-identify as a facilitator of TEL-related change, stating that "without adequate support and knowledge" putting TEL initiatives into action is not going to happen (Thomas, Academic). This denotes that he will not initiate this change on his own and requires outside support to progress TEL initiatives. The remaining academics all indicated time, resources or support issues as major concerns in putting TEL initiatives into practice, reflecting some of the items listed as barriers to increased use of TEL in the earlier question.

Similarly, all 11 members of the support staff responded as they had in all previous questions with Katherine and Claire indicating this question was not applicable to them and Brian replying with a simple "No" and Peter responding with "Not really." One was very explicit in stating his concern firmly related to communication: "The main concern is about reaching relevant staff and students with the information about the initiative" (Lewis, Support). The assumption here is that there was an initiative and that it may not have been properly communicated with those who would be impacted. Lewis was one of five who did not self-identify as a facilitator of TEL-related change.

Two responses from support staff members were related to culture with the following indicative of the two individuals: "My only concern in relation to the

above strategy is with regards to the rate of adoption. Culture changes will likely be slow, so this process will require some patience" (Gary, Support). This statement actually acknowledges some strategy, possibly about the question about 'TEL initiatives', yet concerns were situated within the broader environment of the university.

In summary, participants indicated that the University did not disseminate a clear or explicit message regarding its strategic intent related to technology-enhanced learning. Although there were implicit signals related technology-enhanced learning, such as provision of resources and the establishment of a technology support team, respondents expressed high concern related to lack of institutional support or communication. This resulted in academic and support staff working largely within their academic freedom or within the outline of their roles.

## 7.8 Chapter Summary

This was the first of three chapters relating to the findings of this study. This chapter presented the qualitative findings based on the open text questions that study participants documented within the Change Facilitator Stages of Concern (CFSoC) online questionnaire. This format enabled study participants to respond in their own words and in their own time. Participants responded to questions related to definitions of technology-enhanced learning as well as identifying barriers, benefits, concerns and strategy related to their role within the University.

There were some differences between academic respondents and those in support roles. Although there was some significant variation of perspectives, the overarching outcome of these responses was that individuals appeared to be keen on making the technology work within their roles, despite outlining barriers and concerns. This individual level motivation, marked by clear indicators of the benefits of using technology for teaching and learning, contrasts with minimal university-wide systems conducive to a supportive atmosphere to integrate and readily implement

technology-enhanced learning. Barriers did not rest solely on the institutional level as participants accounted for resistance within both the academic community, as well as among those in support roles. Academic autonomy was implicitly present in some of the responses, as the best approaches were selected to enhance learning through technology, regardless of if there was support.

Table 13: Summary of findings from open text responses

| Summary of findings from open text questions |
| --- |
| 1. Technology-enhanced learning (TEL) had multiple definitions. Useful TEL resources were included within University provision although additional resources that were situated outside of University provision were also used at the discretion of academic or support staff.<br>2. Lack of institutional support did not hinder individuals who were personally motivated to use technology. TEL practices emerged based on exploration and application.<br>3. The predominant barrier was that the respondents perceived no indication of a clear structure in place to enable and support the effective use of TEL.<br>4. Despite barriers, potential benefits to using TEL expressed by academic and support staff overwhelmingly supported continued exploration and implementation of TEL.<br>5. The participants expressed their opinion that they did not personally feel knowledgeable about the University strategy. On the contrary, they indicated they were either unaware or sceptical of it. The University strategic plan did not inform strategic action for most respondents.<br>6. Concerns were wide-ranging. Many were concerned they would not receive adequate support. Others were concerned about implementing even newer innovations. Personal concerns were less than management concerns. |

Next, Chapter 8, *Findings II*, introduces the quantitative findings in descriptive form drawn from the remaining portions of the CFSoC. This includes the categorical questions related role, gender, time in higher education and time using TEL. Participants' level of agreement on these questions helped identify differences and similarities among respondents. Levels of concern are presented as collected via 35 pre-defined questions included in the CFSoC.

# Chapter 8:
# Findings II – Categorical Questions, Demographics & Concerns

## 8.1 Introduction

Chapter 8, *Findings II,* presents the descriptive statistical findings derived from the categorical questions, the demographic data gathered and the levels of concern related to the use of technology-enhanced learning. As presented previously, the Change Facilitators' Stages of Concern (CFSoC) questionnaire was used in this research, which was aimed at identifying concerns of those who facilitate technology related change (Hall et al., 1991). Concerns were measured based on 35 pre-determined questions using a seven-point Likert scale, which formed the core of the CFSoC questionnaire. This also serves to address sub-research question two, which asked, '*What are the change facilitators' concerns with implementing technology-enhanced learning in their role and where are these concerns situated?'* Categorical questions included five levels of agreement ranging from strongly agree to strongly disagree on points related to the research questions, introduced first in Section 7.1. The findings regarding concerns is paired with demographic data, including gender and role within the Case Study University, as well as length of time in higher education and time using technology-enhanced learning.

## 8.2 Categorical Questions

The researcher included four categorical questions in the Change Facilitator Stages of Concern questionnaire to support the researcher's selection of technology change facilitators and to gain deeper understanding of the perceptions, beliefs and practices of the purposive sample. The categorical questions presented in the online questionnaire follow here:

1. Do you identify yourself as a facilitator of TEL-related change?
2. Do you actively promote the use of TEL within your current job role?
3. Do you feel you are helping the University in its strategy for increased use of TEL?
4. Do you feel supported to use TEL in your current job role?

Participants could select with one of the following responses: strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree. Table 14 provides an overview of the number of responses in each option. A detailed presentation and graph of each question and sorted by role follows.

Table 14: Level of agreement on categorical questions

| Levels of Agreement | Do you identify yourself as a facilitator of TEL-related change? | Do you actively promote the use of TEL within your current job role? | Do you feel you are helping the University in its strategy for increased use of TEL? | Do you feel supported to use TEL in your current job role? |
|---|---|---|---|---|
| Strongly agree | 12 | 16 | 11 | 7 |
| Agree | 8 | 3 | 7 | 9 |
| Neither agree nor disagree | 3 | 6 | 6 | 5 |
| Disagree | 2 | 0 | 1 | 2 |
| Strongly disagree | 0 | 0 | 0 | 2 |
| Totals (N=25) | 25 | 25 | 25 | 25 |

### 8.2.1 Facilitator of TEL-related change

The purpose of this question was to ascertain whether the respondent identified themselves as facilitators of TEL-related change. The researcher purposively invited

selected individuals to participate in the questionnaire based on change facilitator traits they exhibited; hence, the researcher would anticipate responses that indicated strong identification as a facilitator of TEL-related change. The findings depict 12 of 25 participants in the Change Facilitator Stages of Concern who strongly agreed with identifying themselves as a facilitator of TEL-related change with a further eight agreeing to this question, for a total of 20 of 25 either agreeing or strongly agreeing to being a facilitator of TEL-related change. Three respondents neither agreed nor disagreed with identifying themselves as a facilitator of TEL-related change and two did not agree to identify themselves as a facilitator of TEL-related change by responding with *disagree* to the question. No participants strongly disagreed with this question. Facilitators of TEL-related change are presented by role in Figure 10.

Of 14 academic members of staff, six strongly agreed and another six agreed with identifying themselves as a facilitator of TEL-related change for 12 in total agreeing or strongly agreeing. One academic with less than one year in higher education and less than one year using technology to enhance learning neither agreed nor disagreed and one academic with over 20 years in both higher education and using technology-enhanced learning disagreed with identifying themselves as a facilitator of TEL-related change.

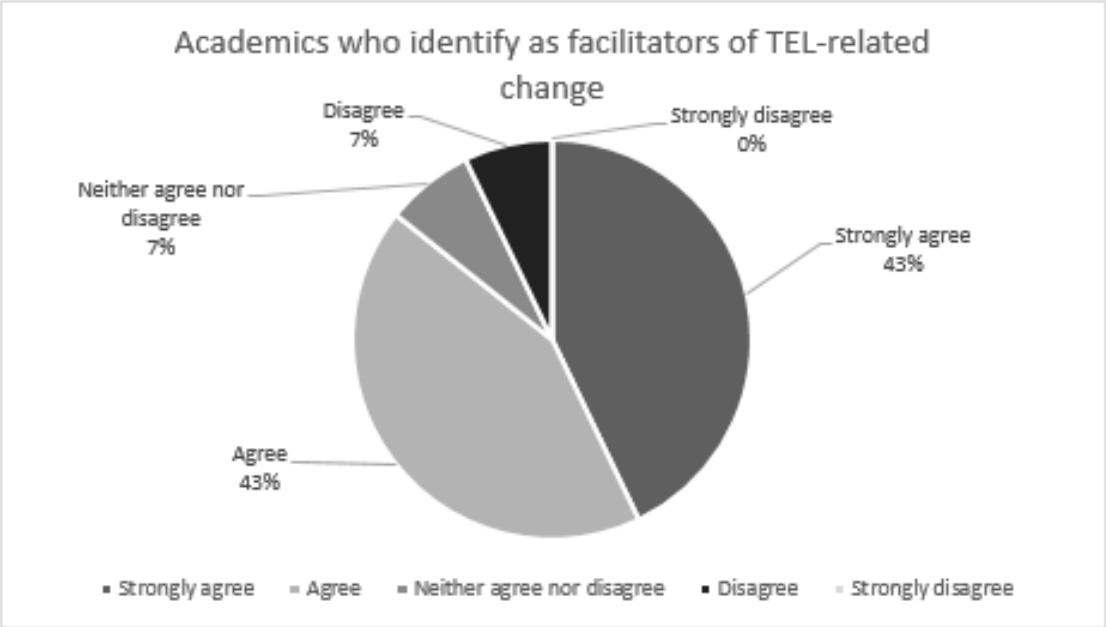


Figure 10: Academics who identify as facilitators of TEL-related change

Support staff represented 11 of the overall responses with six indicating strong agreement to the question of whether they identify themselves as a facilitator of TEL-related change and two indicating agreement to the question for a total of eight agreeing or strongly agreeing. Two members of support staff neither agreed nor disagreed, one with 1 – 5 years in both higher education and using technology-enhanced learning and one with over 16 years in both higher education and using technology-enhanced learning. One member of support respondents disagreed to identifying themselves as facilitators of TEL-related change and this person indicated over 20 years in higher education with 1-5 of those years using technology-enhanced learning.

### 8.2.2 Promote TEL within current job role

Like the previous question, 20 of 25 respondents agreed or strongly agreed to actively promoting TEL within their current job role with the remaining 5 neither agreeing nor disagreeing to the question. No respondents disagreed or strongly disagreed.

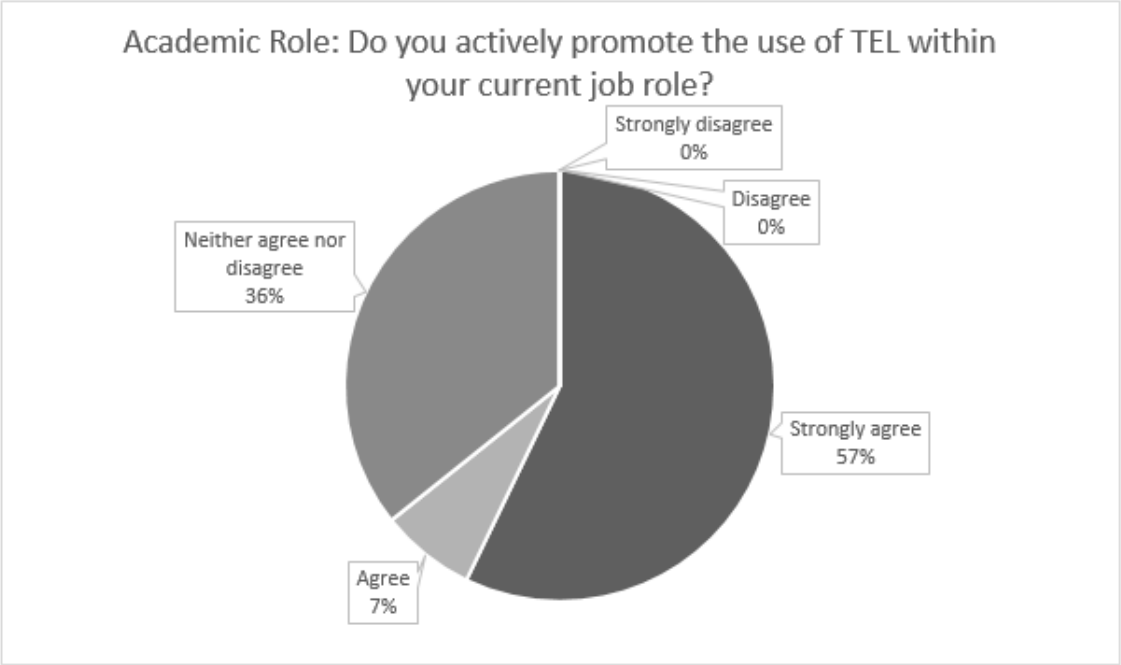


Figure 11: Academics actively promoting TEL

Academic respondents indicated eight of 14 who strongly agreed that they actively promoted the use of TEL within their current job role. This dropped to only one who agreed and then increased to five who neither agreed nor disagreed to promoting TEL within their current academic role. No academics disagreed or strongly disagreed with this question.

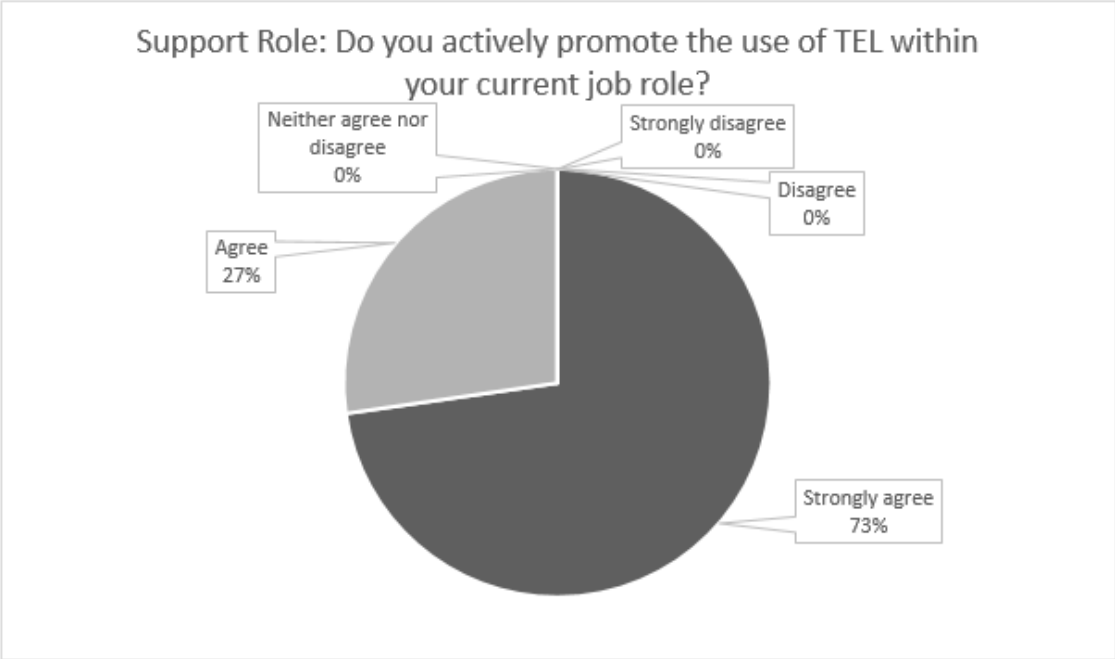


Figure 12: Support roles actively promoting TEL

Staff members in support roles responded with eight of 11 members of support staff strongly agreed that they actively promoted the use of TEL within their current job role. The remaining three respondents representing support roles all indicated they agreed with promoting TEL within their current job role. There were no responses from support staff in the remaining three categories of neither agree nor disagree, disagree or strongly disagree.

### 8.2.3 Help University's TEL strategy

The purpose of this question was to gather data on whether the respondent felt he or she was helping the University strategy for increased use of TEL. Initial interpretation of this question may include, but is not limited to: 1.) using technology-enhanced learning with students which indirectly helps support the University strategy, 2.) demonstrating use of technology-enhanced learning which indirectly encourages colleagues to use technology in their own practice, 3.) participating directly in University-led technology-enhanced learning activities, and 4.) directly helping the University strategy by leading University-led technology-

enhanced learning activities. Responses to this question are explored further with the individuals selected to participate in the semi-structured interviews.

The graph below presents the findings from this question by role.

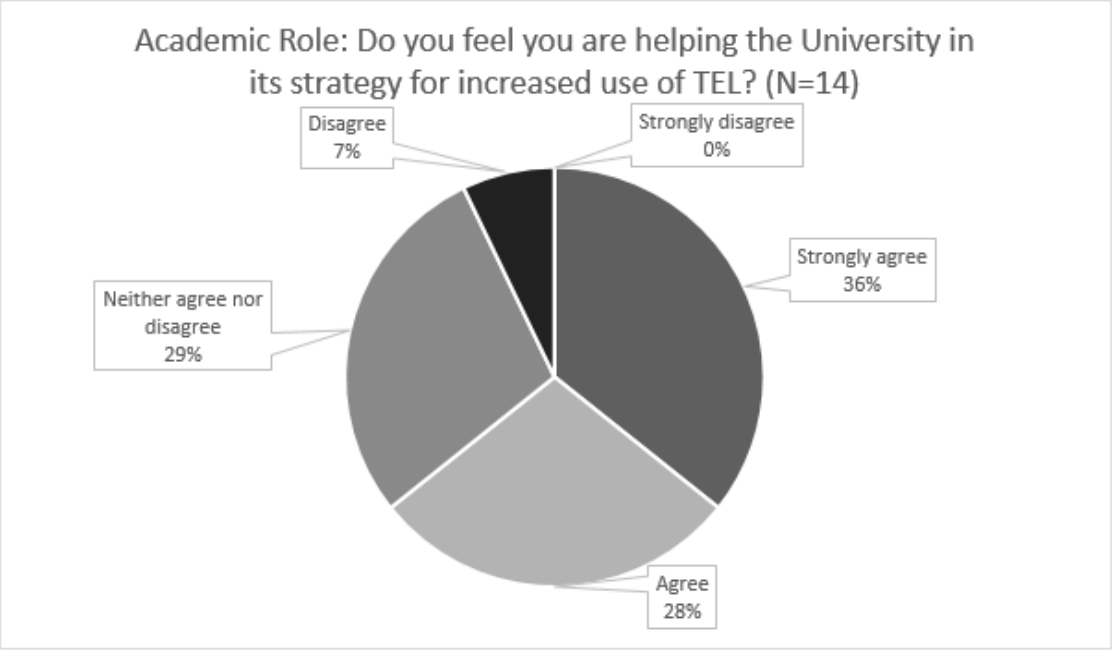


Figure 13: Academics helping the University strategy for increased use of TEL

Of 14 responses from academic members of staff, five strongly felt they were helping the university strategy for increased use of TEL, four agreed and a further four neither agreed nor disagreed. One person disagreed to the statement of feeling as if they were helping the institutional strategy for increased use of TEL and no respondents strongly disagreed.

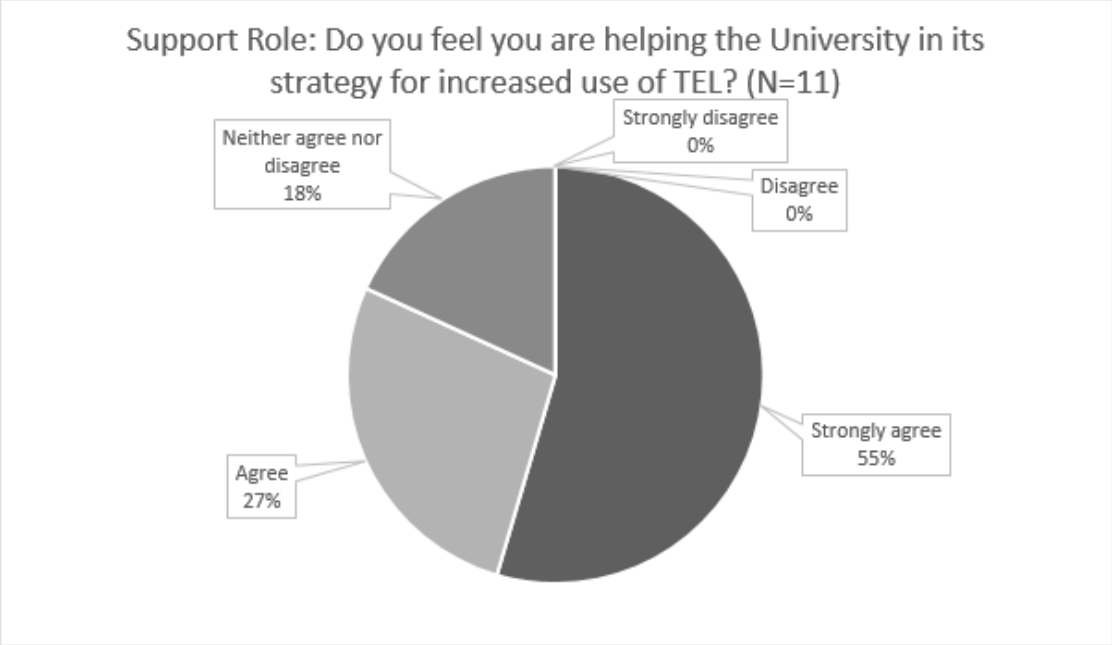


Figure 14: Support Staff helping the University strategy for increased use of TEL

Support staff offer a similar profile whereby six of 11 strongly felt they were helping the university strategy for increased use of TEL, three who agreed to help the institution and two who neither agreed nor disagreed. There were no responses from support staff who disagreed or strongly disagreed.

This first example pulls together respondents who all strongly agreed with helping the institution in its strategy for increased TEL. Further evaluation of these respondents confirmed five were academic lecturers and three were members of support staff. Whereas the lecturers had much higher concern in the *unconcerned, personal* and *management* stages, the members of support staff indicated higher levels of concern in the last two stages of *collaboration* and *refocusing*.

Comparing academics and support staff who all indicated 16 – 20 years of actively using TEL in their roles is also worthy to note. Four academic lecturers and two members of support staff are presented in this category of time using TEL. The findings indicate academic lecturers were more concerned in the early stages of concern, including *unconcerned* and *informational*, with later indication of slightly higher concern in the stage of *collaboration*. Support staff responses evidence higher concern in the categories of *management* and *refocusing*.

### 8.2.4 Supported to use TEL in your current job role

The final key question was whether the change facilitators who responded to the questionnaire felt supported to use TEL in their current job role. Responses from academics are presented here followed by support staff.

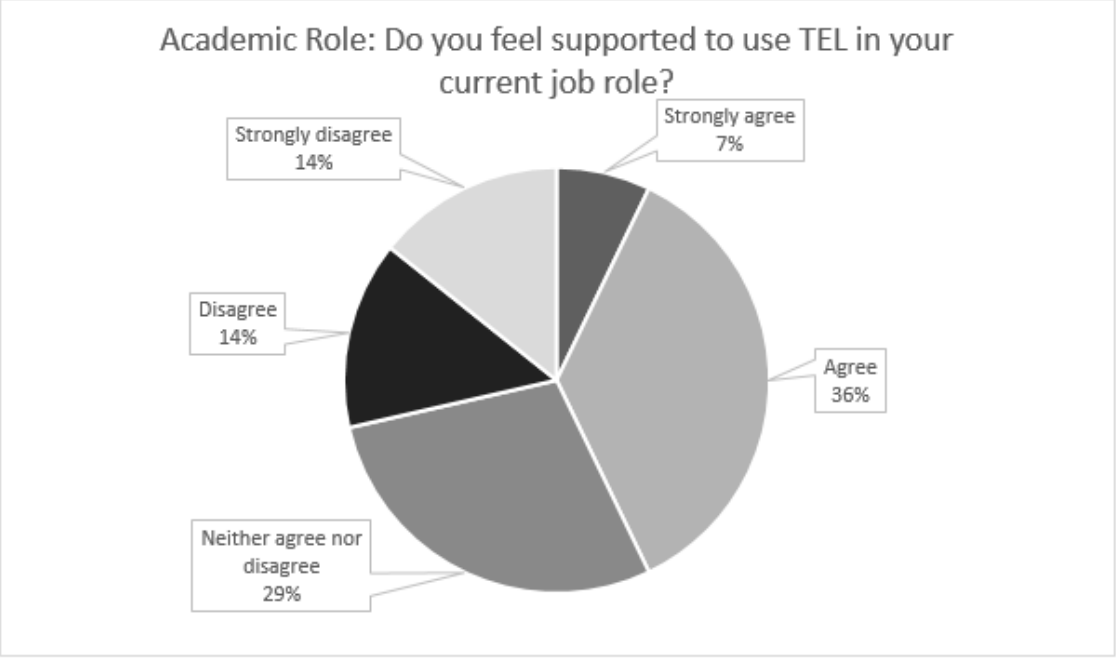


Figure 15: Academics who feel supported in using TEL

Of 14 academic staff members, one felt strongly supported to use TEL in their current job role, a further five agreed to feeling supported and four neither agreed nor disagreed with feeling supported. However, two disagreed indicating they did not feel supported to use TEL in their current job role and a further two indicated they

strongly disagreed, clearly expressing their opinion that they do not feel supported at all to use TEL in their current job role.

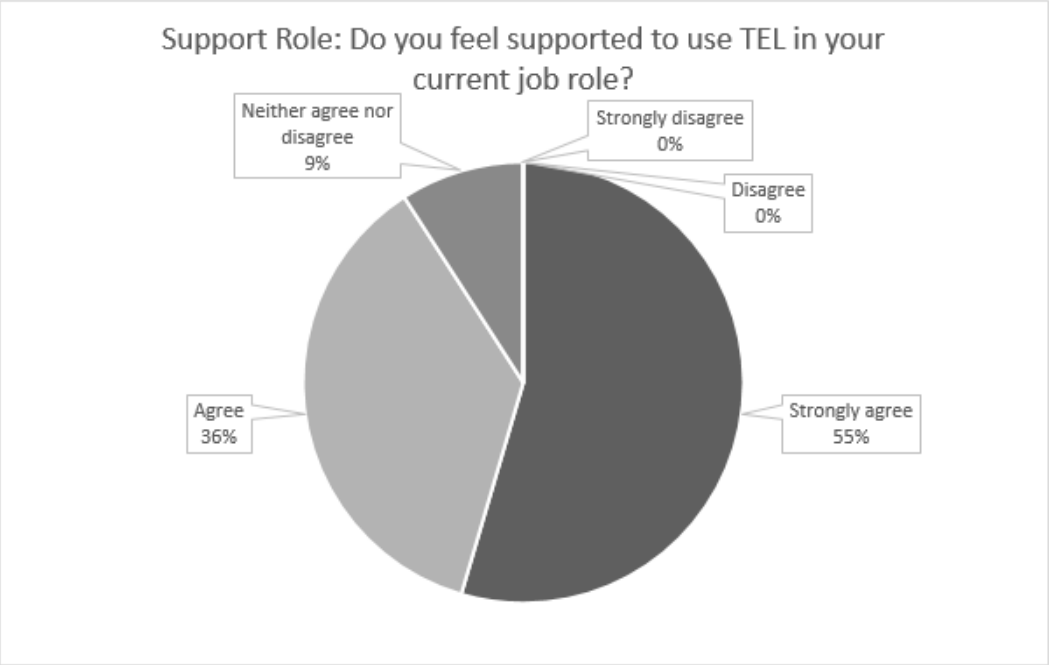


Figure 16: Support roles who feel supported in using TEL

Support staff responded to the questionnaire of which six of eleven indicated they felt strongly supported to use TEL in their current job role and a further four members of support staff indicated they agreed to feeling supported to use TEL in their current job role. One member of support staff neither disagreed and there were no responses indicating disagreement or strong disagreement.

## 8.3 Demographic Data

This section describes the demographic constitution of the participants as collected in the CFSoC online questionnaire. The following demographic categories are presented: gender, role, fellowship in the years in higher education, years in higher education, and years using technology-enhanced learning. Responses are presented according to what the respondents claimed to be true in the online questionnaire at the time of the response. In addition, roles were divided into two categories of academic and support staff roles.

### 8.3.1 Roles and gender

This section presents the roles the case study participants indicated at the time of completing the online questionnaire. Participant gender was also requested as part of the questionnaire. Participants responded to a question about their primary role within the Case Study University. Of the 25 respondents, 14 individuals described themselves as having academic roles within the Case Study University and 11 individuals described themselves as being in a support role. Academic roles included staff (lecturer, reader, professor) as well as managers or leaders within academic faculties (head or associate dean of an academic department). Support roles included staff, managers and leaders from library services, technology-enhanced learning support services, central learning and teaching directives, central student services and departmental technology support. Although data on roles are available in detail, the sample size restricted presentation of the specific information as it risked exposing individual participants.

A total of 14 males and 11 females participated in the Change Facilitators Stages of Concern questionnaire. Of 14 academic respondents, six were male and eight were female. 11 respondents identified as support staff and this group constituted eight males and three females.

Figure 17 depicts academic and support roles by gender.


Figure 17: Academic and support roles by gender

### 8.3.2 Higher Education Academy (HEA) Fellowship

An additional and complementary designation for both academic and support roles, is the increasing importance of fellowship in the Higher Education Academy (HEA). HEA fellowship and its place in the higher education sector in the United Kingdom was presented in Chapter 4, Section 4.2. The researcher included a question on professional levels using the following categories offered by the UK Professional Standards Framework and conferred by the HEA (2015a): Associate Fellow, Fellow, Senior Fellow, and Principal Fellow. These qualifications are awarded based on presentation of examples, references, and numerous case studies, including, but not limited to, years of teaching experience, level of impact, development of others, and use of innovative teaching practices. The researcher felt this information could provide a useful descriptor for evaluating change facilitators and their perceptions, beliefs and practices with technology-enhanced learning. Just over half of the total respondents, 14 of the 25 or 56%, indicated they had earned an HEA designation.

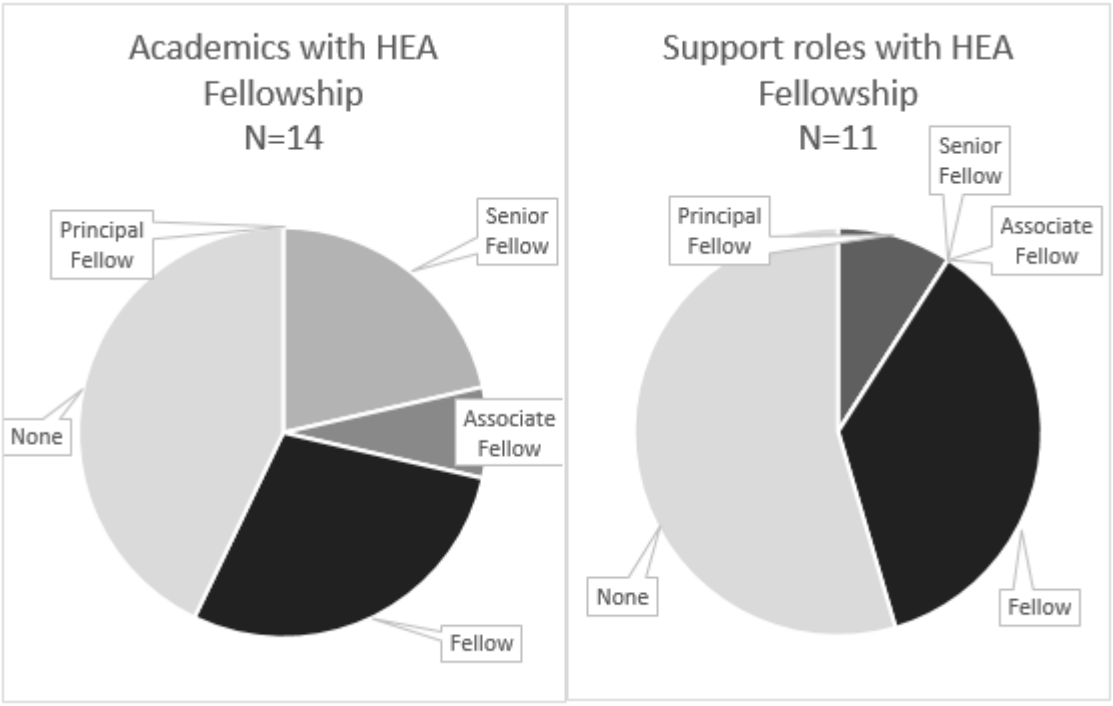


Figure 18: Academic and support roles with HEA Fellowship

The Case Study University website indicated 56% of academic staff held at least one of the four levels of fellowship, although 8 of the 14 academics indicated they held HEA fellowship, or 75%. This statistic is not surprising given the small sample size and the purposive sampling strategy. With an internal objective of having 80% of academic staff achieving HEA fellowship designation and supported by a designated individual supporting applications through workshops, the purposive sample of academics within the Case Study University reflected the value placed on this external and sector-wide metric. Support staff collectively indicated 50% had achieved HEA fellowship, including four Fellows and one achieving Principal Fellow status.

### 8.3.3 Years using TEL

Another element of the demographic profile was the years the respondents had used technology-enhanced learning. From the overall number of respondents, two of 25 participants indicated less than one year of using technology-enhanced learning and

six indicated having 1 – 5 years using technology-enhanced learning. Three individuals reported 6 – 10 years' experience using technology-enhanced learning and two indicated 11 – 15 years. Eight indicated they had 16 – 20 years of experience using technology-enhanced learning and four indicated over 20 years using technology-enhanced learning.

Appropriating the above responses by role, the answers from participants in academic roles were fairly spread across years using technology-enhanced learning, two or three in each category apart from one in the category of 6 – 10 years. In contrast, participants who described themselves as having support roles had two to four respondents in the three categories of 1 – 5 years, 6 – 10 years and 16 – 20 years. One individual indicated over 20 years using technology-enhanced learning and there were no support roles represented in the two categories of less than one year and 11 – 15 years. The data are presented by gender, below. Females are more evenly distributed across all categories with two in each category apart from one in the category of over 20 years. In contrast, males are more strongly represented in the categories of 1 – 5 years and 16 – 20 years with four and six participants, respectively.

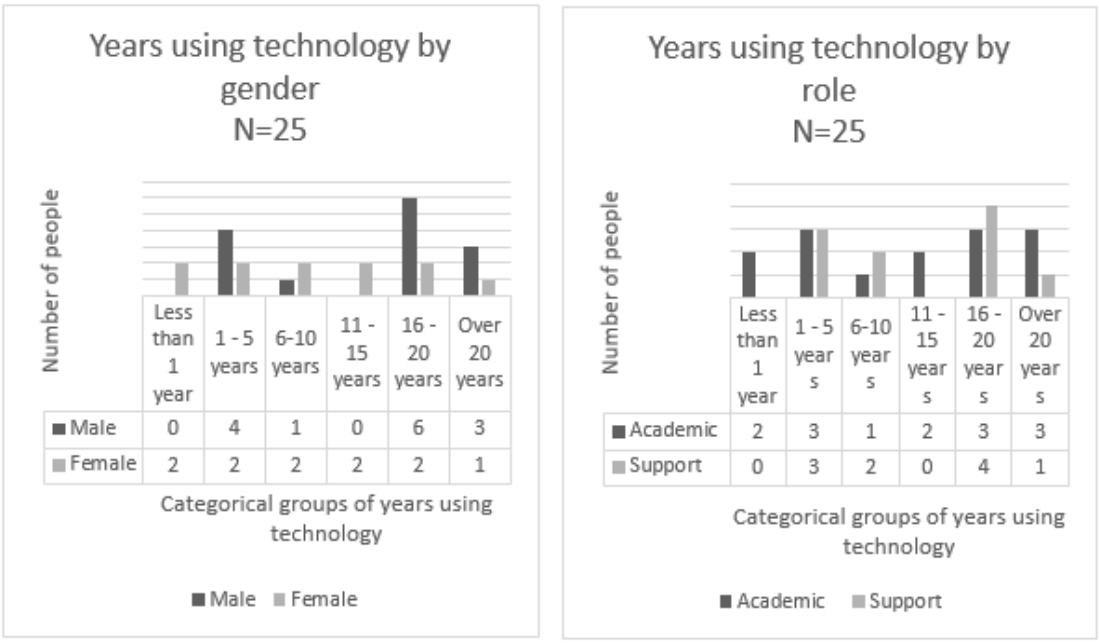


Figure 19: Years using technology by role and gender

Another key finding that confirmed the intention of the purposive sampling strategy was the responses to the length of time the respondents had actively used TEL. All 25 respondents confirmed that they were using TEL and no one responded that they did not use TEL. There were eight participants with five or fewer years using TEL, five with between 6-15 years and twelve with over 16-years using TEL. The graph below breaks this down.

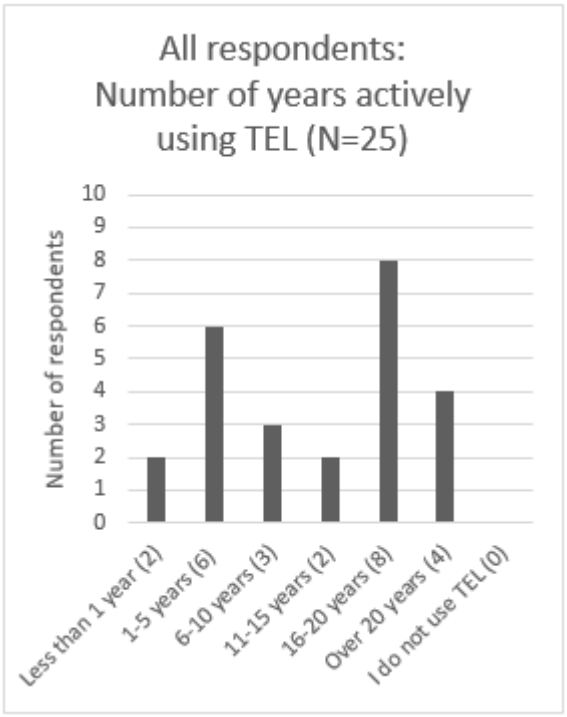


Figure 20: Number of years actively using TEL (All)

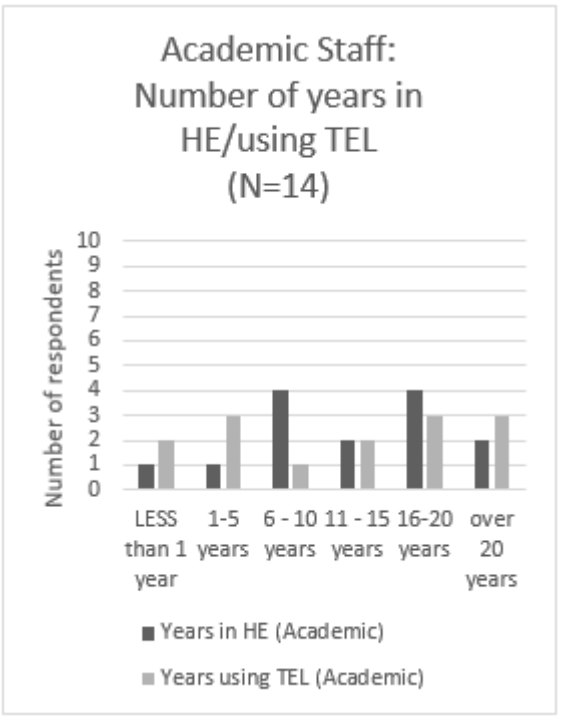


Figure 21: Number of years in HE and using TEL (Academics)

### 8.3.4 Years in higher education (HE)

In the CFSoC questionnaire, the researcher included a question relating to the number of years' respondents worked in higher education. Overall, 16 of the 25 respondents reported having 11 or more years' experience in higher education with two reporting between 11 – 15 years, seven selecting 16 – 20 years and seven indicating over 20 years. One person reported having less than one-year experience in higher education followed by three individuals reporting 1 – 5 years in higher education and five participants indicating 6 – 10 years in higher education. Academic roles are strongly represented in the categories of 6 – 10 years and 16 – 20 years with four each in these categories, two each in the categories of 6 – 10 years and 16 – 20 years, and one each in the categories of less than one year and 1 – 5 years.

Support staff offer a slightly different balance with five respondents representing over 20 years in higher education although there are no support roles represented in the categories of less than one year or 11 – 15 years. Three support members of staff had 16 – 20 years' experience in higher education, two members of support staff with 1 – 5 years' experience and, finally, one member of support staff with 6 – 10 years' experience in higher education.

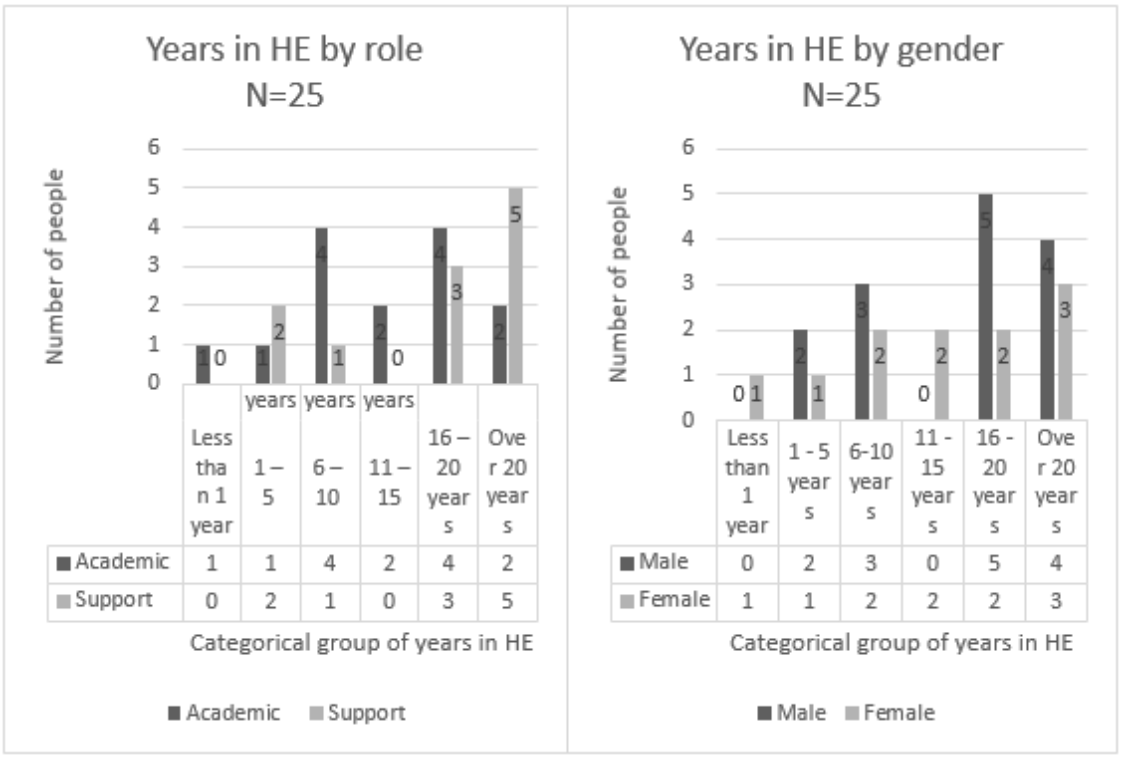


Figure 22: Years in higher education (HE) by role and gender (All)

### 8.3.5 Years using TEL and levels of concern

The graph here presents academic lecturers and support staff who all strongly agreed that they facilitated and promoted TEL within their job role. The most striking finding from this selection of data is the difference in intensity between academic and support staff in stage of *unconcerned*, with the academic staff demonstrating higher concern, and the stage of *refocusing*, where the support staff indicate higher levels of concern.

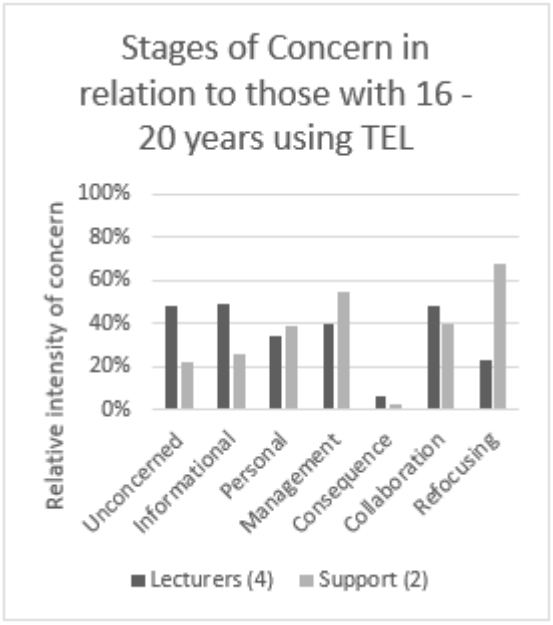


Figure 23: Change Facilitators' Stages of Concern for those with 16 - 20 years using TEL (Hall et al., 1991)

Having established that all questionnaire participants actively used TEL, the researcher could shift her focus to their levels of concern. The full chart presents this information at a glance with the significant outliers in the *personal* and *management* stages. In these two stages, two respondents with 11 – 15 years of active use of TEL have a much higher level of concern than other respondents, though two respondents with less than 1 year come close to matching the same level of concern in the *management* stage.

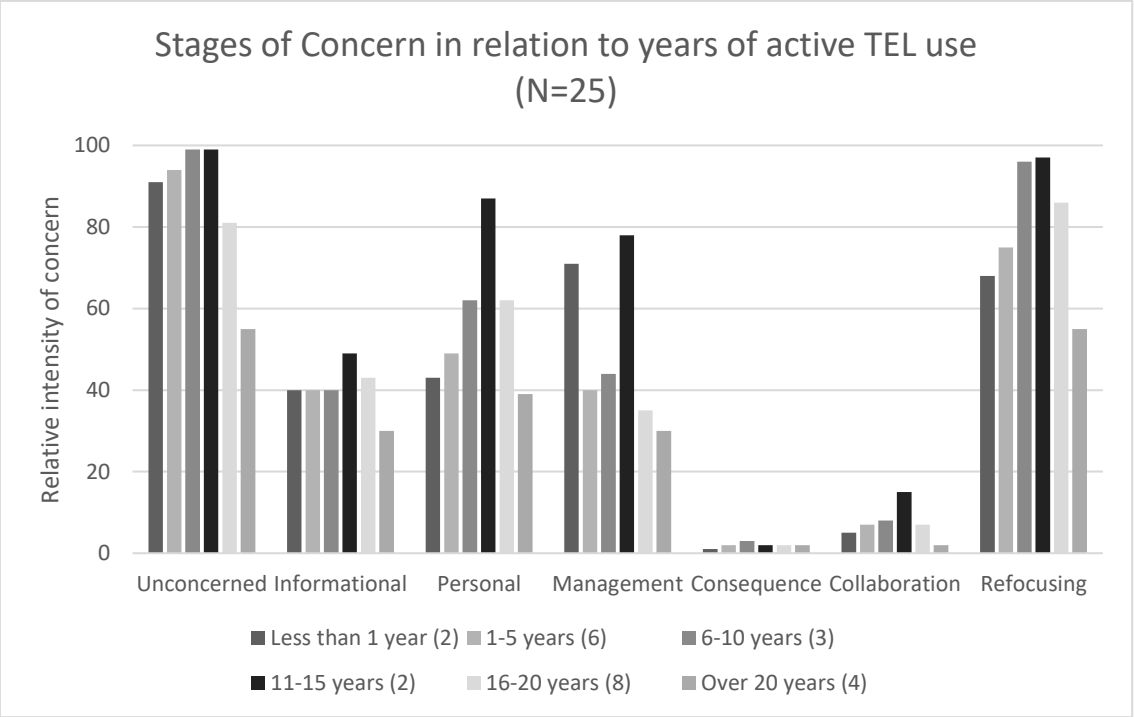


Figure 24: Change Facilitators' Stages of Concern in relation to years of active TEL use (Hall et al., 1991)

### 8.3.6 Years in HE and levels of concern

Another approach to presenting years in higher education was to isolate years in higher education against individual stages of concern. There are significant differences between years in higher education in relation to levels of concern within different stages. The findings below depict this relationship and the content represents all respondents.

The stage of *unconcerned* is an interesting category. The name implies little or no concern, and so it is counter-intuitive to depict high levels of relative intensity of concern in the stage, especially for those with one to 15 years' experience in higher education. This high level of relative intensity indicated low levels of concern related to technology-enhanced learning and/or little involvement with it.

Levels of concern related to the stages of *informational* and *collaboration* remained low across all categories of time in higher education. The *informational* stage indicates a

need to gather more information about technology-enhanced learning to fulfil a role as change facilitator. The lower level of concern in this category indicated sufficient information is available and may represent the change facilitator is functioning within his or her own autonomy, independent of the overall strategy. Likewise, the stage of *collaboration* indicated there is no concern related to collaborating with others because working together was already occurring or is not necessary in an autonomous environment where academics function independently and support staff tend to follow organisational direction.

The stages of *personal* and *refocusing* are also documented as higher areas of concern for those with between 1-15 years in higher education. The stage of concern related to *personal* reflects concern related to one's own role as a change facilitator for technology-enhanced learning. Although individual practice may reflect innovation and exploration of technology, the higher levels of concern are related to lack of institutional support, feeling inadequate to carry out a facilitator role, and concern about being acknowledged or rewarded for the work one is doing. *Refocusing*, in contrast, indicates efforts directed towards new technologies or replacements for the technology currently in place. These two categories go hand in hand; if one does not feel supported in their use of technology then attention is directed towards other tools where individual competence is present or where exploration serves as a motivator.

Those with 11-15 years in education indicated the highest level of concern in the *management* stage. These findings convey early years where one is possibly more cognizant of following management's direction in contrast to those with over 16 years in higher education who are not as directly influenced by management after having established their positions over time. The stage of *consequence* remained 'flat' and was deemed an insignificant finding, so it is excluded.

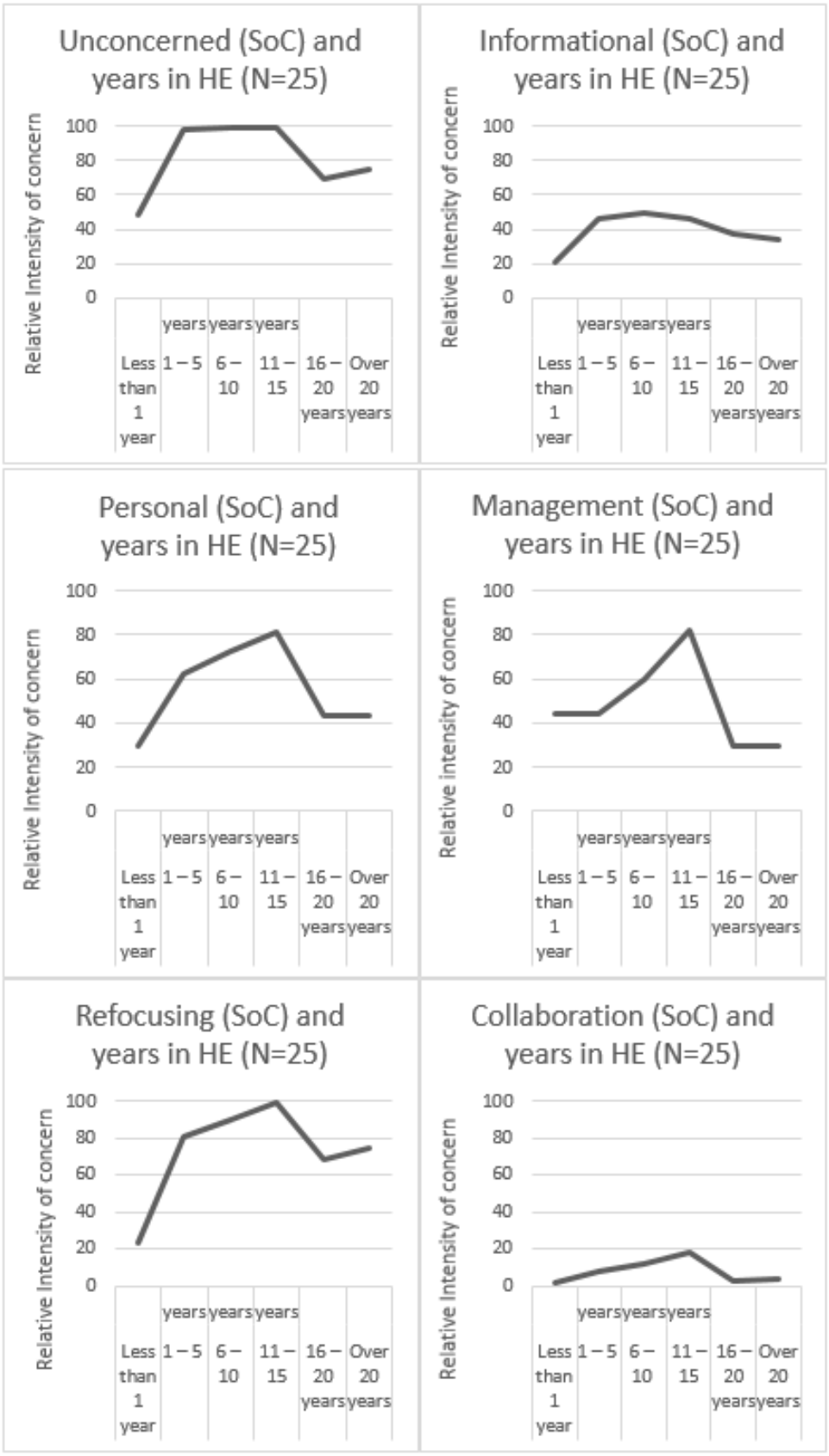


Figure 25: Change Facilitators' Stages of Concern compared with years in HE (All) (Hall et al., 1991)

Although comparing years in higher education with individual stages of concern initially appeared appropriate, it must be noted here that these graphs misrepresent the data. First, all respondents are included in the results, so this does not distinguish the findings by role, which may play a significant part in the intensity of individual concerns as well as which stage represents the most substantial level of concern. Second, whereas the categories of years in higher education offer specific ranges of time, the relative intensity of concern in each of these categories may represent one or more respondent. Hence, the outcomes are invalid for comparison purposes because one category may represent just one respondent and another may average the level of concern of several respondents. When considering individual responses in the raw data, the researcher identified significant variation within job roles and also within years in higher education. This is shown in Figures 26 and 27. Finally, presenting the findings in this manner in a small-scale case study is not appropriate and qualitative evidence will be more useful.

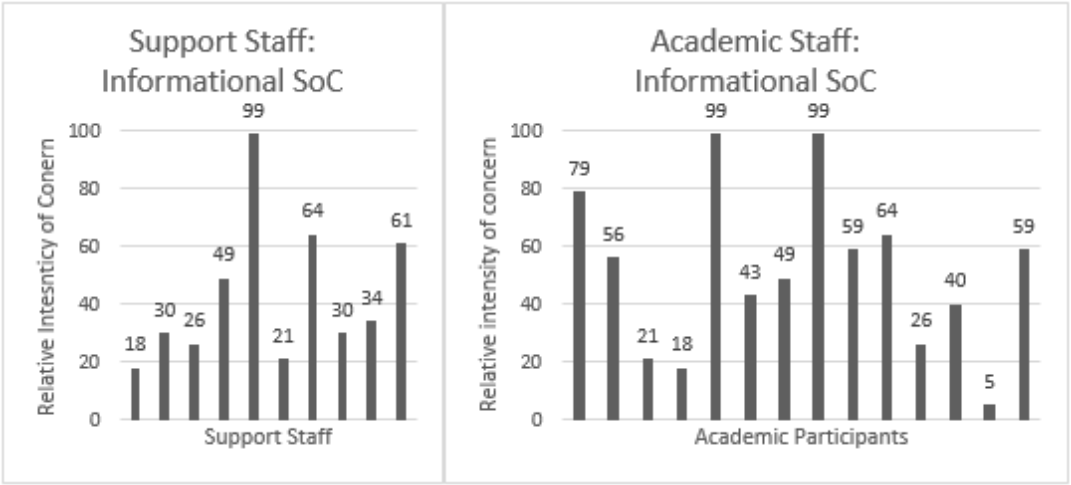


Figure 26: Informational Stage of Concern - Support and Academic Staff (Hall et al., 1991)

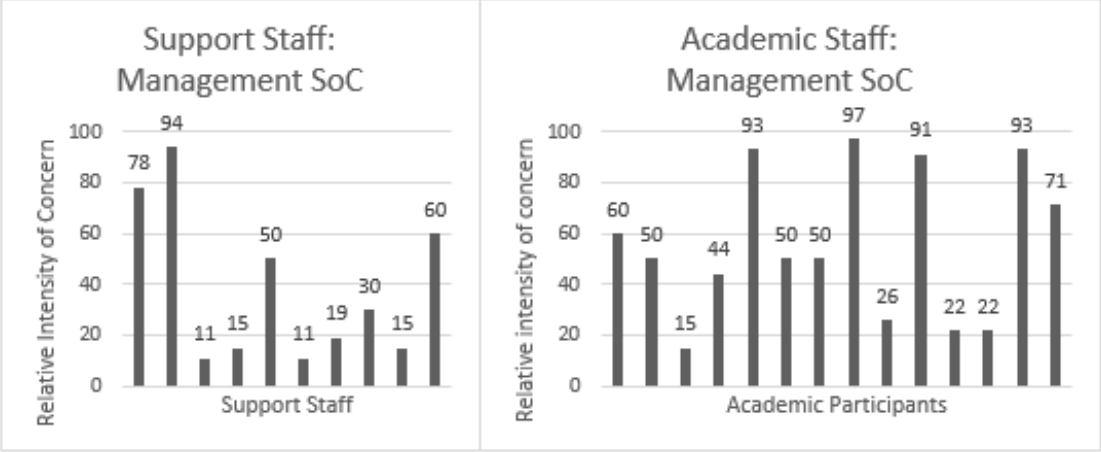


Figure 27: Management Stage of Concern - Support and Academics (Hall et al., 1991)

## 8.4 Levels of Concern

Before progressing with the demographic and categorical data, Table 15, also presented in Chapter 2, Table 3, outlines the Definitions of the Stages of Concern used throughout this chapter and based on the Concerns Based Adoption Model (CBAM) (Hall & Hord, 2011). It defines seven stages of concern that change facilitators may experience when working with and facilitating change related to technology-enhanced learning. The word *innovation* is used generically in the definitions below and was replaced with *technology-enhanced learning* in the CFSoC online questionnaire, specifically within the 35 pre-defined questions used to measure the levels of concern (see Appendix F).

Table 15: Definitions - Change Facilitators' Stages of Concern (CFSoC) (Hall et al., 1991:17)

| **Definitions - Change Facilitator Stages of Concern *** | |
|---|---|
| Unconcerned | "Change facilitation in relation to the innovation is not an area of intense concern. The person's attention is focused elsewhere." (This stage was originally called Awareness.) |
| Informational | "There is interest in learning more about the innovation. The concern is not self-oriented or necessarily change facilitation oriented. The focus is on the need/desire to know more about the innovation, its characteristics, its use and effects." |
| Personal | "Uncertainty about one's ability and role in facilitating use of the innovation is indicated. Doubts about one's adequacy to be an effective change facilitator and questions about institutional support and rewards for doing the job are included. Lack of confidence in oneself or in the support to be received from superiors, nonusers, and users are a part of this stage." |
| Management | "The time, logistics, available resources and energy involved in facilitating others in use of the innovation are the focus. Attention is on the 'how to do its' of change facilitation, decreasing the difficulty of managing the change process, and the potential of overloading staff." |
| Consequence | "Attention is on improving one's own style of change facilitation and increasing positive innovation effects. Increasing the effectiveness of users and analyzing *[sic]* the effects on clients are the focuses. Expanding his/her facility and style for facilitating change is also the focus." |
| Collaboration | "Coordinating with other change facilitators and/or administrators to increase one's capacity in facilitating use of the innovation is the focus. Improving coordination and communication for increased effectiveness of the innovation are the focuses. Issues related to involving other leaders in support of and facilitating use of the innovation for increased impact are indicated." |
| Refocusing | "Ideas about alternatives to the innovation are a focus. Thoughts and opinions oriented towards increasing benefits to clients are based on substantive questions about the maximum effectiveness of the present innovative thrust. Thought is being given to alternative forms or possible replacement of the innovation." |
| * Following CFSoC questionnaire protocol, the term *innovation* was replaced with the term *technology-enhanced learning* in the questionnaire, as determined by the researcher. | |

One useful feature of the CFSoC questionnaire was online access to the results and the ability to generate graphs from individual respondents or by filtering categorical responses. The auto-generated graphs available in the CFSoC online tool were graphically appealing, although the relevance of the graphs was identified as limited due, in part, to the small sample size. The graph below, for example, highlights the results from the 35 pre-determined questions of all 25 respondents by presenting the stages of concern based on years in higher education:

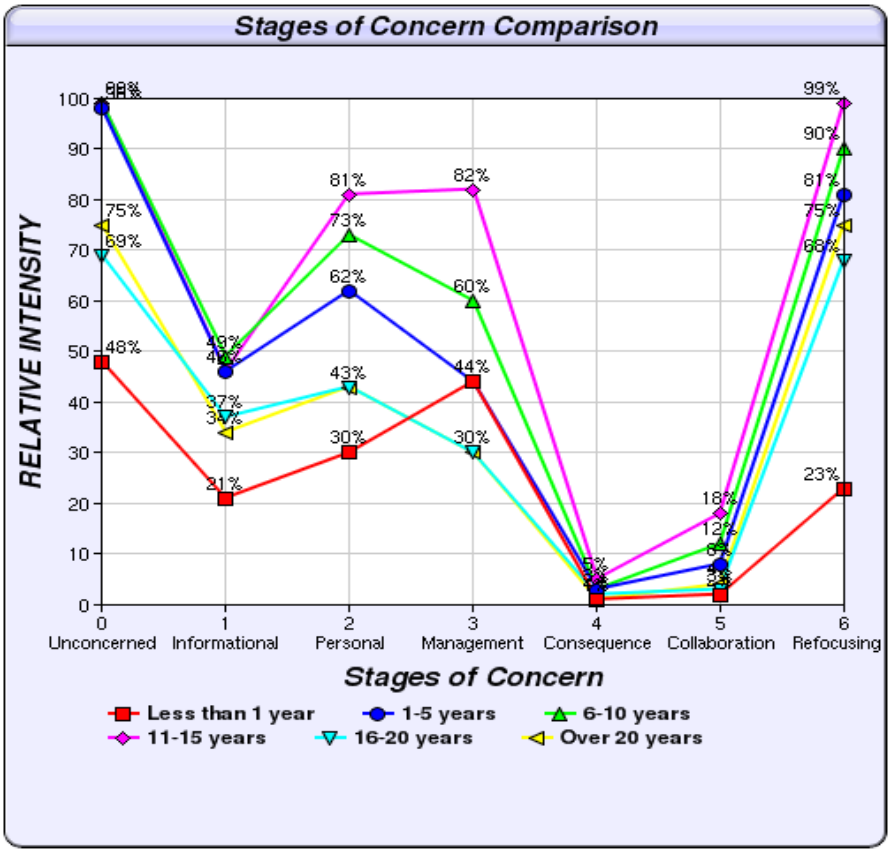


Figure 28: Stages of Concern output graph based on CFSoC questionnaire (Hall et al., 1991)

A quick glance at this graph could lead one to interpret those with less than 1 year of working in higher education as having lower overall concern about technology-enhanced learning and those with 11 – 15 years in higher education as having higher average overall concern about technology enhanced learning. This may be the case,

but with a sample of 25 individuals, the lines representing years in higher education do not indicate how many people are represented in that line, meaning the relative intensity might represent one individual or an average of two or more responses. Hence, without revealing the details or stipulating appropriate filters when pulling the graphs, the graph presents an incomplete picture. The graph above demonstrates why the data on the stages of concern must be presented in alternative ways, including through qualitative means.

The decision to exclude the readily available, yet largely irrelevant, graphs in the CFSoC online tool enabled the researcher to identify the most appropriate way to present the findings from the 35 pre-determined questions related to Stages of Concern about the use of technology-enhanced learning. For example, the researcher felt the levels of concern could not be separated from the respondents' categorical responses and the other variables that contributed to each individual profile. Hence, the researcher presents here demographic data as well as levels of agreement on categorical questions before introducing the interviewees in the form of a narrative vignette in Chapter 9, *Findings III*.

## 8.5 Introducing the Interviewees

The sections thus far have presented the findings based on qualitative and descriptive statistical data from all research participants. Although the combination of data collection sources from the CFSoC online questionnaire supports complementary findings, qualitative data was identified as enhancing questionnaire outcomes. While the descriptive statistical findings help craft individual profiles of the interviewees, they remain in isolation of their perceptions and roles within the Case Study University. The individuals each have their own story impacting their perceptions, beliefs, and practices. From the overall group of participants, six individuals were selected, invited, and in agreement to participate in a follow up interview. The subsequent findings from the interviews constructed in the form of detailed vignettes can be found in Chapter 9, *Findings III*. Figure 29 presents the six

interviewees and their individual levels of concern within each stage. See also Figure 36 in Section 9.8.

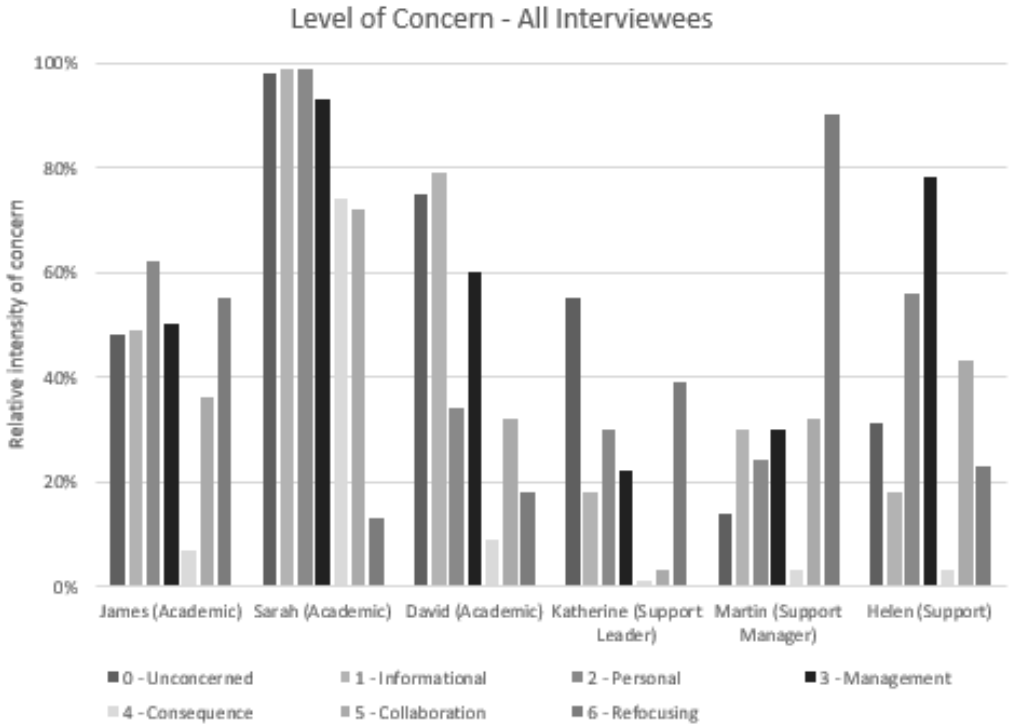


Figure 29: Level of Concern - All Interviewees (Hall et al., 1991)

## 8.6 Chapter Summary

This chapter presented the findings based on the stages of concern from the CFSoC online questionnaire as well as from the categorical questions and levels of agreement on key questions. Academic and support roles were highlighted separately as well as collectively within the categories as were years in higher education and years using technology-enhanced learning. Demographic information helped identify the profile of the participants.

Levels of concern were variable among the questionnaire participants. To further understand levels of concern, individuals were grouped to identify commonalities. For example, academic and support staff who all strongly agreed to being a

facilitator of technology-enhanced learning related change and who also had between 16 – 20 years using technology-enhanced learning resulted in several indications. Support staff had more concern in the areas of management support as well as in the category of *refocusing*, indicating attention devoted to technology beyond what was currently being used and supported. Academic staff, in contrast, demonstrated higher levels of concern in the levels of *unconcerned*, *informational* and *collaboration* indicating focus on areas within the remit of academic autonomy, while interested in gathering more information about technology-enhanced learning through the university, and balancing collaboration with others with independent action, respectively.

More support staff than academics indicated strong agreement to promoting technology within their current role. Similar results followed with the question of helping the university's technology-enhanced learning strategy, with more support staff reporting strong agreement. This contrasts with some of the open text questions, and later interviews, which noted disconnect to the strategic plan.

The next, and final, chapter on findings, *Findings III*, provides the narrative vignettes detailing the six interviewees in conjunction with the findings related to their concerns, as gathers from the CFSoC online questionnaire.

# Chapter 9: Findings III – Interviewee Vignettes

## 9.1 Introduction

*Findings I* and *Findings II*, presented outcomes from the Change Facilitator Stages of Concern (CFSoC) questionnaire. *Findings I* outlined qualitative data in the form of open text responses. *Findings II* provided descriptive statistics stemming from the 35 pre-determined questions based on a seven-point Likert scale related to individual stages of concern about adopting new technology as well as presenting the demographic context of the research participants and level of agreement of key categorical questions. As described in Chapter 5, the researcher applied purposive sampling strategy to identify 65 individuals within the case study institution who outwardly demonstrated engagement with technology-enhanced learning. Of the overall group of 65 individuals, 25 responded to the online questionnaire. From the CFSoC respondents who agreed to a follow up interview, the researcher identified seven individuals and invited them to participate in a semi-structured interview, of whom six agreed. The interview invitees all strongly self-identified as facilitators of technology related change and equally agreed to promoting technology-enhanced learning in either their academic or support role.

These final findings chapter, Findings III, presents summaries of six participant interviews as individual vignettes. Each vignette highlights one interviewee's perception, beliefs and practices of using technology-enhanced learning in their professional roles with some insight into their own use of technology. While the narrative below drew primarily from the interviews, responses from the CFSoC are included in the initial brief sketch for each vignette. These vignettes highlight the participant's role within the Case Study University, outline their relationship with technology-enhanced learning, and depict their interface with institutional strategy. This research explored factors that motivated the individuals in their use or

perception of technology-enhanced learning as well as the tools they used. The concerns they had, as well as the barriers they experienced on individual, departmental or institutional levels, were recognised and discussed. Finally, participants' relation to institutional technology-enhanced learning strategy was examined.

## 9.2 James (Academic)

### 9.2.1 Brief sketch

*James was an academic with between 6-10 years in higher education with several additional years in secondary education. He reported over 16 years of actively using technology-enhanced learning throughout his combined career in education. He reported that he was a Senior Fellow of the Higher Education Academy. He responded with 'strongly agree' to the question about whether he identified as a facilitator of technology-related change as well as to the question of whether he actively promoted the use of technology-enhanced learning within his current job role. He felt he was supported in using technology in his role, although not strongly, and confirmed his contribution to the university strategy towards increased use of technology-enhanced learning. His highest level of concern was under personal and refocusing.*

### 9.2.2 Background

James described himself as a "great believer in technology and all the affordances it has." He reflected on his portfolio of devices, gadgets and digital tools, readily accessible either on his person, at home or at work. He noted how his private and professional use of technology are distinctly intertwined and inseparable. For example, most of his private and professional resources are cloud-based and he defined his office as virtual and not dependent on physical space. He hinted at the restriction of time and space dependency in the university, as he still taught in a classroom environment, which he defined as a specific location and face-to-face presence. He described the cumbersome nature and limitations of institutionally

provided resources, such as the virtual learning environment and physical books, as "unfriendly" and with "poor interface." In contrast, he noted his preference for consuming and sharing his material and resources electronically. For this reason, he created his own online collaborative spaces as a way of structuring the student experience in a flexible yet pedagogically sound manner. The flexibility afforded enabled him to link to other digital resources, user-friendly tools or accessible services. Periodically, the university expected him to use university technology since students were required to submit their work via institutionally provided anti-plagiarism tools. He reluctantly and minimally engaged with these spaces. He reflected further on the technologies provided by and in use at the university: "They tend to operate around well-known or well established technologies. Most of what the university uses are well established." These technologies, such as the virtual learning environment, are not the latest versions of products or services or recent innovations to the educational market, but ones that have been proven by other higher education institutions and are often cumbersome to integrate and lengthy to introduce.

James mentioned strategies for making changes to existing teaching practice reflected on several different levels. He was clear that it ought to start with the individual; Individual enthusiasm and personal demonstration must be the basis for initiating change. In addition, he gathered evidence from his own research and engagement in the field and suggested that this critical look provided him, and others who are willing to listen, with relevant evidence. By providing testimonials and suggestions for good practice based on experience and evidence, he provided indirect support and a clearer path for others to follow. When discussing whether these approaches work in helping to facilitate uptake of technology-enhanced learning, he stated that sometimes "you need to tell people that we are moving forward and you have to buy into this." He reflected on several internal projects the previous year in which academic staff were "encouraged" to do a project related to technology-enhanced

learning. Departmental staff demonstrated mixed engagement and few results. During the year in which this interview took place, the departmental strategy shifted advising academic staff to implement a technology-enhanced learning project. James reflected on how they not only had to consider a project using new educational technology but also "to identify and implement [the] project." He mentioned that this directive was from and enforced by the Dean of the department because there was "enough proof that it is useful and valuable."

### 9.2.3 Technology-enhanced learning

Regarding technology-enhanced learning, James provided the following definition: "The use of technology to meet current and future pedagogic needs and to challenge existing pedagogic models or ideas." He appeared to embrace and demonstrate this in his own teaching practice. He found tablet computers most beneficial in his job role, for example, as they encouraged alternative practices for both teaching and learning. He offered several examples of applications or other tools and resources that enhance student learning. He mentioned his own desire to learn through dialogue or through discovery, and how technology can often help facilitate that. Reflecting further, he noted that he had "a lot of personal technology in the house" and although these technologies served different functions, he was quick to point out that he personally continued to learn new skills enabled by available technologies.

### 9.2.4 Barriers

James was quick to suggest factors and approaches applicable for achieving wider use of technology-enhanced learning and he addressed some of the barriers he had experienced. He first identified three specific barriers preventing more technology use in education: policy makers, teachers and the education system. He indicated that policy makers had generally not experienced technology in their own education and so there was no connection with newer ways of doing things with technology in education. Secondly, teachers themselves may not always see "that current practice

may not be the best and it is hard to change." Although he described himself as privately, and professionally, a "huge advocate of technology" he still liked lecturing and felt he was good at it. Yet he acknowledged that it was easy to "fall back into practice that you are used to and are comfortable with." Sometimes, he claimed, the evidence pointed overwhelmingly to the fact that lecturing was not as effective as alternative, technology-rich methods of instruction. He summed up this point by reflecting that although many are "keen to use tech to improve practice…. changing is an issue." Finally, the educational structure itself prevents innovation, "mostly because of the assessment system." The essay remained the primary form of assessment; despite new ways of creativity and inquiry technology afforded. The alternative assessment opportunities he would like to introduce included use of video, electronic portfolios, digital mind maps, to name just a few, although "the exam board is going to struggle seeing that at Master's level." In short, "the technology is stymied by the assessment system." He concluded this topic with a reflection on how "seismic changes are going to happen because of something else" and provided an example of the motorcar whereby people were interested "more about getting rid of horse manure than actually wanting cars."

On an institutional level, James expressed his frustration at university-wide barriers caused by expectations and decisions surrounding technology-enhanced learning. Some expectations and decisions, he stated, did not appear to question the need, applicability and impact of the tool itself, despite considerable cost and extensive implementation time. One example is the learning portal or platform. Now, most universities had a learning portal as the primary internet-based point of entry into the university's modules and virtual systems; however, he asked himself, "Do we need to deliver content in this way at all?" His most poignant comments follow here: "Expectations are quite varied across the university and my understanding is that, although I am quite low on the hierarchy, very low on the hierarchy, is that it's 'how

can we improve what we are doing' not 'how does the technology challenge what we are doing?' and demand big change."

### 9.2.5 Institutional strategy

James had little to say about institutional strategy as he did not feel particularly connected to it nor did he feel it related to him or his professional practice. His awareness extended to as far as the fact that strategy existed in some form, although he explicitly felt it did not inform his own actions. In his career over the past 10-15 years, he focused on "what I like doing" which distinctly excludes meetings and policy discussion. He described himself as "not so good at linking to the bigger systems" and remained comfortable and competent planning, practising, and supporting staff around technology exploration. His contribution to strategy, therefore, linked exclusively to his own practice and *de facto* role as change facilitator: "It is easier to do something in your own classroom. It is reasonable within your own department or faculty. To take things to a higher level someone must have a more strategic view and more strategic plan. If I contribute at all to that I think it is just by the kind of stuff that I am doing that comes to the attention of other people. Then people start asking, could this happen in engineering? Could this happen in health? Could it happen in biology?"

Although James was not in a senior management role or directly connected to strategy at the time of the interview, he reflected on his experience in a secondary institution where he was in a management role and involved with strategy. His thoughts on how best to implement strategy related to his previous statement about demonstrating the change one wishes to see, yet he added the importance of including support: "First, try to get champions (not my word), and enthusiasts from different areas. Always work in change by bringing people together to throw ideas around." Despite his own efforts within his department, he did not feel the "faculty itself has quite bought into using technology." He attributed this to academic staff

being “more uninterested rather than disinterested” or not wanting to learn more, in contrast to being impartial, respectively. Overall, he remained content with his own approach and his ability to affect positively those willing to learn how to use and implement technology-enhanced learning within his own sphere of influence. Despite important progress as a change facilitator, he was frustrated “with change not happening faster” in the department as well as in the university.

### 9.2.6 Level of concern

James indicated moderate levels of concern in the following three areas: *personal*, *management* and *refocusing*. Two other areas hovered just below 50% - *unconcerned* and *informational*.

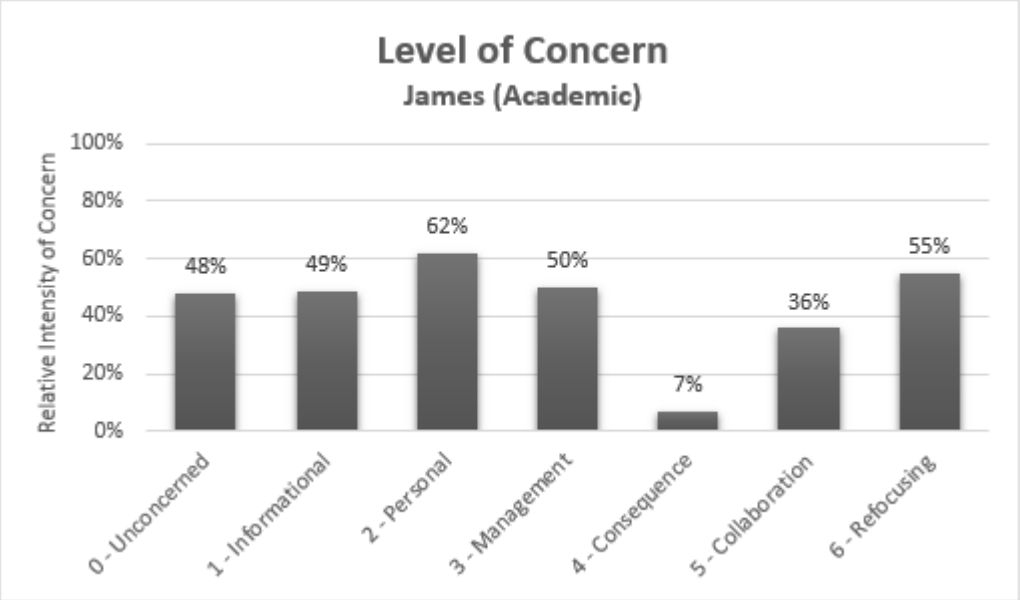


Figure 30: Level of Concern - James (Academic) (Hall et al., 1991)

This indicated James experienced consistent levels of concern across most stages. The lowest level of concern was in the *consequence* stage. The three moderate levels reflected a lack of external recognition for taking on a change facilitator role and lack of institutional support (*personal*), a question on how to best facilitate change with available resources (*management*) and forward thinking on new ways to embed

innovation in the teaching practice (*refocusing*). This concern profile was confirmed in several ways from the questionnaire and the interview.

## 9.3 Sarah (Academic)

### 9.3.1 Brief sketch

*Sarah was an academic with between 11-15 years' experience in higher education; much of that time was in a research role rather than a teaching role. She reported 6-10 years of active use of technology-enhanced learning and strongly identified as a facilitator of educational technology-related change. She indicated she was not a member of the Higher Education Association on the CFSoC online questionnaire, although she clarified during the interview that her application was in process. She also strongly agreed that she actively promoted the use of technology-enhanced learning within her current job role. She neither agreed nor disagreed in response to the question of whether she felt supported to use technology-enhanced learning in her current job role. She strongly felt she was helping the university in its strategy for increased use of technology-enhanced learning. Her highest levels of concern were nearly equally high across all stages apart from the last stage of refocusing which demonstrated as area of least concern.*

### 9.3.2 Background

Sarah described her private use of technology as straightforward; she used web-browsers, participated in social media, shopped online or connected with friends. She was not one to go out and buy the latest gadget, however, and reflected deeply on the impact new tools can have and how they might be used to her advantage. Her professional use of technology was focused solely on communicating with students in some way. She noted that students preferred to connect with her via email or through online messages, although she admitted feeling slightly uncomfortable on one occasion when she received a meeting request via Twitter. She used available "technology almost exclusively in dealing with student assignments for almost three years now" and was seriously exploring assessment for learning models in her

approach to teaching. Providing feedback to her students electronically in advance of a meeting enabled her to engage in a richer and more meaningful conversation when she met her students face-to-face. Although she thought electronic feedback tended to work well, she noted that learning resources are a different matter. She found that her students preferred "actual physical books" to digital learning resources, just as she preferred direct conversations with her colleagues rather than extensive email chains.

### 9.3.3 Institutional strategy

Sarah's own willingness to explore new technology has led her to become the *de facto* 'technologist' for the department: "I slipped in by default to the position in the department as someone to go to who knew about these things." She reflected on how she agreed to be one of the first to roll out electronic submissions and feedback, yet she was quick to mention the exploratory nature of the project, which was not connected to a strategic plan at all. Regardless, she conducted a few departmental "*ad hoc* training sessions, more on the 'how you do it' rather than the intricacies of feedback." By teaching others how to use the tools, she herself explored the resources much more deeply and became much more knowledgeable than she would have done otherwise. Although she was keen to explore and implement new ways of doing things on an individual level, the shift in the discussion to rolling out electronic submission and feedback across the department made her anxious. She discussed this possible shift with much trepidation, as she did not feel the resources were fully in place to support the transition. Despite informally helping others with their use of the technology, it was not her role nor was she compensated for her time. There was insufficient administrative support as well as challenges with booking time with someone from the central technology team. She reflected on several perceived risks of going online with submissions and feedback: "I am concerned some people think it is easier because it is online" and yet they will ultimately need considerable administrative support. This concern combined with a recent reduction

in administrative staff in the faculty. This concern highlighted multiple aspects of implementing new technology: pedagogic impact, the technology itself, integration with existing systems and access. This led her to reflect on even more detailed administrative requirements, which were quite time consuming: student set up, evaluation rubrics, assignment set up and team teaching challenges, to name but a few. She recommended dedicating a departmental administrative member of staff to address these tasks during the initial introduction to handle the demand.

Sarah's perception that the university was finally serious about using more technology in teaching underpinned her own increased use of technology. With the creation of a very small but dedicated team of technology advisors, she felt the university wanted to begin changing and that her efforts would not go to waste: "Whereas before, there have been a lot of initiatives by the university … the latest new thing and then it's gone quite rapidly…but there has been a fundamental shift." Despite acknowledging the small increase in centralized support as positive, she was quick to point out that departments had dedicated disability tutors for students but there were no technology-enhanced learning or administrative support for staff. Although she was clear in acknowledging the new technology support team as a "message" or "sign" from the institution, it was evident that the realities and scope of requirements were far greater than available team members could influence. Although she had *de facto* taken on the role of the educational technology support person, this role would likely to transfer to someone else. She was not adamant about having this designation but felt very strongly that someone should take on the role and be available for academic staff in the department. There was substantial evidence that it was valuable although additional support does not mean the change towards or uptake of technology will be easy. She identified that although support was important, it was "really hard to get out of the content heavy mentality and try to change that."

### 9.3.4 Technology-enhanced learning

Sarah reflected on a pedagogic shift she noticed in the past two years. Whereas in the past she used technology to do what she had already been doing, she now approached technology differently: "I try to completely change my approach to teaching and learning and not just use it to do what I'd been doing already, but try to use it to engage with students differently." This attitude change resulted in accelerated use of technology and she found beneficial results in working with students in new ways. Thus, it was more the pedagogy behind the available technology that she finds encouraging and useful as a teacher. She was in the auspicious position of experiencing teaching from a student's perspective as well since she was working through modules to gain her Post Graduate Certificate in Higher Education (PGCHE). She gained a new appreciation for the student experience as she faced expired licences for required online tools and restrictions with activating digital learning resources: "As a student… I've experienced when the technology is not really used that well and how that can impact you as a learner." These experiences led her to reflect on the "increasing diversity in the student population over the past 10 years" which challenged her to think about reaching a varied student audience. This included recent reflections on how she "can use technology to raise attainment levels." She found she represented one side of the divide amongst her colleagues: One side "sees it as our job to try and improve outcome" and others who say, "here's my material and here's my knowledge and understanding as a teacher and it's up to them to do something" with it.

### 9.3.5 Level of concern

Sarah's responses on the Change Facilitator Stages of Concern questionnaire are all very high across all but one level of concern, *refocusing*, indicating high overall levels of concern.

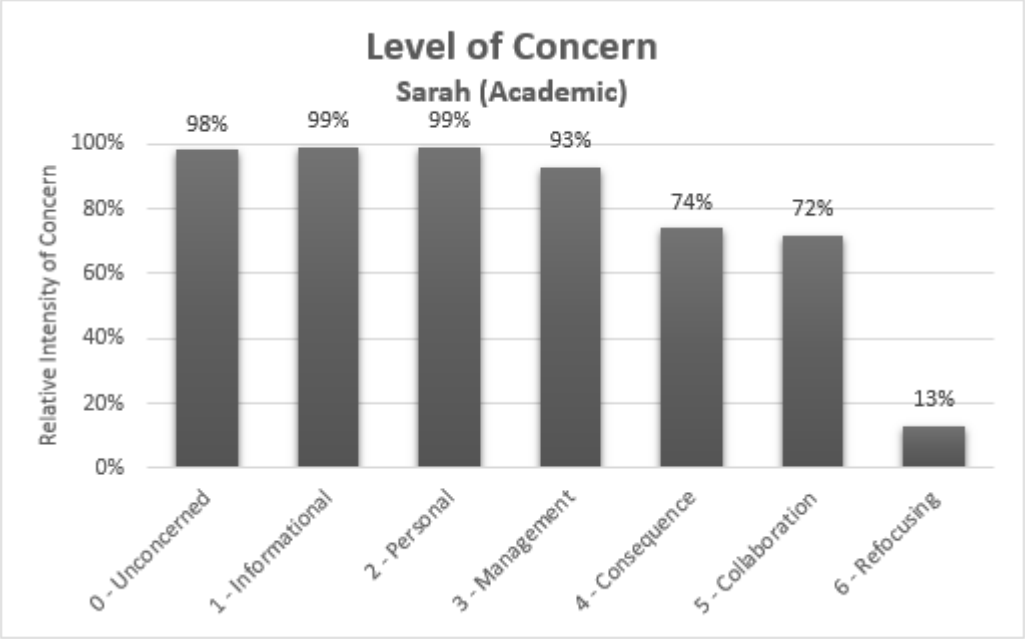


Figure 31: Level of Concern - Sarah (Academic) (Hall et al., 1991)

Her results demonstrate highest levels of concern in the areas of *unconcerned*, *informational* and *personal* and then dropping slightly at *management* and then dropping more significantly but remaining stable at *consequence* and *collaboration*. The stage of *refocusing* is very low. Despite the perceived shift, this reduction in focusing on other innovations is indicative of some of the challenges she has experienced in using technology-enhanced learning.

## 9.4 David (Academic)

### 9.4.1 Brief sketch

*David was an academic with over 16 years' experience as a researcher and teacher in higher education. During this same period, he indicated he actively used technology to enhance student learning. He indicated that he was not a member of the Higher Education Association. He strongly identified with being a facilitator of technology-related change as well as actively promoting technology-enhanced learning within his job role. He responded with 'neither agree nor disagree' to the question about whether he feels supported to use technology in his job role, which was explored further in the interview. Finally, he strongly*

*believed he contributes to the university's technology-enhanced learning strategy. His highest levels of concern were in the stages of wanting more information about technology-enhanced learning and its management.*

### 9.4.2 Background

David described his initial exposure to and use of technology as driven by job opportunities as well as his own research and education. For example, research had long been a core element of his career. When working with statistics and manipulation of numbers, he stated, "You have to learn the technology to do the job." Working with technology to solve problems and finding efficiencies in his career fostered his own exposure to and experience with technology and sparked his desire to learn more. He clarified that the technology really enabled him to realize his ideas: "I might have had the ideas 10 years ago but the technology was not there to fulfil that or implement that idea." Shifting from research to teaching, David reflected on a point in his use of technology that made him realize he could "do more than just stand up and teach." He expressed his wish "to be the best teacher" that he could be, which also included helping students who "are immersed in a digital world." It is not only the opportunity for new ways of teaching that inspires David, but also a pragmatic stance to give students a chance to learn in new ways and explore new levels of creativity: "using technology allows you to be creative and create things." David articulated how creativity was one of the higher order skills on Bloom's Taxonomy of instructional design, so using technology to create fulfilled his wish to be an excellent teacher and to best prepare his students for life beyond university.

Without resentment, David observed that the lines between his professional and private technology use were "blurred" with "little distinction to learning things for work or for personal" use as they often had joint application. He reflected how he often put himself in the learner's seat by signing up for online classes to learn new

skills. In this manner, he kept his own skills up to date and applied them in his own teaching when relevant. By modelling this practice, he demonstrated lifelong learning and kept abreast of changes in technology as well as pedagogic application of technology.

### 9.4.3 Technology-enhanced learning

David described technology-enhanced learning as, "the use of any digital technology to enhance learning or to aid the delivery of content." His decision to use technology in his teaching, research and private spheres was fully his own motivation, paired with his drive to do innovative things and the necessary resilience to see things through: "I like to be on the edge of doing things…sometimes I like doing things to show other people what's possible." This did not necessarily come easily, however, and he was clear that there were challenges with testing and implementing new technology. Resilience was one of the key traits he identified that helped him persevere. It was this combination of teaching excellence, pragmatism for student's success after graduation and wanting to show others the possibilities that led him to identify with being a facilitator of technology related change. He embodied the role of a leader, which he viewed as directly related to his ability to facilitate. However, being a leader means he was "taking all the hits for the team" and working out the details so others could more easily consider adopting technology. He often felt like "a rogue", which often ended up creating problems primarily because his own technology approaches were not systematically applied throughout the institution. Regardless of the impact of his own teaching practice with students, he came to be known in the department as "the local IT guy" who showed others how to do things and how to address and solve practical day-to-day computer and technology issues. David reflected on how others in his department use technology: "Some others are interested but they either do not have the confidence to play or the motivation or the carrot and stick balance to do it." He felt the fundamental problem was that promotion was based on publication, not teaching and learning practice, so research

and publication drive academic staff. The "carrot and the stick" was the same answer he offered when asked how the process of change could be facilitated to achieve higher levels of adoption. He felt the status of teaching was not elevated to the same level as research, so behaviour was driven by the primary motivator: research. He reflected on the rather disappointing, and potentially demotivating, fact that it does not really matter if technology was used in the class "because nobody notices." Although some technologies were available within the department and institution, the only technology requirement for students to use and teachers to access was the anti-plagiarism check. In addition to minimal requirement to use technology, the curriculum was also at the discretion of individual academics and was not institutionally prescribed. However, he felt encouraged by the discussion of the REF equivalent to teaching – the TEF – as he believed this might highlight and encourage recognition of innovative teaching practices, though he was sceptical on how excellence in teaching will be measured and what role technology will play in the evaluation. He pondered different teaching approaches and observed that an animated, dynamic teacher is not necessarily better than a quiet and reflective teacher, just as someone who uses technology is not necessarily superior to one who does not. Overall, however, he remained very interested in elevating the status of teaching and learning and felt that balanced recognition of research and teaching could raise the focus and importance of teaching in positive ways, as well as highlighting innovative uses of technology.

David noted that some of the recent teaching and learning initiatives had elements of technology but they were ultimately more administrative changes than changes in practice. He felt the activities that were happening on an institutional level were more superficial than deeply rooted in a true desire to integrate technology in a pedagogically sound way. To emphasize his point, he drew upon the most recent strategic plan and the proposed changes, which, upon reflection, had not influenced the way he works at all: "I am still teaching the same modules in the same way, using

the same technology that the institution provides. So even if you have a strategy it doesn't mean it gets down to the people who need it and I think that's a big problem with technology-enhanced learning and teaching and learning in general."

David's mind-set required evidence to validate credible educational technologies and he strove to document and track his own practice so others could also benefit. He challenged the lack of data analytics on an institutional level as he felt the institution ought to capture information about technology use and learn about best practices. From an institutional or faculty perspective, capturing digitally available information would be important to share and people could look at rich information and make decisions based on these data: "We need more data, whether from internal studies or externally published, on the benefits (or not) of technology-enhanced learning. I would like to see… resources for academics outlining in clear language the evidence for or against using a range of technologies in class."

### 9.4.4 Barriers

David clearly identified the lower perceived status of teaching and the lack of evidence-based technology resources as two barriers to effective and more widespread use of technology-enhanced learning within the institution. Another barrier, he noted, was the infrastructure supporting the use of technology: wireless connectivity, online accessibility, ease of use. He referred to messages from leadership about being responsive to change, yet not having the ability to do so: "They want us to be more like a business but we don't act like a business. If a business took five years to do something they would be out of business."

David noted a possible reluctance of academic teaching staff to try new things and "not to be afraid of change" as a reflection on the national culture as well as the institution type. From one perspective, he observed a British reluctance to try new things, noting that his own interest in technology had given him the ability to explore and not be afraid to try new things. Alternatively, the institutional message was that

a research-intensive university should focus on research, in contrast to post-1992 polytechnics, where teaching and learning was a focus before the transition to university status. This positioning has a large impact on how the institution projects its priorities beyond the campus environment; how it is perceived by the outside world and where it is situated in public rankings. He remained frustrated and noted "100 years of tradition is tricky to change."

### 9.4.5 Institutional strategy

Regarding institutional strategy related to technology-enhanced learning, David recognized that new members of staff supported institutional strategy by agreeing to help technology initiatives. Reflecting on the number of students and academic staff members, however, he found it unsettling that there were only a handful of people to support academic staff with technology-enhanced learning. Other institutions have 40 people supporting technology and e-learning initiatives, which is an indicator of its value. He cited "value" as the missing element to his institution offering this support: "If we valued that, we would have those types of people in every department and in every faculty. We could go to curriculum designers, pedagogic people, technologists… I want the institution to provide me or help me with that sort of information and they don't do it." He explicitly stated that he did not like the word "champions", but suggested local "champions" are exactly what is needed to engage more people and to demonstrate ways of using the technology.

David spoke frequently about strategy and reflected on his own strategy as compared to the institutional strategy, identifying macro and micro levels: "I've certainly got a strategy for changing things in my department but that is not going to change anybody else. Whether that matches up with the institutional strategy, I am not really sure, and sometimes it doesn't because I am just a single person and maybe my ideas are different from other people. So in a way, I am implementing my own strategy because I don't see a bigger one coming our way… I have limited ability…

at the institutional level." He resigned himself to the micro level and his own sphere of influence and remained frustrated "that the strategy doesn't match up with the implementation because of these constraints."

On institutional strategy, David returned to the aforementioned fact that the role of academics was that of research and research motivated professional practice and was rewarded with promotion: "Very few academics become lecturers with the aim of teaching. They do a PhD, which is a research degree and then they go into academia. They don't do a teaching degree and go into academia…. most people are forced, in a way, to do the teaching." David connected his own experience with the institutional structure of recognition as one of the constraints of the institutional technology-enhanced learning strategy. It was not aligned with what motivated those meant to respond to the strategy and therefore implementation was lacking. He even seemed to question his own authenticity: "I've developed my teaching style based on trial and error. It is a bit ironic that I teach the students about basing their actions on evidence and theory and not using trial and error and here I am as a teacher just using trial and error." He addressed this disconnect within his own experience whereby his own teaching was not underpinned with learning theory or pedagogic principles despite innovative use of technology in his teaching practice. He mentioned that his knowledge about pedagogy was from his own reading. There was no connection with trained teachers or any other official, systematic or central approaches. He observed how funding was allocated to establish dedicated departmental student success officers to help students with their questions, yet he reflected, "Why can't we afford people who can help staff with being a better teacher"? David was not an educational researcher, but he would value having someone with that skill set to help him sift through the multitude of learning technologies and theoretical frameworks to support the use of technology. For example, he would find a literature review on the effect of educational technologies

interesting to help him within his own teaching practice in the context and environment of the institution.

### 9.4.6 Level of concern

On the Change Facilitator Levels of Concern questionnaire, David's responses indicated his highest concerns were situated in three areas: *unconcerned*, *informational* and *management*.

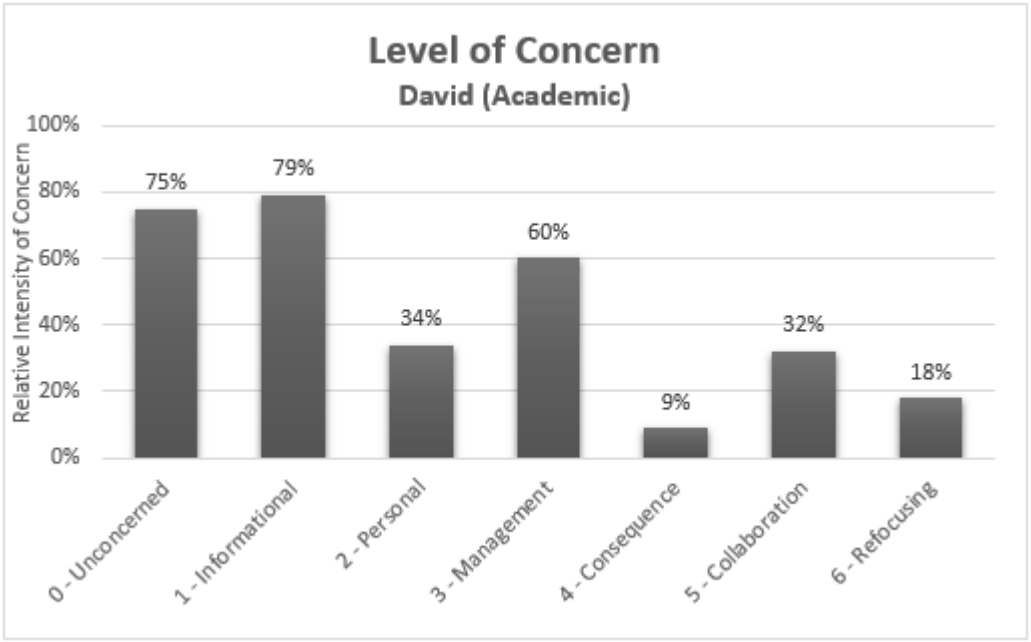


Figure 32: Level of Concern - David (Academic) (Hall et al., 1991)

Although the *unconcerned* stage reflects a higher percentage on the level of concern scale, this indicates that he is not highly concerned about the technology itself. Variations between the stages of *informational* and *personal* are noteworthy and more significant than variations against the stage of *unconcerned*. *Informational* stage is not focused on one's own use of technology but rather on its uses and effects, which aligns with David's statements in the interview about wanting to understand the pedagogy behind the use of technology-enhanced learning as well as his desire to become a better instructor. The final stage which emerged as a high level of concern

was the stage of management. This stage reflects on the role of the change facilitator and the concern of ease of use and overloading staff with technology.

## 9.5 Katherine (Support Leader)

### 9.5.1 Brief sketch

*Katherine was previously an academic and was in a leadership support role at the time of the interview. She reported 16-20 years' experience in higher education as well as equal time actively using technology-enhanced learning. She indicated strong identification as a facilitator of technology-related change as well as strong agreement that she actively promoted technology-enhanced learning within her job role. She was a Principal Fellow of the Higher Education Association. She strongly agreed to feeling supported in using technology in her job role as well as in feeling she was helping the institution in its strategy for increased use of technology-enhanced learning. Her levels of concern reflected that of a minimally involved change facilitator with concerns on other aspects of her role unrelated to technology-enhanced learning.*

### 9.5.2 Background

Katherine described her individual use of technology as finding information and staying connected. This mirrored her professional use of technology where she also used technology when it enabled efficiencies and solutions for accomplishing goals and project objectives. She noted, however, that her use of online technologies decreased as her responsibilities increased. Since she was no longer teaching, Katherine's technology focus was on presenting information and collaborating online in her current strategic role rather than pedagogic application of technology. This shift in role resulted in difficulty "to just keep up to date" with the latest technologies as well as resulting in a slower rate of technology adoption since it was not required in her position at the time. She remained "always interested" in what was available and explored online learning when relevant, though again, time was against her with her job responsibilities.

### 9.5.3 Technology-enhanced learning

Katherine expressed her view on technology in a broad sense, allowing the term to encompass a wide range of interpretations and applications. In the teaching and learning context, technology-enhanced learning "supports student learning and staff teaching activities." She viewed staff understanding, capability and time as some of the most significant barriers to effective use of technology-enhanced learning opportunities. She felt there was often "too much focus on technology driving innovation rather than supporting innovation." Another major concern was "timely and responsive decision-making" individually and institutionally. Although there were barriers, she thought the potential benefits were increased credibility among students, improved student experience and increased opportunity for learning.

### 9.5.4 Institutional strategy

When discussing whether there was agreement on the expectations of technology related change within the institution, Katherine clarified that agreement depended on the perspective: "I think there is institutional agreement with regard to what we want to do, but how that actually manifests in practice is going to be a negotiation." Her approach accommodated discipline specific requirements rather than setting minimum expectations of every programme or module. Alternative approaches might be to set minimum expectations of technology-enhanced learning, which inferred support was available to help academic staff members meet requirements. Finding the right balance of presenting requirements was challenging, "if it is not clear what success looks like then it is very difficult to change and to measure change." This is especially true when it comes time to validate technology-enhanced learning achievements. A "bespoke, targeted, contextual" approach requires resources, such as financial as well as skilled support from pedagogic technologists. The institution offered strategic decisions which expected "people to teach and learn differently" underpinned by a selection of tools that the institution could "realistically support" as part of the learning and teaching strategy. Upon reflection,

she was very clear that "there is an awful lot of operations support and advisory work" that needs to take place and that sufficient support remains one of the challenges of facilitating the change process to achieve higher levels of implementation. She perceived the current support structure as limited.

Katherine described the institution itself as "a long steep way behind other institutions in the sector", although she indicated that it was readily evolving in response to strategic plans. She was adamant that the institution "cannot afford to stand still" and that "steady state is responding, reacting and thinking ahead and not allowing ourselves to fall behind in the sector again." Regarding the teaching and learning strategy, it must "focus on added value" and "on the broader student experience" as well as being a realistic guide for the institution. She acknowledged that strategy was a tricky concept: "You can spend an awful lot of time writing strategies and not actually doing it."

Any new change initiative requiring a shift in practice, such as this institution's strategy for technology-enhanced learning, would be a "big shift for a lot of people" and "people are very complex creatures." In very simple terms, Katherine stated that supporting change "is about getting things in place and having guidance there so that when people need it or want it, it is at the touch of a button or it is there to look at." Connecting inexperienced people with those who have already implemented innovative ways of using technology in their teaching and learning was one approach Katherine felt would help promote increased use of technology to enhance learning. In short, strategic change requires appropriate and accessible support that must ultimately revolve around "embedding a change culture."

### 9.5.5 Level of concern

On the Change Facilitator Stages of Concern, the first stage called *unconcerned* reflected the highest relative intensity of concern, which indicated Katherine's

primary concerns were not directly connected with technology-enhanced learning and a substantial amount of other areas of focus.

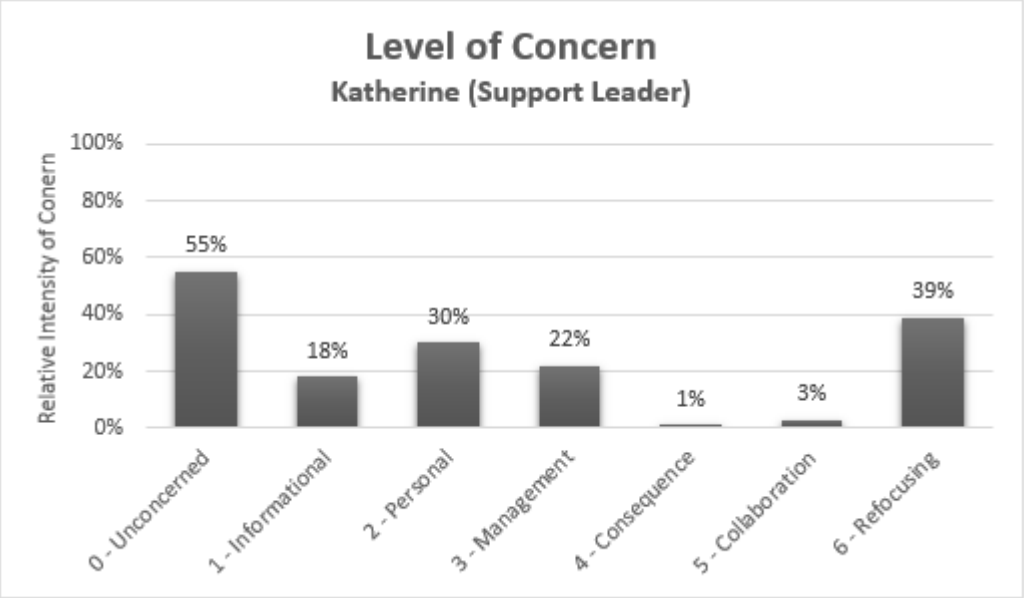


Figure 33: Level of Concern - Katherine (Support Leader) (Hall et al., 1991)

This is expected of someone in leadership who is distanced from day-to-day organisational needs. Her intensity of concern related to *collaboration* was negligent, although other similar profiles would commonly increase at this stage indicating interest in connecting with others regarding technology-enhanced learning.

## 9.6 Martin (Support Manager)

### 9.6.1 Brief sketch

*Martin was in a technology support role with management responsibilities. He indicated having 16-20 years in higher education as well as actively using technology-enhanced learning during this same time. He strongly identified himself as a facilitator of technology-related change as well as actively promoting the use of technology-enhanced learning within his job role. He indicated he was a Fellow of the Higher Education Academy. Further, he*

*strongly agreed that he felt supported in using technology-enhanced learning in his current job role and felt he was helping the university in its strategy for increased use of technology-enhanced learning. Martin's highest levels of concern were situated in the stage of refocusing on finding alternative technology-enhanced learning uses and applications for his own environment or communities of practice.*

### 9.6.2 Background

Martin described himself as an individual who used technology in both private and professional capacities. He used technology when it was convenient or made something easier to accomplish. For this reason, he generally waited to see whether new technology tools or services work before adopting them. He described himself as an independent learner with a natural aptitude for technology, which he also applied in his higher education career over the past 16 or more years. In his role, he managed a team who train and support staff in their use of technology to enhance learning. In this capacity, he described himself as the link between management's strategic directions and those who ought to implement the strategy, which manifests as "translating that strategy into practice."

### 9.6.3 Institutional strategy

Martin identified two distinct areas where he believed he facilitated change related to institutional strategy: with individual members of staff and the larger system level. On the individual level, this included working with staff or programme teams on identifying what they wanted to achieve and then pairing them with available technologies to enable meeting objectives. Project implementation documents helped inform this planning, which was then followed with operationalisation and looking at roles, resources and detailed activities. He was clear, however, that he did not "have the resources particularly for major change to work with people who will always find excuses not to change." He cited "peer support" as a likely solution to affecting change for those who will not generally accept major change initiatives, also

noted that academics "will be resistant" if they are told what to do. On institutional change, Martin confirmed he began in a similar way to working with individuals or a department team by finding collaboration and working with a cross-functional team to gain perspective on what needed to be done but also how to make it possible. In this manner, he sought to combine competencies from different areas to reach solutions while retaining the focus on allowing "learning outcomes and pedagogy [to] lead decision making, not technology leading decision making." Martin's perspective on implementing strategy was "about working out the planning", including setting outcomes, timelines and specific actions followed by the "metrics to demonstrate achievement or not and how you then evaluate that." Much of this work required him or the team to "evidence the effectiveness and evaluate the impact." He asserted that evidence was necessary to convince and encourage innovative practices with academic teams as well as to report "higher up the chain to senior management" as he and his team were "held accountable for what we do in relation to institutional change." He understood that much of the work with individuals or larger institutional systems required him to "manage the politics of change."

### 9.6.4 Benefits and concerns

Martin viewed the main benefits of technology in education as gaining "flexible access to learning content" as well as enabling the affordances of student collaboration and the ability to establish an online portfolio of achievement. Although the benefits were clear, he had several concerns for wider use of technology-enhanced learning within the institution. One was "staff ability to learn and use new technology" as well as the time needed to implement change. Another he mentioned was the distinct challenges with several technology change initiatives running concurrently. Further, his perception of his team and the available capacity was that they were limited by offering only one element of technology – the pedagogic technology and technologist support able to help with this. His team were reliant on separate technical services within the institution to prepare or integrate

resources into the institutional systems, which staff and students could reliably access. Martin attributed these challenges to the slower pace of uptake by academic staff but also due to institutional decisions or lack of decisions: "We know where it should go based on personal experience, but delay is frustrating at times."

### 9.6.5 Level of concern

Martin's highest level of concern was on *refocusing*. This level of concern looks beyond the existing technology and indicates directing one's attention to finding alternative innovations. He demonstrated consistently moderate to low levels of concern in the other stages.

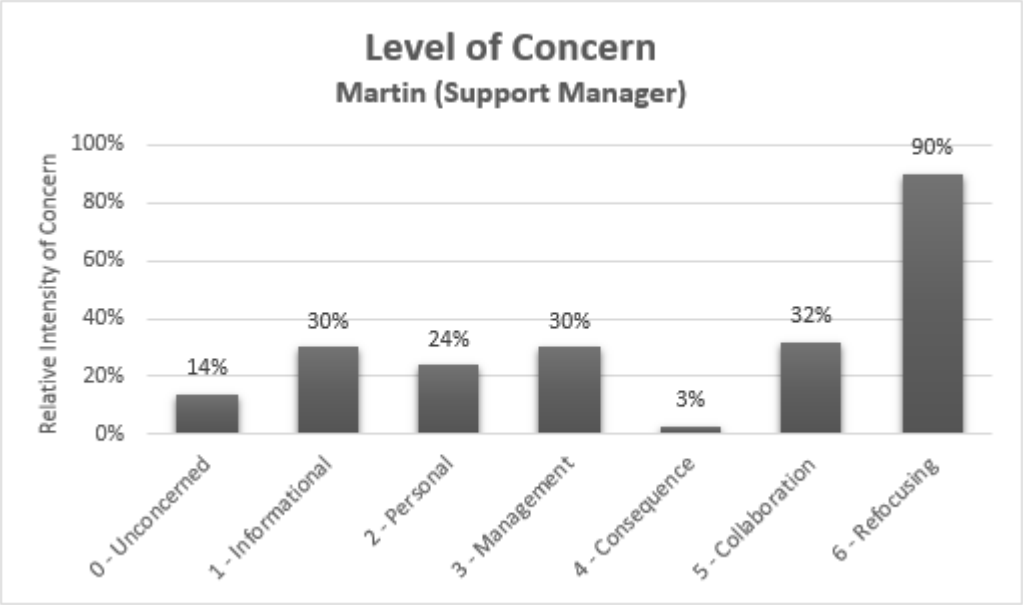


Figure 34: Level of Concern - Martin (Support Manager) (Hall et al., 1991)

## 9.7 Helen (Support)

### 9.7.1 Brief sketch

*Helen was in a support role with over 20 years' experience in higher education. She reported over 16 years actively using technology-enhanced learning. She strongly identified with being a facilitator of technology-related change as well as an active promoter of the use of technology to enhance learning within her job role. She was not a member of the Higher Education*

*Association at the time of the questionnaire. She felt supported to use technology-enhanced learning in her job role and likewise agreed to feeling she was helping the university in its strategy for increased use of technology-enhanced learning.*

### 9.7.2 Background

Helen described her competence with technology as completely self-taught and circumstance-based. Her interest in using technology stemmed from a desire to make things easier or more effective. Her definition of technology-enhanced learning reflected this perspective: "the use of technology to offer additional or alternative modes of learning, teaching and assessment." She described herself as a learning developer in a student support role at the university whereby "the technology is a tool to use to learn to do other things." She expressed blurred distinctions between her private and professional lives, as the devices she used were the access points for both sides of her life. Her private interests were also her professional interests, which she declared was a clear advantage and made her happy in her job. She often learned how to use a new tool or technology for her own use and then found she could use the skill in helping students in her professional role. Her real passion in her role was helping students become confident users of technology tools, which would help them achieve what they set out to do or to become competent in accomplishing their objectives. Sometimes it was helping the students know what the objectives were and then presenting tools to achieve the objectives. This passion was supported by an underlying foundation and desire to see the institution serve the needs of their students to their fullest potential and to ensure they were prepared for life beyond university: "I want this institution to be a great institution." She felt that if the institution offered readily available technology, the tools should be used to the fullest advantage. Appropriate use of technology was not always the outcome and Helen frequently saw technology used as a scapegoat: "I get very passionate about changing poor use of technology. I hate it when the technology is blamed for the poor outcome when actually it is the way that someone is using it that is wrong. I

desperately want to change that. That has been a campaign of mine for the past 15 years."

Although Helen supported students as a primary focus, she identified a gap in supporting academic staff in their skills development and use of available technologies: "It frustrates me that there are academic staff out there that are asking their first-year students to do things with technology that they cannot do themselves." She saw the connection between poor use of technology in teaching practice and sub-optimal student learning, since students experiencing poor use of technology will not have a model from which to learn and to carry with them into their own professional lives. This was not to say that teaching must include technology: "Technology is a very integral part of it but it is only a part of it [student experience]. Learning how to write a decent paragraph and critically evaluate something is... a part of it, if not a bigger role." She was adamant about the correct use of technology. She highlighted a small core of academics across faculties who engaged with technology and used it brilliantly. They were the ones everyone saw at teaching and learning conferences each year: "You know there are those champions within the faculties and within the departments." She noted, however, that they were not officially in the role of helping others and so there was some disconnect. Even with their *de facto* support, there was "quite a lot of resistance to change."

Helen observed reduced resistance to change as a by-product of staff changes, remarking on the shift of older staff leaving and "newer and younger staff" joining that there "will be a natural tendency to be more open to the change." This did not directly eliminate the skills gap between students and staff since support was not available to members of staff unless they themselves were students or if they were using the skills to teach students. Partly in response to the demand and the emerging technologies, online and on-demand self-help became available on the learning portal for all to use, but this could not always replace the efficiency of a one-to-one meeting with directed focus on one's individual needs.

### 9.7.3 Barriers

In addition to resistance to change and the capabilities of academics' effective use of technology to enhance learning, Helen perceived some barriers stemmed from the institution itself. For example, there was lack of investment in providing staff with suitable tools as well as lack of offering staff time to develop online resources. Overcoming the barriers to technology could potentially "engage more students with alternative approaches to learning and teaching" as well as support remote students. One of her highest concerns, however, remained the complicated processes often in place to use or implement technology combined with the fact that the technology changes so quickly. She noted that often the process was so complicated that by the time users received permissions and access to new tools, there were new and improved technology available. Another example was storage, which was limited so recording lectures has some limitations because the repository was restricted. In other cases, editing software was only available on several PCs, rendering it challenging to initiate and complete video editing projects. This can be amended; however, it takes time and money to change. "You just have to get on with it", she noted, adding, "To make it a big issue completely negates its benefits to some extent because you have got to be proactive and quick and use it and discard it yourself as quickly as you took it up!" She mentioned the fear that some academics might have, of unsuccessful attempts to use technology in front of students, but noted that times have changed and "then you just need to say, well, that does not work let's try something else."

### 9.7.4 Institutional strategy

Although Helen felt the members within her department had consensus on how they approached technology as well as how they supported students, she voiced concern that the larger institutional approach as rather *ad hoc*. There were elements of digital literacy woven throughout several initiatives, frameworks or guidelines; however, the projects were "trickled down from a very top level" although even then they

were “on the periphery.” She perceived digital literacy as an important part of using technology as it enabled the capability to learn new technology tools from a solid foundation. When referring to the university’s strategic plan, Helen mentioned the plan, which had recently ended and acknowledged she felt far removed from it: “I think I probably read it years ago, but not since.” She explained that release of the next five-year strategic plan was imminent but noted that the information within it would be “disseminated to us.” The dissemination would not be a call to action, since her own department would construct their own internal strategic plan in response to the institutional strategic plan. The departmental plan, as decided by the departmental managers, informed her own day-to-day activities; project groups acted upon, implemented or operationalized assignments.

When asked how precise operationalising strategy is, Helen was not aware of any direct initiative to make the strategies operational. Upon reflection, she recommended prescriptive guidelines, which may have a stronger impact on technology use as well as setting expectations and explicit measures, such as the percentage of lectures that should be recorded and archived.

Discussing the difference between facilitating change and implementing strategy, Helen made an interesting comment: “To facilitate change...people have got to actually learn to love it [technology] and appreciate it. Whereas if you are just implementing strategy, there is not necessarily that buy-in.” She recalled her comment about being more prescriptive and how that might contradict this statement about buy-in. She noted that it was challenging to convince people of the benefits of technology when it was not yet in use. In summary on facilitating change, she recommended changing “hearts and minds of the people who are using the technologies to make sure it is comfortable to do rather [than] something that is being imposed upon them.” Overall, Helen conveyed a very proactive, flexible and pragmatic approach to using technology and supporting those who want or need to use it.

### 9.7.5 Level of concern

Helen's concerns related to technology-enhanced learning are highest in management (stage 3). This relates to logistics or timeframes.

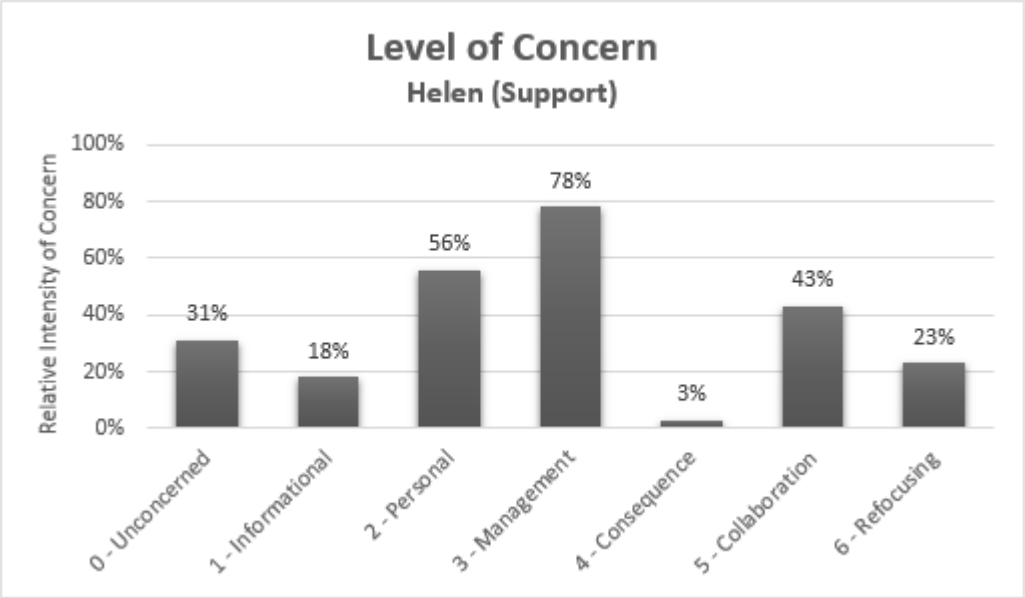


Figure 35: Level of Concern - Helen (Support) (Hall et al., 1991)

Helen's results indicate high priority of facilitating technology-enhanced learning as well as high commitment without investing time considering other alterative innovations.

## 9.8 Vignette Comparisons

Each vignette presented in *Findings III* represents one of six interviewees, including three academics and three members of support staff. All interviewees strongly identified as facilitators of technology-enhanced learning related change in their role. This served as a basis for later discussion of using the Change Facilitator Stages of Concern (CFSoC) online questionnaire. This section presents the patterns among the academics and then among the support staff to address the sub-research questions: *'What are the change facilitators' concerns with implementing technology-enhanced learning in their role and where are these concerns situated?', 'To what extent do change facilitators of technology-enhanced learning understand and comply with the university's strategic plan for*

*technology-enhanced learning*?', *and 'To what extent do change facilitators feel supported by the university in their technology-enhanced learning practices?'*.

This section integrates reflections that help craft a response to the main research question: *'What are the perceptions, concerns, and practices of change facilitators for technology-enhanced learning in relation to implementing and aligning with the strategic plan of the Case Study University.'*

### 9.8.1 Patterns of concern

This section brings together the levels of concern for each interviewee to enable identification of commonalities or patterns. This was first presented in Figure 29 in Section 8.5 separating the group into three academic members of staff, shown on the left, and three members of support staff, shown on the right in the same figure. This, however, is insufficient to produce a clear pattern of concern. What is immediately evident is the lack of pattern. Levels of concern varied considerably among all six interviewees with each having their highest concern situated in different stages as indicated with the circles highlighting highest areas of concern. The following outlines first the academic staff, then the support staff with comparisons between the two roles integrated throughout.

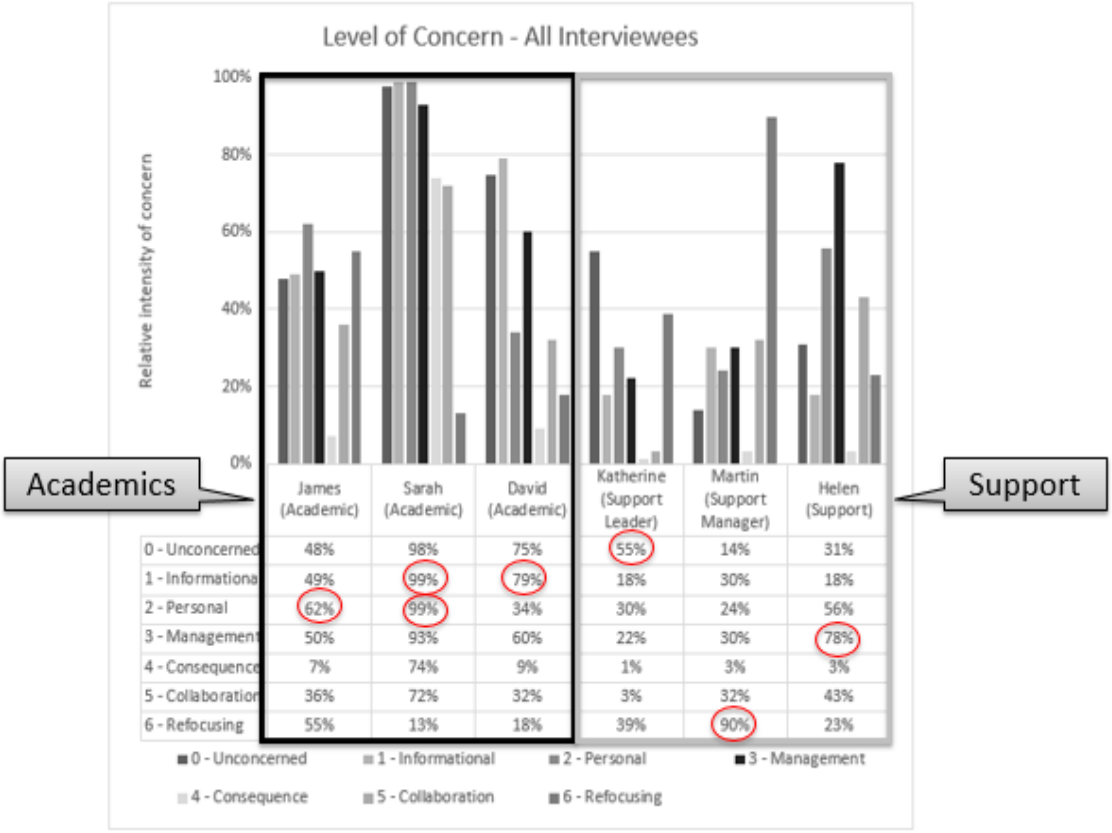


Figure 36: Level of Concern – All Interviewees (Comparison) (Hall et al., 1991)

#### *9.8.1.1 Academics*

The academics, James, Sarah and David, all had indications of concerns situated in different stages. James, an academic, based his concerns on his perception regarding facilitating change and in managing the change facilitator role. Since the difference between *personal* concern and the stages before and after were minimal, it seemed that only moderate *personal* concern existed. If the level of relative intensity in *personal* concern had been much higher than in the *informational* or *management*, there would be a stronger indication that *personal* concerns greatly outweighed concerns about learning about technology-enhanced learning. The increased concern in the stage of *collaboration* and *refocusing* reflected James' concern about his own impact related to technology-enhanced learning. However, *refocusing* strongly indicated that James was looking at alternative technologies beyond the scope of his technology-enhanced learning practices at the time of the study. Looking to alternatives or

replacement technologies is an indication of his wish to have a positive impact within his own community of practice and realm of influence. Additionally, this was apparent in his own pedagogic background in evaluating and adopting different tools not necessarily core to university provision yet with the intention of achieving increased pedagogic impact. Finally, James explicitly expressed disconnection from the university's strategy related to technology-enhanced learning, as well as his dismay at university structures to support technology, which he perceived as irrelevant to his own academic practice.

In direct contrast to James, another academic, Sarah, emerged as the only participant exhibiting consistently highest levels of concern across the four initial stages. Her concerns were situated in the first four stages (*unconcerned, informational, personal and management*), which indicated high overall concern for the use of technology-enhanced learning and, more importantly, her results indicated high concern related to her informal role as a change facilitator. Confirmation of this emerged through the open text questions and during the interview. Sarah's high intensity of concern in the early stages indicates that she was addressing many other things beside or in addition to facilitating the use of technology-enhanced learning. Technology-enhanced learning was not her highest concern and she had many other things on her mind. The high intensity indicated in the *informational* signified interest in gaining additional information about technology-enhanced learning, specifically more about its characteristics, uses and effects. High level of concern in the *personal* stage, indicates "uncertainty in one's ability and role in facilitating use of the innovation" (Hall et al., 1991:38). High intensity in this stage is also indicative of high concern about whether one is adequately functioning as a change facilitator as well as concerns about support and recognition from the institution for the role of facilitating technology-enhanced learning related change. She was aware that her ability or inability to facilitate the technology might influence her image. Hence, this result indicated a lack of confidence or a perceived lack of support to carry out the

change facilitator role. Seemingly in conflict with the first stages, the stage of *management*, demonstrated high concern about management issues in conjunction with her individual role as a change facilitator, which is further reflected in her high level of concern in the *personal* stage. According to Hall et al (1991), high concern across the stages of *personal*, *management* and *consequence* are typical of experienced change facilitators. The stage of *consequence*, indicates high levels of concern on the impact of one's role in facilitating technology-enhanced learning. Sarah's results demonstrated consideration of the effectiveness and impact technology-enhanced learning has on others.

David exhibited highest concern in the *informational* stage, although his highest relative intensity was still lower than Sarah's level of intensity in that same stage. David's level of concern results was consistent with his responses gathered during the interview. His concerns resided largely in the lack of information and wanting more information to best utilize available technology in pedagogically sound ways. His low levels of concern in the stage of *refocusing*, only slightly higher than Sarah's level of concern in the same stage, demonstrated his focus on current tools rather than dedicating efforts towards finding alternative technologies. Finally, David also exhibited concerns related to the management of technology implementation, underpinned by the efforts needed to facilitate and manage the change process. This related directly to the fact that he, too, was the *de facto* person others in his department relied on for support with their technology in teaching and learning, in the absence of institutional support. His own exploration had gained him a reputation for innovation, yet the university's intention to develop technology-enhanced learning was not present in institutional structures. His management concerns related directly to this lack of structure, which would otherwise fill the gap of implementation and support.

#### *9.8.1.2 Support*

Like the academic concerns profiles, the individuals in support roles, Katherine, Martin and Helen, all had indications of concerns representing different stages among themselves as well as in contrast to academics. Katherine, a leader within support, for example, expressed concern about matters unrelated to the technology-enhanced learning under discussion, as demonstrated in the *unconcerned* stage. This reflected her leadership responsibilities and engagement with other high-priority projects, as well as minimal involvement in the day-to-day challenges of using technology-enhanced learning. In contrast, Martin's concerns were aimed at the stage of *refocusing* his energy on other innovations and with other matters, which indicated high concern for things unrelated to TEL, possibly related to change itself and being in the spotlight for supporting strategy and implementing change. Hence, he may have been thinking about what would come next and how to prepare to offer support and facilitate change. His concerns aligned with his role as support staff within the technology team, possibly even as an area of focus during strategic change, and his objective was to support academic staff in their use of technology. Whereas Martin's concerns were future facing and looking to the next innovation that might replace the current ones, Helen's were situated in the day to day management of supporting individuals in her role. Her concern rested with her perception of her own ability to appropriately manage and facilitate change. Her overwhelming desire to make sure the students she supported had the most suitable technology to serve their objectives guided all her actions and was evident in her *personal* and *management* related concerns. Her concerns, as identified in the interview, related to the narrow remit of her role in solely helping students, although she acknowledged that academic staff needed help. The nature and structure of her role and department did not afford flexibility or the ability to address needs outside of her remit.

Further to the description of Katherine, she displayed negligible levels of concern in the *collaboration* stage. Similar profiles suggest concern would commonly increase at this stage, indicating interest in connecting with others regarding technology-enhanced learning (Hall et al., 1991). This lack of increase in relative intensity of concern related to the *collaboration* stage, was also indicative of someone in a position of leadership who was not engaged with technology-enhanced learning at the implementation level. When the *refocusing* stage increases in comparison to other levels, the respondent is likely to have further ideas about working with technology-enhanced learning as defined at the time of responding to the questionnaire, which can also indicate some resistance (Hall et al., 1991). Martin also exhibited a relatively low level of concern in the stage of *collaboration*, indicating little concern about work with others to help facilitate change and demonstrate impact.

In contrast to both Katherine and Martin, who both had managerial responsibilities, Helen, a member of support staff, did not have any managerial responsibilities. However, Helen's highest level of concern was in the *management* stage. Her *management* concerns aligned with her statements regarding the availability of resources as well, as the demands of energy required to support users. High intensity concern in *management* indicated issues related to logistics or timeframes.

#### *9.8.1.3 Reflection*

The three academics, James, Sarah and David, appear to have overall higher levels of concern as compared to the support staff, Katherine, Martin and Helen. The academics all indicated direct yet informal links to help others in their department, although only James had a semi-formal change facilitator role to help others in his department. All three academics felt a department-wide, dedicated technology-enhanced learning support member of staff ought to be available to alleviate the pressure to act informally as change facilitators for technology-enhanced learning. Not only would this addition help other departmental staff, it would also send a clear message to the department of leadership's strategic intent to increasing the use

of technology-enhanced learning as indicated in the strategic plan. In summary, the academics interviewed demonstrated different areas of concern. Whereas James conveyed highest levels of concern in the stages of *personal* and *management*, Sarah exhibited high overall concern in the first four stages of concern: *unconcerned*, *informational*, *personal* and *management*. She exhibited higher levels of concern in the next two stages of c*onsequence* and *collaboration* as compared to either James or David. David's highest level of concern was in the *informational* stage.

The results of the level of concern for support staff members also demonstrated different areas of highest concern. For example, Martin was most concerned about focusing on future technology exhibited in his very high relative intensity of concern around *refocusing*. This contrasted with low levels in the initial stages of concern. Katherine, however, expressed her highest concern in unrelated areas, represented as *unconcerned*, which is to be anticipated for those in leadership positions. In contrast, Helen demonstrated a spike in concern at the *management* level, as she was faced with helping others without sufficient management to guide her.

In conclusion, the level of concern data contributed to this study in several ways. First, the level of concern data provided sufficient response to answering the question asking where change facilitators concerns were situated in relation to implementing technology-enhanced learning in their role. Although there is no consistent pattern in the levels of concern among the six interviewees, there is relevant data to understand where concerns are situated among academics and support staff groups. Second, identifying the unique concerns individuals have highlights the challenge with applying a single approach to implementing change from a strategic standpoint. Third, and finally, the CFSoC online questionnaire provided useful insight into the individual concerns of academic and support members of staff facilitating change for effective implementation of technology-enhanced learning, which will inform the final recommendations.

### 9.8.2 Patterns of facilitating change

As with the variation demonstrated in the level of concern, facilitating change with technology-enhanced learning by academics and support staff varied greatly. The following compares the vignette profiles regarding facilitating change related to technology-enhanced learning.

#### *9.8.2.1 Academics*

It was challenging to find patterns of facilitating technology-enhanced learning change largely because definitions and use as the interviewees more distinctly exhibited a lack of pattern. In comparing the three academics first, James, for example, tended to use non-standard technology-enhanced learning tools. He felt the core technologies that the university offered did not serve his pedagogic needs in working with his students. He explored and offered alternative technologies to his students where he had full control over the design and administration, and where he could make selections based on his intended application. In contrast, Sarah felt most secure using the core technology-enhanced learning tools available in the university and became so competent in administering these that she became the *de facto* support person within her department through her sheer tenacity and drive to accommodate fully the available technology. Although she willingly carried out this role, she acknowledged that she was filling a void that she felt the university should have considered in conjunction with the introduction of new technologies for teaching and learning. Her frustration related to the high administrative demands overshadowed her excitement at the transformative capacity of the technology resources.

David brought together aspects apparent in both James and Sarah's use of technology-enhanced learning. For example, he consistently used a combination of university provided technology as well as technology readily accessible and available. He wanted technology that worked and best served his students. His intention to be the best lecturer he could possibly be while preparing his students to be competent in the use of emerging technologies during their student experience

were two major incentives for his exploration and dedication. In contrast to Sarah's perception of being overwhelmed by the administration, David wanted pedagogic support and evidence-based recommendations on how to best use technology, regardless of whether it was from the university or not. He perceived his "trial and error" fell short of his strong commitment to evidence-based teaching.

Although the practice of using technology-enhanced learning varied between the three academics, their definitions were forward thinking and directed towards pedagogic improvement. Further, their reported perceptions related to technology-enhanced learning varied, from wanting and needing support, to preferring to function completely autonomous of university structures. The lack of formal technology-enhanced learning support roles was evident; support, practical recommendations and evidence-based advice for teaching and learning with technology-enhanced learning were not sufficiently available.

#### *9.8.2.2 Support*

The three support-staff members' use of technology-enhanced learning reflected the responsibilities of their roles. Katherine, for example exhibited little interaction with technology-enhanced learning. She noted the pace of change was challenging to maintain alongside her responsibilities as a leader. Knowledge obsolescence and lack of time were the biggest barrier to her exploration and application of tools. She maintained a selection of resources that offered efficiencies for her work, however, she was not engaged directly with the core technology resources implemented within the institution.

In contrast, in carrying out his role as a support manager, Martin managed the team responsible for helping academics in their teaching practice and with implementing core technology tools. He supported individual members of staff by helping them evaluate and articulate their pedagogical needs and then provide solutions where core technology may help support the pedagogic objectives. This contradicts two

academics', David and Sarah's, statements above. Whereas David, an academic, felt he did not have pedagogic support yet autonomously explored technology and possible application in his teaching practice, Martin indicated support was available. In contrast, Sarah's needs for support as an academic were administrative rather than pedagogic.

From an institutional perspective, Martin also facilitated change by managing the introduction of system wide core technologies. Although he had his own ideas for implementing system-wide resources, he was aware of the distinct facets of planning and operationalising within the change process for core technologies. For this reason, he enlisted other support members into the planning discussion, since they would be directly involved with user operationalisation and support. This role distinctly helped facilitate larger institutional objectives or strategies. The provision of system-wide, core technologies are signals that the university was forward thinking and planning for 21st century tools for teaching and learning. In this example, developing the institutional technology infrastructure created a *de facto* portfolio of learning resources. These new tools did not affect the academics interviewed, however, since they were often looking beyond institutionally-provided resources to address their pedagogic needs and the findings demonstrated that their practices were not guided by institutional strategy.

Finally, Helen's use of technology-enhanced learning was primarily directed at supporting students' use of technology and identifying solutions to serve their needs. She drew on core as well as peripheral technology resources which would best serve the needs of those who requested help. She functioned from a skills basis rather than a strategy dissemination perspective. The most significant point of discrepancy was the poor use of technology resources used by academic staff, which the students then

either exemplified or worked to rectify with Helen's support. Because she served students, Helen was unable to provide comprehensive services in her role.

#### *9.8.2.3 Reflection*

These instances suggest poor communication of roles and responsibilities applicable in the institution's TEL implementation. Although establishing a technology support team indicated strategic intent, it may not have been sufficiently robust to provide the necessary support to those who needed it.

## 9.9 Chapter Summary

These profiles presented more nuanced views of six individuals identified by the researcher as technology change facilitators and who perceived themselves to be technology changed facilitators within the Case Study University. These individuals were part of the original sample of 65 individuals identified as change facilitators and they were among the 25 who responded to the Change Facilitator Stages of Concern (CFSoC) questionnaire. The researcher invited seven participants to participate in a semi-structured interview as part of this case study research. The interview was an opportunity to confirm the responses from the questionnaire as well as enable a deeper and richer discussion on their role, their relationship with technology-enhanced learning in their professional practice and their relation to institutional strategy. The presentation of these vignettes, or portraits, aimed to introduce a holistic view of six individual research participants bringing together their responses from the questionnaire as well as the interview. There were no discrepancies with any of the CFSoC results, so this is not highlighted in the vignettes.

The combined data gathered from the interviewees along with the outcomes from the CFSoC online questionnaire enabled the researcher to construct a more holistic picture of these individuals, as well as enabling the opportunity to group them based on their roles as academic or support staff. The diverse levels of response and engagement as change facilitators in their roles reflected the complexity involved

with implementing technology-enhanced learning change initiatives. Any attempt to reduce an individual to a single academic or support staff profile would prove futile. This complexity highlights why there are numerous interpretations of the strategic plan or interface with strategic intent. There are diverse ways to facilitate technology-enhanced learning related change and the data suggest that a single profile is not possible. In summary, the vignettes highlighted the diversity of perceptions, beliefs and practices exhibited by the six interviewees.

# Chapter 10: Discussion

## 10.1 Introduction

This chapter synthesises the findings, presented in Chapters 7 - 9 (*Findings I, II, and III)*, with the literature presented in Chapters 2 and 3 (*Technology-Enhanced Learning and Strategy* and *Implementing Change*). This section is structured first by discussing strategic dissonance followed by an exploration of sensemaking as a heuristic process for addressing *wicked problems*. Strategic dissonance is first introduced as a manifestation emerging from unaligned strategic planning and change facilitator actions (Burgelman & Grove, 1996). The influence of the strategic plan on implementation of technology-enhanced learning as well as strategic intent as an unintended outcome of strategic dissonance is explored. In the absence of strategic plans for technology-enhanced learning, strategic intent manifested through change facilitators' effective use of institutionally provided technology resources as well as peripheral resources (Hamel & Prahalad, 1989; Lawless & Price, 1992; Varpio et al., 2017). Sensemaking is then presented as a heuristic process for addressing *wicked problems*, with change facilitators as the key sensemaker of technology-enhanced learning within the Case Study University. This section explores change facilitator roles and informal and formal agency exhibited by individuals and supported in the literature (Mantere, 2005; Weick, 2009a; Hall & Hord, 2011; Fullan, 2015). Change facilitator's characteristics are discussed as a heuristic and mechanism to support strategic intent (Malle et al., 2001; Crane, 2011; Hall & Hord, 2011; Jacob, 2014; Krátká et al., 2016). A reflection of whether sensemaking as a heuristic is enabling or disabling is also addressed. This section responds to the fifth sub-research question: *'Do change facilitators report a dissonance between their technology-enhanced learning practices and the de facto technology-enhanced learning strategies of the university?'* and concludes with conceptual frameworks that graphically present the concepts discussed.

## 10.2 Strategic Dissonance

As presented in Chapter 2, Section 2.3.5, strategic dissonance occurs when strategic intent is misaligned with strategic action, whereby actions by individuals either inform or trail behind strategic intent (Burgelman & Grove, 1996). However, this perspective assumes strategy is implemented as intended and that different sources inform strategic development. It also indicates there would be measures in place to identify success. Several possible interpretations of strategic dissonance from the perspective of strategy will help clarify these positions. The first assumption is that strategic plans and strategic intent are documented and communicated yet differs from actual teaching and learning practices of technology-enhanced learning use. This could indicate that strategies are appropriate yet do not inform teaching and learning. Secondly, the strategies may be limited or too broad to identify implementation routes, which is them compensated by actual teaching and learning practices. This, however, implies that teaching and learning practices are informed by strategy. Third, strategic plans and strategic intent may be fully inadequate, which opens the path for daily practices to become the *de facto* strategies.

The dissonance outlined above pivots on strategy at the centre of the discussion. However, the perspective shifts when change facilitators are placed in the centre and their alignment or dissonance with the strategy is reviewed. Academics reported dissonance with the strategic plan in the following ways. First, there was little awareness of, or interest in, the strategic plan and it therefore did not inform teaching and learning practices. This suggests strategy development was not aligned with TEL practices or implementation approaches. Second, core technology resources provided by the Case Study University were a proxy for institutional strategy. A *de facto* strategy was apparent with the institution-wide implementation of resources. However, insufficient support to appropriately use and apply these resources led to activity situated beyond formal roles and positions. Third, academic teaching and learning practices did not appear to inform strategy, leaving strategy to leadership

and rendering strategic dissonance from the academic perspective. Finally, academic teaching and learning practices were impacted by taking on *de facto* roles because of inconsistent support structures.

Strategic dissonance, or resonance in contrast, emerges from relationships and the implications of these relationships. The researcher attempted to depict strategic dissonance and the relevant relationships in a graphical model presented below in Figure 37. The horizontal axis attributes technology focus on the left and learning and teaching focus on the right. The vertical axis attributes explicit strategic plan on the upper side, which is influenced by the HE sector, and implicit strategic intent on the lower side, implemented by change facilitators. The model more specifically reflects the role of individuals in the bottom two quadrants, specifically change facilitators, as a pertinent influence among these relationships. Informal contributions stemming from individual, innovative approaches, helped shift strategic intent into practice and are largely informed by learning and teaching principles rather than the technology. This model helped the researcher craft and communicate the relationships within the Case Study University and additional narrative to complement this model follows hereafter.

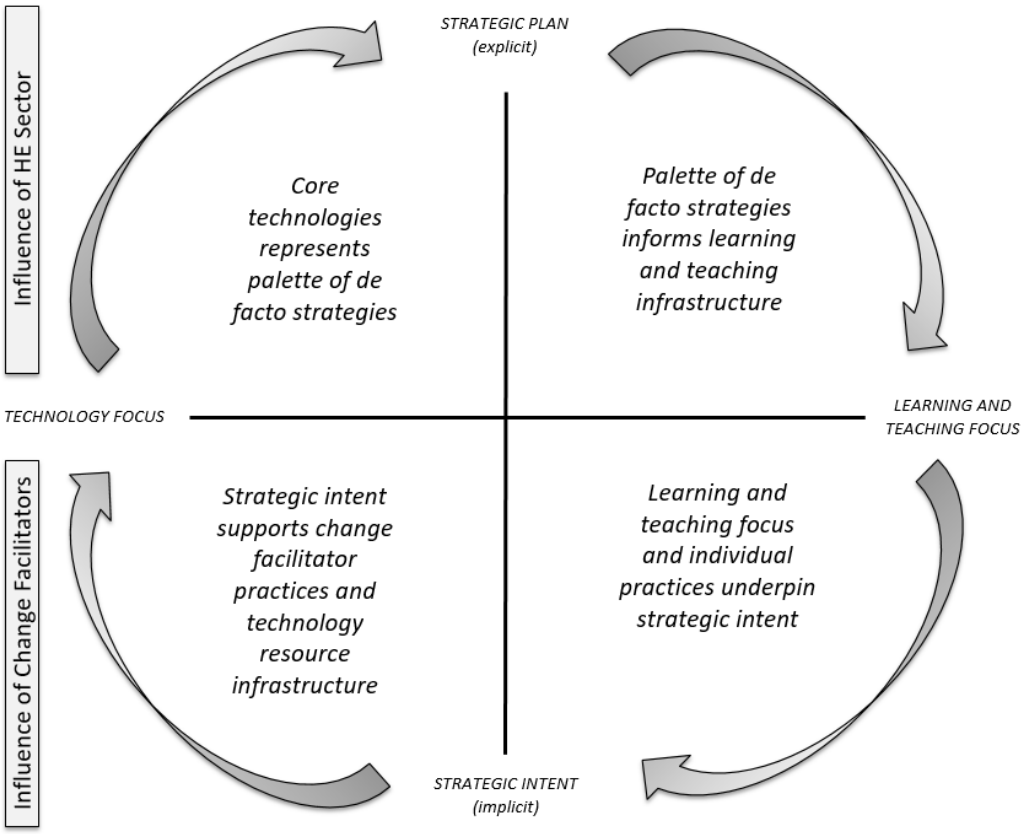


Figure 37: Influences on strategic approaches

Examples of change and strategy at five other UKHE institutions were presented in Section 4.3 (see Table 4 in Section 4.3.1) and expanded to include the Case Study University in Section 4.4 (see Table 5 in Section 4.4.7). The examples outlined different approaches to TEL development and strategy. Historical context was noted, however this was not a direct indicator of strategic approaches to TEL. For example, Nottingham and the Case Study University both received University status through Royal Charter, however they do not share similar rankings nor do they approach TEL development in the same way. Nottingham's strategy was that of designing institutional structure to support TEL initiatives, providing a robust infrastructure with dedicated teams to support TEL development. In contrast, the strategic approach with the Case Study University was that of an implicit palette of strategies defined by provision of core technologies dependent on individual initiative to

implement. The institution's strategic plan was to provide core technologies for use in learning and teaching practices, which became the *de facto* strategy in contrast to a learning and teaching focused strategy that would inform the selection of core technologies. Although technology permeated the university infrastructure, it did not necessarily engage the system (Fullan, 2013). It was anticipated that core technologies ought to be available and increasingly recognised as symbolic of a '21st century institution' within the higher education sector. Insufficient support structure necessary to ensure appropriate and successful technology implementation was also described by research participants. Further, the obscurity of an institutional learning and teaching strategy with an integrated technology-enhanced learning strategy was thereby reliant on the autonomy and initiative of academic and support staff to best integrate technology into their teaching and support practices.

The intent of core provision was to support students through flexible learning and alternative modalities as well as to make administrative tasks more efficient. This impacted support staff and academic staff in different ways. Several of the academics interviewed explained how they wanted to be the best teacher possible; hence, the general approach to strategy implicitly depended on the motivations and initiative exhibited in those identified as change facilitators for technology-enhanced learning. Support staff roles and responsibilities were more likely aligned with University technology provision than academic staff. Support staff were aware of exactly what they needed to focus on when working with academic staff and students. For support staff, institutional strategy translated to specific technology provision, which in turn provided them with detailed responsibilities within their role.

In responding to a sub-research question that asked, *'Do change facilitators report a dissonance between their technology-enhanced learning practices and the de facto technology-enhanced learning strategies of the university?',* evidence from the findings suggest that some dissonance was reported between technology-enhanced learning practices and

the *de facto* technology-enhanced learning strategies. The intensity of the dissonance was dependent on individual engagement with core technology as well as their awareness of strategic intent within the Case Study University. This is explored further in the next two sub-sections.

### 10.2.1 Influence of strategy on implementation

Strategic plans generally have the objective of informing implementation strategies as they draw on external factors in the higher education sector and internal objectives. From a leadership standpoint, strategy would ideally filter down through the institution and inform academic practice. Although the Case Study University published an overall strategic plan indicating strategic intent for overarching learning, teaching and research priorities, documents related to teaching and learning strategy only existed internally and were not publicly available. Research participants were not fully aware of the details of these documents or how the contents might impact their role, responsibilities and position. Whereas several of the change and strategy examples at other UK universities presented in Chapter 4, Section 4.3, evidenced incorporation of a specific technology-enhanced learning strategy within a broader learning and teaching strategy, this was not the circumstance at the Case Study University. The findings did not indicate that individuals in academic roles based their practice on the strategic plan. In contrast, there was a distinct lack of connection or relation to the strategic plan of the institution. Evidence suggested that academics identified and used the best available technology for learning and teaching, whether that technology was institutionally provided or not. Further, academic staff facilitated local change through core provisioned technology as well as peripheral technology. Availability of technologies did not suffice as replacement for examples of implementation or development support for effective academic practice. Findings also indicated academic staff did not exhibit a common pattern of engagement with core provisioned technology or

with adopting technology resources situated outside University provision; there were multiple patterns of engagement among academics interviewed.

Academic freedom is one characteristic of academics, which also aligns with self-initiative of change facilitators. For example, James, an academic, believed that all changes in teaching practice, especially related to technology-enhanced learning, begins with individual enthusiasm. This was especially poignant since he felt little connection with the strategic plan, and expressed disagreement with the strategic choices of the university. He noted that the University would only implement previously vetted tools and resources, common within other higher education institutions (Walker et al., 2016b), stating the Case Study University tended to provide and operate

> *"around well-known or well established technologies. Most of what the university uses are well established."*
> *(James, Academic)*

He viewed core technology offered within the Case Study University as supporting administrative functions rather than pedagogic opportunities. His scepticism underpinned his desire to explore and identify the best tool to serve his student's needs; many of the resources he found useful were open-sourced or freely available online resources. Clark describes this as "assertiveness of a single individual" that eventually becomes integral within the institution (Clark, 2004:109). In contrast, Fullan (2013) noted that scepticism is one of the largest obstacles to change. Although James's own practice changed because of his critical view, it is unclear whether he had a broader impact within the Case Study University.

David was eager to explore all technology available to support his teaching practice integral to his academic role and noted his "strategy for changing things" within his own department, but was not confident it would "change anybody else." Nancy, another academic, reiterated the challenge of change by observing "both staff and students' adversity to change." David also acknowledged the challenge of changing

others, hence, he crafted and implemented his own strategy because he did not "see a bigger one coming." He did not see his innovation and academic practice as contributing to the institutional strategic plan, but rather his actions stemmed from his independent objective to utilise technology-enhanced learning in innovative ways to serve his students. He did not perceive his actions as informed through the institution, although his practice could be viewed as an example of translating strategic intent. Giddens discussion of structuration and the role of human agency as informing or being informed by societal influences is relevant here, since he informed the environment around him by demonstrating effective practices using technology (Bauman, 1989; Giddens, 1991; Parker, 2000). He demonstrated intentionality in his use of technology-enhanced learning, which he felt stemmed from his own intent to be the best teacher he could be and to ensure his students experienced application of innovative tools and digital resources. David was flexible and innovative in exploring core provisioned technology offered, although he was equally well versed in identifying and using tools situated outside university provision that he identified as optimally serving student learning. Although very willing to explore, his research mind set was challenged when faced with applying and using untested technology resources with his students. He had a subject based degree but not pedagogic underpinning within his academic practice. He described his “trial and error” approach as counterintuitive and contrary to what he taught his students regarding evidence-based practice. This contradiction aligns with the perception that it is unethical to implement untested applications in educational practice (Cohen et al., 2013). In the interest of progress, innovation and curiosity, David identified and applied different resources in his teaching practice and became increasingly flexible in his approach to exploring opportunities for supporting and enhancing learning with technology. Despite his lack of confidence in research-informed, pedagogic learning principles, his exploration ultimately gave others insight into potential resources and he set examples of good practice. Hence, the lack

of central support funnelled his energy to experiment and identify what worked best for his students in his subject matter. As Chatterton and Phipps (2015) described, David fits the profile of a change facilitators capable of progressing without support, although support would have been welcome, if offered.

In contrast to James and David, Sarah, also an academic, shifted her teaching practice as a result of the strategic plan. She volunteered to be the first in her department to implement the new electronic feedback tool made available through core institutional provision and an extension of the strategic plan. Although she described her pedagogical interaction with the resource as "transformative" with a significant, positive impact on her interaction with students through electronic feedback, she felt burdened by the administrative load in using the tool. She expressed the burden of being one of the early adopters of using this newly introduced technology, whereby the enthusiasm and exhilaration in learning new ways of engaging with students rapidly diminished under administrative concerns. She was an early adopter in Rogers (2003) definition, although she specifically noted that she did not identify as an early adopter, but rather that she functioned within a "pace of change that is accelerated." In demonstrating motivation to learn and digital capability, she explored and utilised core technology – a course of action the Case Study University expected and anticipated (Mantere, 2005). Although she ultimately managed, she became a change facilitator by default and she would have appreciated some support (Chatterton & Phipps, 2015). She felt that providing technology for pedagogic use without providing adequate training or ongoing support was ineffective and unacceptable:

> *"Strategy implies a coherent plan … [the university is] making the technology available, and it is up to you to use it in your own practice. To me that is a bit of a cop out. I'd like to see something more coherent and more definitive on the use of TEL."*
> *(Sarah, Academic)*

In addition to her own challenges with learning to effectively use new technology in her teaching practice, Sarah also reported that dedicated administrative support staff were equally burdened by the implementation of TEL, as they were not trained or prepared to handle increased workload with little to no support from central services. This contradicts her reflection that volunteering to pilot the new tool had more to do with administrative efficiencies than pedagogic value, since there was no apparent administrative advantage. Further, Sarah's observation that the technology support team was located physically separate from central teaching and learning administration is also relevant in her perception of partaking in strategic initiatives. She philosophically interpreted the separate identities in that technology-enhanced learning support was "an 'add on' to teaching and learning rather than fundamental to it." While Sarah's initial exploration was challenging, she observed the benefit of making sense of electronic feedback and pursued her own implementation within her academic practice because of the *de facto* strategy manifested through core provision. Sarah demonstrated flexibility adjusting to the changing dynamics of people, resources and technology. Her determination was recognised, yet this recognition also implicated her into a *de facto* support role.

In contrast to academic staff, support staff were more likely to be aligned with promoting and supporting the implementation of core technology in their roles. From a leadership perspective, Katherine identified with the strategic plan by confirming that the university offered strategic options with the implicit expectation that academics would appropriately apply the technology within their discipline-specific requirements. She also indicated undefined strategic success would be "very difficult to change and to measure change." She recognised that the support structure within the university was limited and that the strategy was to provide a selection of tools that the institution could "realistically support" as part of a learning and teaching strategy. She indicated "operations support and advisory work" supported higher levels of implementation. Dedicated financial resources and pedagogic

technologists enabled "bespoke, targeted, contextual" strategic approaches by implementing technology-enhanced learning. This demonstrates the limitations of strategic intent and the challenges with shifting intent to intentionality or manifestation.

Support staff interviewed reported that their own department had filtered the institutional strategy. In some cases, members of the support team assumed the role of specifically supporting core technologies provided by the university; support was not generally available for peripheral technologies. Some members of support staff articulated a rigid approach to supporting change within the institution:

> *"There needs to be proper accountability for staff who say 'no'. If you are not willing to follow the path of the university then you should be invited to look for work elsewhere instead of making the lives of those committed to the university direction harder than it needs to be"*
> *(Andrew, Support)*

Another member of support staff, Gary, conveyed the need for a flexible approach to implementing strategy, highlighting the importance of not only changing practices but also culture:

> *"promote the benefits of TEL adoption, listen to the concerns, be available for ad-hoc training needs, offer solutions and generally encourage the culture to shift organically"*
> *(Gary, Support)*

Culture, presented in Chapter 3, Section 3.2, "helps identify reactions to things that are important to people living and working in that culture" (Bergquist & Pawlak, 2007:ix). Culture is the context for providing shared meaning and supports problem-solving approaches. With the transience of technology and the dissonance with strategic plans, culture becomes highly relevant at the micro level of individual academic or support staff functioning formally or informally as change facilitators. Left to interpret strategy on their own, individuals willing and able to explore changing practices will have a stronger impact on effective implementation than strategic plans have.

### 10.2.2 Strategic intent as unintended outcome of strategic dissonance

The researcher posits that the strategic intent demonstrated within the Case Study University through the implementation of core technology resources was an unintended outcome of strategic dissonance. Strategic intent is a form of articulating the desire to build a portfolio of competitive advantages (Hamel & Prahalad, 1989) by introducing intuition as a critical component of strategically reacting to change (Boisot, 1995b). Although it is possible that strategic intent was a deliberate stance to indirectly prompt technology-enhanced learning implementation through individual change facilitators, it appears to have been more of a default, or unintended, outcome of the strategy and supporting structures in place at the time of this study. Although simple in its description, there is an implicit complexity in manifesting strategic intent into strategic practices and implementation. Strategic practices and effective implementation are dependent on competent individuals within an institution who are committed to influencing the environment and structure in which they operate.

Although the Case Study University did not have a publicly available learning and teaching strategy, it demonstrated the intent to engage with core technologies in several ways. The Case Study University established a central technology-enhanced learning support team signalling the importance of implementation. This department was formed simultaneous to the introduction and dissemination of several core technology resources to all staff and students. The central technology-enhanced learning support team consisted of five individuals. The roles within this team varied and ranged from technical support to pedagogic guidance. The team did not function in a development capacity, however, so academic staff were still responsible for implementation of core or peripheral resources. The implication of this was that core technologies ought to be used, however their use was not measured nor were analytic data available on the impact.

The response to the new technology support structure varied. Sarah, an academic, for example, felt the establishment of the technology-enhanced learning support team was indicative of the important role technology had within the University: "There has been a fundamental shift and that has been signalled to me in terms of resources that have been put into this area. So that convinces me it is worthwhile spending my time doing it as well." James, in contrast, was in an academic role that included "…looking at technology, developing training on the use of technology and supporting people" within his department. He was not as impressed with the newly established technology support team, because he did not feel the core technologies provided were even necessary and because the size of the team was not sufficient to support widespread change within the institution.

Newly defined structure to support technology-enhanced learning uptake was complemented with university-wide teaching and learning conferences, and other similar events. These events enabled those who innovated with technology in their teaching and support practices to share their lessons learned with others. This functioned as a peer or 'grass-roots' approach to facilitating change and implementing technology (Kezar & Lester, 2009; Graham et al., 2013).

In the Case Study University, effective use of technology-enhanced learning was expected as part of the academics' responsibility. Some change facilitators aligned with this expectation and functioned beyond their "operative responsibilities" to help facilitate strategic intent and act as a catalyst for manifesting change (Mantere, 2005:164). The researcher argues that change facilitators' actions bridge strategic intent in practical, intentional ways based on conceptual ideas of directing their practices towards an overall goal of supporting students through technology. In this case, the goal is the appropriate and effective use of technology-enhanced learning to support student learning. The technology-enhanced learning team was available to support staff on an individual appointment basis; however, responsibility for acting

on recommendations and developing resources or effective practices still relied on individual academics. The lack of a policy or detailed strategy left the exploration of technology to those curious enough to explore and take advantage of available provision, yet also left those unwilling to adapt their teaching practices to alternative modes.

Implementing technology resources for dissemination throughout an entire institution requires considerable cost as well as integration with student information systems and academic programmes. For this reason, significant effort would be expected in identifying pedagogically appropriate resources for wider use and providing the necessary support structures (Clark, 2004). Core technology resources provided by the Case Study University included a virtual learning environment (VLE), as well as other resources, such as lecture recording, electronic submission, electronic assessment, digital portfolios and plagiarism detection (Walker et al., 2016b). Although the university provided these tools and encouraged staff to use them, the technology support team could only minimally support the introduction and dissemination. Workshops, departmental meetings, one-on-one support and online resources supported those interested and willing to request assistance. Autonomous engagement was expected. The central technology-enhanced learning team did not have the capacity to provide extensive training or follow up. This directly impacted the potential to build capacity and facilitate change within the organisation. Further, as both Sarah and David noted in the interviews, there were no faculty or department level technology-enhanced learning specialists to support academic staff in the update and use of new resources.

Strategic intent underpinned by supportive institutional structures can facilitate change. An example of strategic intent underpinned by supportive institutional structure can be seen within academic research and publication expectations. For example, the institution set forth clear intentions and expectations for academic

publication and contribution to the REF (REF, 2014). The prominence of the REF report and the university's explicit and formal intent as a research institution demonstrating research impact led to structured and formal procedures and expected result-oriented action. The REF outcomes affected individual academics as well as the institution since the REF report was a key public indicator of the university's status in the higher education sector. This was evident in the time allocated to academic staff for dedicated research and publication efforts, as well as the coveted social recognition and personal reward for contributing to the university's research success leading to increased opportunity for promotion.

In stark contrast to strategic intent related to publication, strategic intent around technology-enhanced learning and its expected implementation were minimally underpinned by institutional structure. David, for example, was explicit in his contempt for the lack of equity given to teaching and learning, in general, and to technology-enhanced learning, specifically, in comparison to the clear expectations surrounding publication. David highlighted the primary aim of academics to conduct research rather than focus on teaching: "Very few academics become lecturers with the aim of teaching … they don't do a teaching degree and go into academia." He noted, academics "are forced, in a way, to do the teaching." It is exactly for this reason that pedagogic support can be seen to be vital to supporting academics with manifesting strategic intent related to technology-enhanced learning.

Although the points mentioned above are indicative of structure intended on supporting strategy, there were several primary indicators lacking within the case study and documented in other case studies or in the literature (Clark, 2004). These included pedagogic support, administrative support, course development using technology, and a detailed roadmap aligned to the strategy. The findings suggest that leaders were aware of the need for additional support, although there were not sufficient shifts in structure to address the gap. One of the support leaders,

Katherine, suggested uptake would be supported by offering guidance "when people need it or want it." Although she did not specify departmental or central support, Katherine went on to recommend connecting inexperienced with experienced users of technology-enhanced learning as a way of supporting change initiatives, which is also supported in the literature (Bates, 2000; Bates & Sangrà, 2011; Fullan, 2013; Bennett, 2014a). Martin, as support manager, also indicated that "peer support" was a possible solution to complement the very small, dedicated team of technology support individuals. Calling on peers to support each other shifts the responsibility from institutional structure onto change facilitators of technology-enhanced learning. Although peer support is supported in the literature (Mantere, 2005; Lawless & Pellegrino, 2007; Admiraal et al., 2012), the Case Study University left this structure of support for individuals to implement. It is possible that this apparent gap was intentional. By providing technology without sufficient support, academics are subtly, yet clearly, forced to engage and decipher effective practices, making autonomous decisions to use the technology. While a focus on student support could be assumed, this model would expect academics to engage with technology evaluated as effectively supporting student learning.

## 10.3 Sensemaking as a heuristic for addressing *wicked problems*

Change facilitators faced ongoing *wicked problems* of evaluating and implementing emerging technologies; the researcher posits that sensemaking became a heuristic for individuals addressing transience, semi-unpredictability and turbulence in an environment of strategic dissonance (Burgelman & Grove, 1996; Varpio et al., 2017). A heuristic relates to learning and improving performance through exploration, problem solving and self-education. Making sense of something entails finding meaning within the situation and based on personal experiences and social contexts. Weick (2009b:57) describes these as a "set of socially organized *[sic]* resources for sensemaking." These resources are: social, identity, retrospect, cues, ongoing,

plausibility, and enactment. Individuals make meaning for themselves drawing on a combination of their own perceptions and experiences. This becomes their lens for viewing their environment and making decisions for themselves. Strategic intent is not intended to be a rigid framework, but rather is constructed to draw on the sensemaking abilities of those who engage with strategic initiatives. This would lead to sensemakers positively supporting strategic intent.

The researcher concluded that an explicit palette of strategic core TEL resources provided structure within the Case Study University, however, change facilitators faced *wicked problems* of emerging TEL in parallel to the explicit palette of core TEL resources offered within the university. In this context, structure refers to technology-enhanced learning core provision and resources, including necessary and expected support to enable effective engagement with technology (Shattock, 2003; Hall & Hord, 2011; Hall, 2017). Sensemaking remained at an individual level and became a heuristic for successful and useful implementation of technology-enhanced learning. This learning process was cumulative and transferable to others.

Although evidence in Chapter 4, Section 4.2 pointed out how associations help institutions in making sense of technology in teaching and learning, it resides with individuals to draw on external or internal resources for their own understanding. This study drew on individuals within the Case Study Institution with either formal or informal positions related to supporting or implementing technology-enhanced learning. Individuals who identified themselves as change facilitators acted intentionally to explore TEL within their professional role in the best possible capacity. According to Hall et al. (1991), the position of change facilitator represents "the diverse set of persons, within and outside of organizations [*sic*], who have the formal or informal role to aid those involved in learning to use innovations" (Hall et al., 1991:iii). This section discusses academics as sensemakers followed by support staff assuming sensemaker roles. This section ends with a discussion of whether sensemaking as a heuristic is challenging or enabling to academic and support staff.

### 10.3.1 Change facilitators as sensemakers

Change facilitators in this study represented either academic or support roles. Within these roles, there were also managers and leaders with areas of responsibility over academic or support functions. The first categorical question in the CFSoC requested a response to whether participants self-identified as facilitators of TEL-related change or not. Chapter 7, Section 7.1, first signals that 20 participants self-identified as change facilitators, three neither agreed nor disagreed to this claim, and two disagreed and did not self-identify as a change facilitator. These latter five respondents were identified throughout the findings, particularly in the open-text responses, to contrast their responses with others who self-identified as change facilitators. Further, these five participants did not represent anyone in a leadership role, although one was in a managerial role. Leaders in the Case Study University were invited to respond to the CFSoC questionnaire, however only one responded. For this reason, the distinction of change facilitators in leadership roles was not drawn out as a separate finding.

The findings suggest academics as well as support staff served as sensemakers of strategic intent and technology-enhanced learning. Despite this commonality, this study revealed significant variation among change facilitators of technology-enhanced learning in terms of their perceptions, concerns, and practices in relation to implementing and aligning with the strategic plan of the Case Study University. However, key to this discussion is the ability to make sense of available technology and the relationships and communication between individuals. Because of the transience of technology within teaching and learning, making sense of one resource may be temporary, as emerging technologies swiftly replace one resource for another. However, aspects of sensemaking are transferable as a heuristic in looking at the relationships between individuals. Consider the relationship between academics and support roles, academics and learners, academics to academics, and learners to learners. With the transience of technology-enhanced learning and the

complexity of institutional systems, academics contribute their own evaluation of the systems they use and the resources they need to support teaching, learning and research. Support staff also engage with technology and strategic initiatives within their roles. This section reviews both academic and support staff as sensemakers.

Sensemaking as a heuristic enabled academics to explore and question their own academic practice. Academics expressed their belief in trying out technology to find meaning in achieving the best possible outcome with their students. Accustomed to research, academic staff who were personally inclined to investigate innovative technologies for their teaching practice demonstrated a heuristic approach to learning how to best implement and adapt technology for their teaching purposes. Academic change facilitators used technology that was meaningful for them. They wanted to use innovative tools that added value to their teaching practice or helped students learn. The value attributed to meaningful use of technology is a key element of change facilitator's actions and individual and potentially wider dissemination.

Whereas academic roles often had requirements and expectations of research, which provided a platform for recognition, teaching was also part of an academic's position. Academics did not appear to use technology in their teaching to gain recognition, but rather to best support their students and be the best lecturer they could be. Academic freedom fosters a space of exploration and decision-making drawing on past and preparing for an "anticipated future" (Giddens, 1991:76). The researcher argues that preparation includes sensemaking activities within the remit of academic freedom. The three academics who participated in the interviews exhibited their own academic freedom through their diverse approaches to using university core and peripheral technology as they implemented change in their own unique ways. Further, two of the three did not have formal roles to implement TEL. They independently arrived by different means to make sense of technology to benefit student learning and change their academic practice.

Academics who actively explored technology in their teaching and learning practice had a passion and curiosity to implement useful technology, and often shared their experiences with others. Supporting their teaching practice superseded considerations of whether the technology was core or peripheral to the university system. Driven by the desire to impact student success, change facilitators remained flexible and responsive without potential limitations of system-wide technology implementation. Further, they were eager to explore and apply the technology and were willing to share effective practices for others to utilize for their teaching environments. There was nothing to hinder sharing effective practice, although individuals may experience challenges with time and ability to disseminate the lessons learned.

The academics interviewed demonstrated independent agency in their teaching practices (Lawless & Price, 1992; Fanghanel & Trowler, 2008). Sarah's engagement contrasts with James and David in that she opted to investigate newly available core technology as part of a departmental initiative. Her department's decision to investigate electronic feedback instigated her informal role as change facilitator through her willingness to explore and investigate its merits. In this way, the institutional strategic intent informed her teaching practice. Her concerns reflected her desire to work within the social structure of the university and with the technology tools provided. James, however, was not at all concerned - or interested - in the existing structure and provisioned technology. His decision to focus on his own personal exploration of technology aligned with his overarching desire to serve the students to the best of his capacity. This contrasted dramatically with his indifference towards institutional provision and systems. David exhibited innovative approaches to teaching independent of core technologies and was more inclined to investigate both provisioned and non-provisioned technology. David outlined his approach: "I try to lead by example. If other academics see what I am doing, I hope they will ask me to show them how I do it. Most are not tech savvy and need to be

lead through the process very carefully." David demonstrated frustration more than concern at the lack of support while simultaneously identifying and acknowledging his competency for figuring things out and learning by doing. His, and others, heuristic approach was not limited by organisational structure yet, in contrast, it was perhaps the limitations, which fostered the exploratory nature of these individuals.

Support staff offered different perspectives of sensemaking since their roles were more clearly defined to support or implement core technology, for example. Two members of support in managerial or leadership roles who were interviewed, Katherine and Martin, focused on introducing the technology provision as part of their role and responsibility. Their roles differed, however, in relation to sensemaking activities. Katherine noted, for example, as a leader, her responsibilities had shifted from an "operational teaching role to more strategic roles." She confirmed that she no longer needed to know all the different technologies, so she was less likely to take a heuristic approach or invest energy in sensemaking activities. She did acknowledge that time was not the only limiting factor in finding efficiencies in using technology, but it was a contradiction: "having the time to explore and learn these to get the efficiencies." Katherine's highest area of concern was in the first and last stages, *unconcerned* and *refocusing*, which corresponded with her attention on future activities. However, she acknowledged that help was needed for others to optimise their use of technology and she viewed the technology team as serving in an "advisory role" to help people "navigate through" the available technologies. Martin managed the technology support team and he also identified the objective of the team as serving to train others. He was a catalyst for enabling academics to make sense of the technology rather making sense for his own practices. According to Martin, the TEL support team was implicitly tasked to "manage the politics of change" in the absence of the human resources to implement change initiatives. Gary, also support staff, pointed out the necessity of a sensemaking role in creating and designing: "Technology offers new learning

environments and interactions that are otherwise impossible to create… if used correctly, technology can enhance anything!"

The third member of support staff who was interviewed, Helen, served students in her role and although she supported skill development of university core technology alongside building digital literacy and digital capacity, she often found herself in a sensemaking role as she explored what would best serve the student for a specific task. Although she served as a sensemaker for students, her highest concerns were related to management and the absence of explicit direction other than to support the palette of *de facto* strategies reflected in the provision of core technologies. In this manner, she served in an advisory capacity and learned heuristically as part of her position.

### 10.3.2 Sensemaking as a heuristic – enabling or disabling?

In the absence of specific support structures aligned to strategic initiatives, individuals in different roles who were interested in implementing technology became sensemakers. Sensemaking became part of a heuristic process of individual exploration and implementation. For change facilitators, this may be enabling as it aligns with, and even supports, traits and characteristics of self-initiative and motivated, described in Chapter 3, Section 3.3. However, some may feel challenged, or even disabled, by the task of sensemaking to fulfil strategic initiatives in the absence of adequate support structures. Researchers have investigated how change facilitators are enabled or disabled in their strategic practices (Mantere, 2005), yet this discussion centres on the act of sensemaking as a heuristic process for supporting change efforts and implementing technology-enhanced learning practices.

Disabling influences can be identified in what individuals perceive as the most significant barriers to effective use of technology-enhanced learning. For example, Sarah, an academic reflected on the shift in practice which could be perceived as enabling or disabling:

*"I think there can be a significant 'upfront cost' in learning to use TEL. It not so much the technology itself, but the demands that it makes in terms of changing practice. So a clicker is really easier to use in a lecture setting. But effective use of that clicker means changing the structure and content of my lecture."*
*(Sarah, Academic)*

Sarah recognised that she had a choice to feel enabled or disabled. Choosing to be enabled, she elected to explore one of the several core technologies offered in the Case Study University. Although not self-articulated as heuristic learning, her decision to use online assessment transformed her approach to assessment and the way she provided feedback to her students, resulting in her perception of ownership and feeling enabled. Her practice shifted on her own terms within the strategic intent of the Case Study University related to use of core provision. Implementing core provision provided an opportunity for her to learn as well as explore how she might constructively enhance student learning. Her curiosity and drive to excel propelled her to learn in a heuristic manner, creating her own understanding of the administrative function as well as building evidence for pedagogic value:

*"I strongly believe it [TEL] has made me stop and think about my practice and deploy changes that have improved student outcomes."*
*(Sarah, Academic)*

Another academic, David, was always keen on using technology in his teaching and never hesitated to explore new ways of teaching his students with core provision as well as peripheral technologies. His primary concern was that he did not have the pedagogic foundation on which to make implementation decisions. By default, he explored and learned heuristically because administrative support and pedagogic evidence was not available to underpin his academic practices. However, he found heuristic methods inadequate from a traditional research perspective and he wanted his teaching practices to be evidence-informed; regardless, he embraced sensemaking to bypass obstacles and progress with being the best teacher he could be. By way of evidencing different perspectives, Thomas, in contrast and one who did not self-identify as a facilitator of TEL-related change, was an academic who conveyed

dismay and the need to make sense of core technology made available in the Case Study University. This was disabling and frustrating for him: "I've been dealing with the problems caused by the university's 'lip-service only' position on TEL." These two academics portray different perceptions and concerns when faced with sensemaking as a way of carrying out one's role. The individual is responsible for their choice to perceive sensemaking as enabling or disabling.

Other academics responded with support as the most significant barrier, which implies that they will make the time if the support to mitigate the effort needed to learn a new skill is available. Heuristic learning acknowledges that investment in time and effort will yield personally beneficial results. An academic's repertoire of teaching approaches expands and the individual effort in heuristic learning provides intimacy with the technology in the context of the subject and academic practice.

The characteristics of a change facilitator filled the void left open by only providing the tools without the necessary support and guidance. Evidence of individuals being enabled by the prospect of sensemaking can be found in some of the responses of academics who maintained their focus on student success. For example, Mary, and academic, commented on the value of using technology for providing "accessibility particularly for our many part time students." Another academic, Louise, expanded on the benefit to students regarding logistics, access to resources, "anytime, anyplace" studying, and "supporting different types of learners." Although Louise did not self-identify as a facilitator of TEL-related change, she was pragmatic in her understanding of TEL benefits within the context of her role.

## 10.4 Conceptual Frameworks

Acknowledging the innovative practices of existing academic staff to inform strategy is a 'reverse engineered' approach to strategic planning. Whereas the literature emphasises strategic intent as a way of dealing with turbulence (Boisot, 1995b), academics who endeavour to explore, apply and demonstrate innovative teaching

approaches with technology are adapting to available tools without explicit alignment with strategy or strategic initiatives.

The following depiction, Figure 38, represents the rigidity of strategy, in the form of strategic plans, which contrasts to the flexibility of strategic intent. The rectangular shape depicts strategy as set by leadership and without flexibility. In contrast, the curvilinear lines represent the flexibility offered in a framework of strategic intent, which enables individuals to adapt and implement in response to changing conditions and needs. Further, it introduces these other factors that impact upon effective implementation of change related to technology-enhanced learning. This research found that concerns impact change facilitator's ability to impact or influence change. Further, concerns may be situated across one or more stage of concern and with varying intensity within each stage. Concerns may be addressed with adequate support, guidance, and structure (Hall & Hord, 2011). Contrary to offering adequate support, guidance, and structure, change facilitator characteristics also enable some individuals to succeed with or without institutional support (Bennett, 2014a). Recognising autonomous innovation is an important contribution within the institution is a key step to facilitating change.

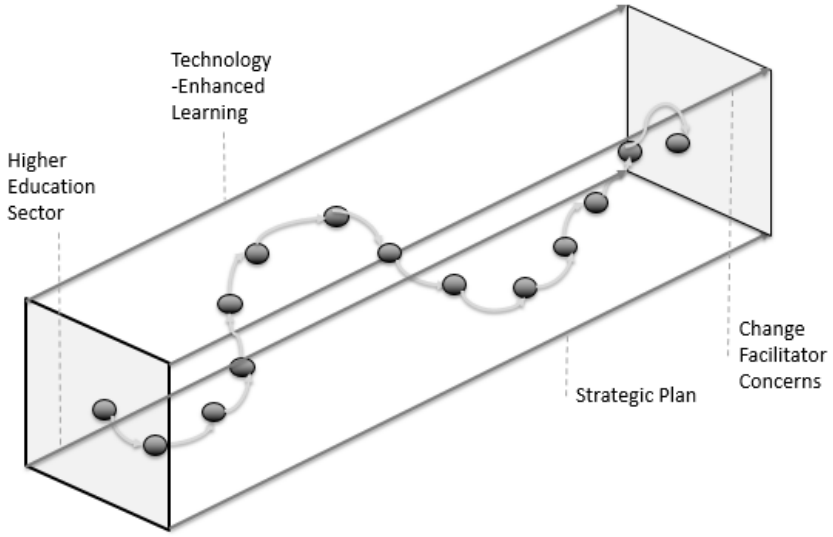


Figure 38: Conceptual framework with rigid structure

Institutional strategic intent that is clearly communicated allows a flexible framework in which to operate. Strategic intent also accommodates the ever-changing character of technology for teaching and learning application. In contrast to Figure 38 depicting the rigidity of strategic plans, Figure 39 presents strategic intent in a curvilinear line to convey the flexibility it offers and seeks to demonstrate the volatility of the elements discussed in this research: the higher education sector, technology-enhanced learning, change facilitator's concerns, and strategic intent. The researcher envisioned the conceptual framework as a 3D model, whereby each of the four curvilinear lines rotates on an axis that transects the two end points (see Figure 39). The four curvilinear lines and subsequent rotations are not necessarily moving synchronously, thereby changing the distance between points along the lines representing volatility and change (see Figure 40).

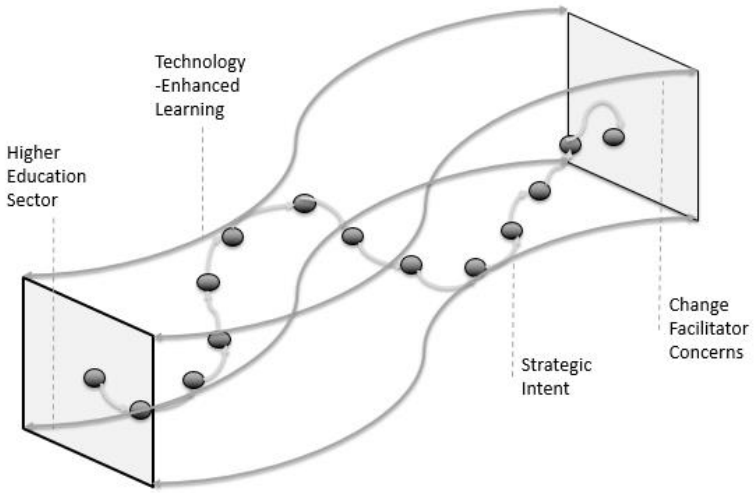


Figure 39: Conceptual framework acknowledging volatility

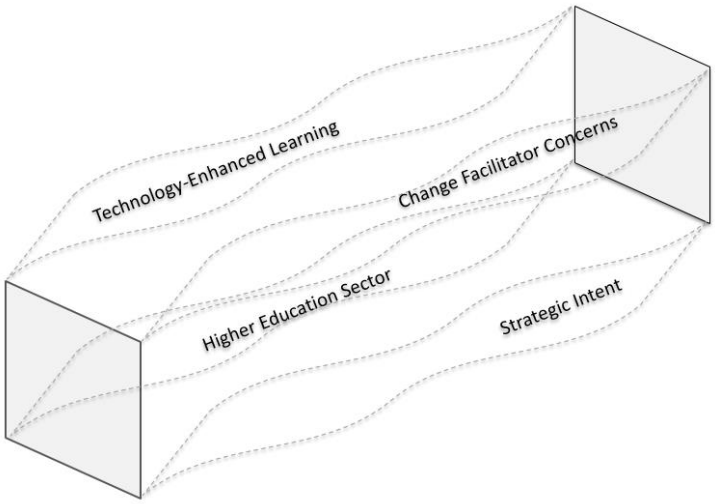


Figure 40: Conceptual framework with dynamic influences

The proximity of the perceived rotating lines depends on the tensions and influences of four aspects: technology-enhanced learning, higher education sector, change facilitator concerns and strategic intent. Change facilitators make sense of the environment, processing the influences around them. Whereas there are individuals whose actions are not informed by strategy, others carry out their roles based on strategic intent or through adhering to institutional structure. The complexity within higher education and the constant need to steady the gimbal and provide stability influences and challenges institutions without a framework of strategic intent. The

change facilitator serves as a gimbal in their effort to make sense of a complex environment.

From the perspective of change facilitators, their 'lens' from which they view their own role and position, will have impacts from their level of concern across the seven different stages. In addition, change facilitator's ability to employ their own sensemaking is impacted through a "set of socially organized *[sic]* resources for sensemaking" (Weick, 2009b:57). The lenses of concern and sensemaking, each with seven aspects, convey the volatile and dynamic nature of individual perceptions, which adds to the complexity when reflecting on facilitating change in higher education. Without any stable point of reference, steading the virtual gimbal takes dexterity and focus. Change facilitators are well suited to support the implementation of change initiatives and integrate technology-enhanced learning practices within a higher education institution.

## 10.5 Chapter Summary

This chapter discussed the primary themes which emerged from the research based on the Case Study University. Strategic dissonance and sensemaking practices joined to form the central points of discussion. Strategic dissonance, Section 10.2, is presented as the differences between strategic plans and implementation practices. A key element of this relates to the agency and autonomy characteristic of individual change facilitators. There is indication that strategic decisions were based on managerial priorities and demands of infrastructure, influenced considerably by the higher education sector. Academic staff, in contrast, primarily made decisions based on what they believe worked best for student learning rather than based on strategic plans. Support staff straddled these two ends of the spectrum since they primarily indicated their role was to support core technologies provided by the institution. The influence of strategy on implementation as well as a discussion of how strategic intent may be an unintended outcome of strategic dissonance concludes Section 10.2.

The discussion continues with a focus on sensemaking as a heuristic process of addressing *wicked problems* in Section 10.3. With volatility of the higher education system and the dynamic nature of technology, making sense of new technology in teaching and learning practices demands autonomy and willingness to explore new practices. The characteristics of change facilitators, such as agency, willingness to work both in an *ad hoc* manner with or without evidence of effective practices, and a strong desire to serve students, fosters an approach to change that serves as a conduit for implementing strategic change. Change facilitator's ability and willingness to make sense of technology, resources and shifting teaching and learning practice is necessary in implementing strategic change. This heuristic process may enable some and disable others, since support may not be available or sufficient (Mantere, 2005).

Conceptual frameworks were presented in Section 10.4 to graphically depict the volatile aspects of implementing strategic change related to technology-enhanced learning in higher education. The role of the change facilitator is integral to these models, specifically focusing on the concerns and resources available for sensemaking.

The next and final chapter, Chapter 11, concludes this study and provides recommendations emerging from the research on the Case Study University.

# Chapter 11: Conclusion and Recommendations

## 11.1 Introduction

This final chapter begins with an overview of this study and explains its significance. It highlights the unique contribution to the literature. An outline of the limitations of this study presents how they were mitigated. The chapter concludes with recommendations to stakeholders within the Case Study University, which may also extend to other universities undergoing change related to implementing technology-enhanced learning. Future research possibilities are indicated and the researcher's reflections on the research process.

## 11.2 Study Overview

This research was designed to investigate the perceptions, beliefs, and practices of change facilitators for technology-enhanced learning in relation to implementing and aligning with the strategic plan of the Case Study University. A single university in England was selected for this case study research at a time when it was defining technology-enhanced learning strategy and undergoing change related to its implementation. Key perspectives which were explored include the status of strategic plans and strategic intent within the Case Study University (Johnston, 2012), the role strategic plans had on how individual practice using technology-enhanced learning was, or was not, impacted (Walker et al., 2011; Dovey & Rembach, 2015; Walker et al., 2016b), the concerns related to technology-enhanced learning (Hardaker & Singh, 2011), and considerations of effective practices within the Case Study University as compared with examples from other institutions in the UK (Adams Becker et al., 2017). This was underpinned through a review of literature on change and implementing change (Morrison, 1998; Hall & Hord, 2011; Fullan, 2013). The role of individuals, or change facilitators, was highlighted as a key component in implementing effective change related to technology-enhanced learning (Hall et al., 1991). Implementation was identified as either emerging from the strategic plan or

based on individual discretion of the change facilitator (Clark, 2004; Seale, 2005). However, individuals facilitating technology-enhanced learning through their individual practice or resulting directly from strategy implementation, may have concerns about their role. The Concerns Based Adoption Model (CBAM) was used as a model to investigate individual concerns, and specifically, to uncover concerns related to individuals identified as change facilitators (Hall & Hord, 2011). The importance of identifying concerns was to appropriately design applicable support or structure to help enable change.

This topic was important to study because of the influx of available technology in higher education and the increasing need to provide flexible learning modes, which can be facilitated through appropriate application of technology (Adams Becker et al., 2017). Strategic plans in the UK higher education sector increasingly reflect language related to digital or online modes of learning (Walker et al., 2011; Salmon, 2014). While designing strategies for effective teaching and learning approaches is standard practice, implementation and adoption of effective strategies is dependent on individuals within an institution (Kezar & Lester, 2009; Shurville et al., 2009; Dovey & Rembach, 2015). The concerns of individuals in facilitation roles is a relevant consideration as the potential to positively or negatively impact implementation and adoption of effective teaching practices using technology. Further, individuals in facilitation roles may be acting in formal or informal capacities. This capacity influences individual perceptions related to using and implementing technology-enhanced learning.

Several terms have been used throughout this study that merit a brief overview here (see Section 1.5). The researcher defined 'Technology-enhanced learning' as the effective use and positive impact of available and accessible digital, online and offline tools and resources to transform learning (Conole & Alevizou, 2010; Hall, 2011; Walker et al., 2016b). The key message with using the term 'technology-enhanced learning' was the transient nature of the language used to represent

technology in education over time and the wide possibilities of pedagogic application. The term 'change facilitator' has been used to depict individuals who are actively using technology-enhanced learning in their academic or support roles. Individuals facilitate change through formal or informal ways, depending on their role. Hall et al. (1991:iii) define change facilitators as "the diverse set of persons, within and outside of organizations [sic], who have the formal or informal role to aid those involved in learning to use innovations". Further, individual agency, or strategic action, related to technology was considered in the context of the strategic plan or strategic intent within the Case Study University. Strategic action is what change facilitators within an organisation actually do to facilitate the organisation's strategy within the existing environment (Burgelman & Grove, 1996). Whereas a strategic plan documents the key objectives and future direction of an institution often followed by supplementary plans for implementation, strategic intent presents the objectives and direction without a prescriptive or designated path to implementation (Hamel & Prahalad, 1989; Boisot, 1995b). Strategic intent acknowledges a volatile state that requires flexibility of response and equally acknowledges the capability of individuals within an institution to implement change resulting from strategic intent. Strategic intent can be an explicit approach to disseminating strategy or it can be implicit in the structures, resources and individuals in place to help facilitate change.

This research provides a valuable perspective on implementing technology-enhanced learning within higher education institutions that primarily offer campus-based instruction. It specifically acknowledges the role of individual academics and members of support staff who informally impact change through their autonomous engagement and exploration of technology in their roles. The literature underpinning this study brought together perspectives on strategy and strategic intent within a higher education setting (Hamel & Prahalad, 1989). Technology is ubiquitous and the need to design (Price & Kirkwood, 2014) and support implementation is critical.

## 11.3 Unique Contribution

This thesis offers a unique contribution to knowledge in several ways. First, it is a detailed case study investigating the dynamics between strategic plans, identification of implicit and explicit approaches supporting strategy implementation, and the role of individuals formally or informally facilitating and implementing change related to technology-enhanced learning through their strategic action. Secondly, the absence of emerging patterns of concern amongst change facilitators of technology-enhanced learning related change reveals the complexity of implementing strategic change. Next, the unique nature of using the Concerns Based Adoption Model (CBAM) in the UK Higher Education sector is a contribution to the field, and specifically the use of the data collection instrument, the Change Facilitator Stages of Concern (CFSoC) questionnaire, had not been used previously in a UK higher education research context (Hall et al., 1991; Hall & Hord, 2011). Finally, although the term strategic intent is found increasingly in the language of strategic plans in the UK higher education sector, this research offers a unique contribution by combining strategic intent with CBAM and articulating the space between the concept of strategic intent and its relation to the concerns of change facilitators implementing technology in teaching and learning.

Although the Case Study University was not exceptional in comparison to other institutions in the UK higher education sector, the case study approach and research design presented a unique opportunity to study the relationship between a strategic plan that broadly documented the objectives of the institution, specifically the teaching and learning approach, combined with a technology support service with staffing and resourcing that encouraged independent rather than guided strategic action. Further, the views and experiences of formal and informal change facilitators serving in diverse roles within this context were explored and evaluated. For some individuals, the lack of support was a barrier to their progression of effectively using technology; for others, the lack of support was insignificant because they were

functioning autonomously in their role and were not acting in response to the strategic plan or infrastructure. Although there are sufficient publications highlighting successful implementation related to technology in teaching and learning, not least as presented in the change and strategy examples provided in Section 4.3, there are few studies that investigate the perceptions, beliefs and actions of those who both formally and informally facilitate technology-enhanced learning related change.

The second unique contribution relates to the significant absence of emerging patterns of change facilitator's concerns as measured by the CFSoC questionnaire and confirmed through semi-structured interviews. Namely, the levels of concerns identified in the findings lacked a consistent pattern amongst change facilitators as the complexity of individuals in differing roles could not be narrowed to singular areas of concern. The assumption underpinning CFSoC was that identifying levels of concerns of individuals involved in implementing change related to an innovation can address and alleviate the concerns of these individuals and help reduce barriers to success (Hall & Hord, 2011). While this may be an effective approach when supporting the strategic action of individual change facilitators, it is not as effective in informing institution-wide strategy implementation. This finding is significant as it highlights the complexity and challenges for institutions defining strategy and cultivating implementation plans and infrastructure needs in relation to technology-enhanced learning.

Complementary to this case study research as a contribution to the literature, this research is unique in its use of the Concerns Based Adoption Model (CBAM) in UK higher education. The CBAM model was originally developed for secondary education, however, there was no contra-indication to its use in higher education. Specifically, there was no evidence in the literature that the CFSoC had been used previously in the UK higher education sector and personal email correspondence with Dr. Gene Hall, one of the founders of CBAM, confirmed this premise (Hall,

2016). For this reason, this study extends the application of the CBAM model and the first application of CFSoC to investigate the unique concerns of change facilitators in a UK higher education context.

Finally, this research distinguishes strategic intent rather than strategic planning as a model to effectively support strategic action of change facilitators in their formal and informal roles and with their distinct, individual concerns. The term strategic intent is used increasingly in UK higher education strategic plans, although its interpretation is limited and not previously used in conjunction with the individual concerns of those facilitating strategic change related to technology-enhanced learning. By providing insight into the concerns of those formally tasked with facilitating and implementing technology change, as well as those who take it upon themselves to demonstrate technology change through their own initiative, this research provides perspective into the challenges and opportunities in designing strategic plans and implementing technology-enhanced learning in teaching and learning within a higher education institution.

In conclusion, this case study research contributes to the literature and to knowledge within UK higher education and technology-enhanced learning related change and strategy in the following unique ways: 1.) Presents a detailed case study of a single university; 2.) Identifies that there are no emerging patterns of concern among change facilitators, which underscores the complexity in implementing strategic initiatives related to technology-enhanced learning change; 3.) First use of the CBAM change adoption model in the UK higher education sector and the first application of the CFSoC questionnaire as a data collection instrument; and 4.) Distinguishes strategic intent rather than strategic planning as a model to effectively support strategic action of change facilitators in their formal and informal roles and with their distinct, individual concerns.

## 11.4 Limitations of the Case Study

Limitations of the study must be addressed to evaluate the trustworthiness of the research and research outcomes. This case study research focused on a single higher education institution in England which was embarking on strategic change initiatives related to technology-enhanced learning. This research reflected a study bound by a specific time-span and does not represent a longitudinal study (Creswell, 2014). A single institution was under investigation as it initiated a change initiative to increased use of technology-enhanced learning. The researcher did not control any variables in this research and she took a phenomenological approach to data collection in the time available. The space within the university was the natural setting and interviews were conducted in the setting of the interviewees, such as their office space, or in common areas within the library or food establishments. The objective was to ensure external validity (Onwuegbuzie & Johnson, 2006) during data collection and not to construe an artificial environment through control mechanisms (Teddlie & Tashakkori, 2009). Although the setting was artificial in the sense that the researcher was not otherwise a part of the day-to-day environment of the participants, the researcher and interviewees met for data collection in a relatively natural setting, which was optimal for qualitative research.

The two major limitations identified early in this research were the number of participants in this research and the transferability to other similar institutions, as noted above. Purposive sampling strategy was used to identify and select facilitators of technology-enhanced learning within the Case Study University. This necessarily limited the possible number of participants. From one perspective, this was addressed by providing change and strategy examples of other universities, which helped situate the case study within the higher education sector and in relation to implementation of technology-enhanced learning. Further, the inclusion of interviews in the research design prompted detailed narratives of the interviewees in

the form of individual vignettes. This provided in-depth perspective on strategy and implementing change related to technology-enhanced learning.

Finally, one limitation of case study research relates to transferability of findings. The turbulence and change that the Case Study University was undergoing potentially reflected similar circumstances within other higher education institutions. Namely, many higher education institutions in the UK produce a strategic plan. Subsequently, institutions are likely to provide support within their structure to help facilitate their strategic objectives and enable change implementation. Finally, the potential is high that many higher education institutions in the UK are investigating how to implement technology in their teaching and learning approaches. While each institution is unique, aspects of this research are generic, especially related to individual roles and responsibilities, concerns individuals have in facilitating change, and implementing technology into teaching and learning approaches. Universities with similar profiles, and potentially those with differences, may identify with the findings of this research. Although the intent was not to provide generalisations applicable to all higher education institutions in the UK, by providing possible scenarios and examples, the researcher sought to identify transferable aspects of benefit to some institutions. The study was designed to be sufficiently normative to enable some recommendations to be applicable to other institutions.

## 11.5 Future Research

The following potential studies would extend or complement this research.

1. Purposive sampling strategy was used in this research to identify change facilitators of technology-enhanced learning. Future research could employ alternative sampling strategies, such as simple random sampling or stratified sampling, to reach additional participants (Creswell, 2014). To increase the participant sample, extending the invitation under a different sampling

approach could potentially enable a larger number of participants to identify themselves as change facilitators.

2. The Concerns Based Adoption Model consists of three tools: Stages of Concern, Levels of Use and Innovation Configuration Map (see Chapter 3, Section 3.3) (Hall & Hord, 2011). This research specifically investigated change facilitator's concern, which was possible using the Change Facilitator Stages of Concern questionnaire (CFSoC), a more specific tool emerging from the Stages of Concern framework. Future research might complement the CFSoC with the other two tools in the CBAM framework. At the time of writing, this had not been conducted in a UK higher education context.
3. While this research included participants in support, academic and leadership roles, the number of participants from leadership was limited. Future research could extend the participant base to include more individuals from leadership (Fullan, 2011). The research could identify the most significant concerns leaders have within higher education as it relates to implementing innovative practices (Hall & Hord, 2011).
4. Although the term 'strategic intent' is used increasingly in strategic plans in higher education, the concept of using a framework of strategic intent to enable implementation of strategy during turbulent times has not been investigated (Boisot, 1995b). Future research could investigate the shift from documenting strategic intent related to innovative teaching practices to implementing these practices in higher education.
5. The characteristics of change facilitators were explored in this research, however this could be extended through an investigation of the shift from informal role to recognised social position within higher education under the framework of strategy-as-practice (Mantere, 2005).

6. This study could be extended into a comparative study using the existing research design and incorporating multiple case study universities in the UK or abroad.

## 11.6 Recommendations

The recommendations are pragmatic solutions addressing change implementation related to technology-enhanced learning stemming from a synthesis of the research findings and the literature. The purpose of the recommendations is to draw on a foundation of strategic intent with change facilitators whose agency support effective implementation of technology-enhanced learning. Recommendations are provided as a practical response to the Case Study University and serve to guide technology-enhanced learning strategy development and implementation within the institution. These practical approaches are intended to provide an alternative perspective to implementing change related to technology-enhanced learning. These recommendations may not apply in their entirety to other contexts, although it is anticipated that some aspects will be relevant with institutional and individual discretion. All higher education institutions experience *wicked problems* and universities that support and exhibit strategic intent enable the competence of individual academics and support staff to contribute towards overall strategic change initiatives.

The following provides an overview of the recommendations with detail on each point provided subsequently.

Table 16: Recommendations

| **Recommendations** |
| --- |
| 1. Design support structures to include individuals who are digitally capable and willing to facilitate change.<br>2. Consolidate staff and student technology-enhanced learning support services.<br>3. Acknowledge change facilitators in academic and support roles as shared owners of implementing change within a framework of strategic intent.<br>4. Identify effective technology-enhanced learning practices already in place within and institution to support expansion of technology-enhanced learning practices.<br>5. Acknowledge change facilitator's sensemaking ability when addressing *wicked problems* in complex higher education environments.<br>6. Provide research-informed, evidence-based guidance on effective TEL practices drawing on internal sources of educational research. |

1). Design support structures to include individuals who are digitally capable and willing to facilitate change.

In the Case Study University, the establishment of a central technology enhanced learning support team was a signal of change, however there were indications that its influence for university-wide changes in teaching and learning practices were limited. Although evidence suggested academic staff actively engaged with technology in their teaching practice, additional support and guidance may be necessary to effectively implement technology change initiatives for those not inclined to explore new technologies in their teaching practice (Gibbs et al., 2000; Shurville et al., 2009). For the latter group of academics, it is recommended to offer

discipline specific support within academic departments through centrally available technology support, in the form of educational advisors, technologists, designers and developers. Recruiting individuals with these specific talents and skills may be challenging initially, however the capability can be built up internally with guidance. One consideration to address this, is to consider developing a certificate or degree programme to support the expansion of digital design and development skills as an opportunity to support internal needs and ultimately to contribute to the higher education sector. Expanding the number of digitally capable academic and support staff has the potential to expand awareness of effective use of technology-enhanced learning and support formal learning through institutional structures (Wenger, 1998; Bennett, 2014a).

2.) Consolidate staff and student technology-enhanced learning support services.

This recommendation builds upon the central mission of teaching and learning, which is to provide the best possible teaching and learning environment to prepare students for success beyond the university (Whyte, 2015; Adams Becker et al., 2017; Shattock, 2017). Although the Case Study University established a technology-enhanced learning support service with a small team of individuals, which is supported in the literature (Drucker, 1986; Gibbs et al., 2000), additional skills-based support services were available through a different department. These skills-based support services were available to students and not to staff members of the Case Study University. Both academics and students alike interface with institutionally provided core technologies as well as experience peripheral technologies used by some academics (Shurville & Brown, 2006; Conole & Alevizou, 2010; Walker et al., 2016b). Consolidating, or uniting, support services directed at both academics and students with a central teaching and learning message may address dissonance between strategy and implementation (Burgelman & Grove, 1996; Jordan et al., 2014; Adams Becker et al., 2017; Varpio et al., 2017). For this reason, parallel teaching and

learning support structures ought to be available to assist academics in implementing technology and to assist students who engage with technology as part of the learning and teaching process. Aligning resources to present a united and cohesive message of support for students and staff encourages digital capability in implementing technologies where appropriate to enhance student learning. A consolidated support structure may also reduce *management* concerns exhibited by both academics and support staff. Finally, the recommendation of consolidating support services also addresses individuals who do not consider themselves change facilitators or who are not confident or competent users of technology in their teaching practices.

3.) Acknowledge change facilitators in academic and support roles as shared owners of implementing change within a framework of strategic intent.

The research findings suggest that successful implementation of technology-enhanced learning was largely dependent on academics' individual initiatives and strategic action. Participants in this study confirmed their desire to implement effective use of technology and motivation for self-sufficiency, thereby contributing to institutional volition (Clark, 2004). The literature also confirms the importance of self-initiative and autonomous facilitation of change within an individuals' own realm of influence as well as taking on the role of sensemaking (Weick, 1995; Nworie, 2004; Kezar & Lester, 2009; Pink, 2010; Kisfalvi & Maguire, 2011; Ravenscroft, 2013). Individual initiative demonstrates resilience which balances constant change, called churn or turbulence in the literature, and aligns with implementing change through a strategic intent approach (Boisot, 1995b; Hall, 2011; Tight, 2013). Recognising individual contribution to implementing university-wide change may reduce *collaboration*-related concerns.

4.) Identify effective technology-enhanced learning practices already in place within and institution to support expansion of technology-enhanced learning practices.

Building on the previous recommendation, change facilitators in academics and support roles, whether formal or informal, actively use technology-enhanced learning providing examples to build a range of effective practice in teaching and learning. Equally, this confirms the important role change facilitators have in contributing to institutional change (Hall et al., 1991). The disconnect between strategy and individual action, or strategic dissonance, could be corrected by consolidating support efforts, noted in the previous recommendation, and identifying effective practice already in place (Burgelman & Grove, 1996; Van de Ven & Sun, 2011; Singh & Hardaker, 2014). While focus groups and consultations may be used to scope out investment in technology infrastructure for university-wide core resources, pragmatic use of technology also occurs with peripheral technology to solve pedagogic challenges impacting day to day teacher and student experiences. While consolidated technology-enhanced learning support services will

5.) Acknowledge change facilitator's sensemaking ability when addressing *wicked problems* in complex higher education environments.

Change facilitators take on a sensemaking role when evaluating and implementing technology that enhances learning; in making sense and finding meaning, they are addressing their individual concerns and expressing their identity (Weick, 2009a). In the process of sensemaking, change facilitators also respond to the challenge of knowledge obsolescence and the fast pace of change with emergent technologies in teaching and learning (Hall & Hord, 2011). In this study, the findings demonstrated that change facilitator actions were based on personal motivation and individual agency to explore innovative teaching approaches rather than acting in response to strategy (Price & Kirkwood, 2014). This is also a social process of enabling strategy to manifest (Mantere, 2005). Individual change facilitators, whether in academic or support roles, explore and implement technology-enhanced learning as an integral part of their individual identity, while contributing to heuristic and strategic practices that support the institution (Krátká et al., 2016).

6.) Provide research-informed, evidence-based guidance on effective TEL practices drawing on internal sources of educational research.

Academics with extensive subject knowledge may not have research-informed understanding of effective pedagogic integration of technology within his or her teaching practice. Providing evidence-based support to improve digital capability may address some of the *informational* and *personal* concerns some academics demonstrate in applying new skills in their teaching and learning practices and could be used to inform strategic planning and dissemination of strategic intent (Becher, 1989). Further, with higher education sector focused on research and teaching excellence in the form of the REF and TEF, respectively, internal effort to bridge research and teaching, along with its associated tensions, may beneficially serve as an example of implementing research-informed strategy. The recommendation here acknowledges the research demand placed on academics, and suggests sharing the research conducted within education departments as a way of providing evidence for use of technology in teaching and learning (Cohen et al., 2013). Evidence suggests that the Case Study University could improve on employing a research-informed approach to teaching and learning with technology.

In conclusion, these recommendations and implications for practice address implementation of technology-enhanced learning in higher education in relation to the themes of this study: strategic intent, implementing change, change facilitator's concerns. As the conceptual frameworks in Chapter 10, Section 10.4, depict, each aspect offers varying levels of rigidity about facilitating and adapting to rapid change. Whereas a strategic plan sets broad objectives, strategic intent offers a more flexible approach to implementing strategy in rapidly changing circumstances. Where technology is transient and emergent, individuals may adapt heuristic implementation approaches to incorporate change. Some individuals will find heuristic approaches aligned with their individual perspectives and others may require or expect more formal measures of support to implement and adopt

technology in their practice or to fulfil their role. Making sense of technology in the context of one's roles and responsibilities remains a very individual task, compounded by the rates of change.

## 11.7 Reflections

The researcher's positionality in Chapter 1, Section 1.3 was written in the early stages of this research. The following reflects on this research while drawing on the researcher's background. Having worked in an innovative, online university in the United States, the researcher was keen to look at the context of a more traditional university embarking on strategic initiatives related to enhancing teaching and learning through technology. For this reason, the timely opportunity to conduct this research provided a case study to investigate the concerns change facilitators may have and approaches to address change considering *wicked problems* of change and knowledge obsolescence. This research has enabled the researcher to build valuable skills in conducting research and, most relevant, to inform her perspective of strategic change and technology implementation within a higher education setting. The researcher's personal motivation to conduct doctoral research was to support her objective of moving into a leadership position in an institution engaging in rethinking change strategies and implementing innovative teaching and learning approaches.

## 11.8 Chapter Summary

This chapter synthesises the literature and findings from this case study research. Beginning with an overview of the study and the context of the Case Study University as a mid-ranking institution in the UK undergoing change related to implementing technology-enhanced learning, the focus shifted to the unique contribution this research offers the literature. The unique contribution is both practical and methodological. In combining strategic intent, implementing change and technology-enhanced learning with the role of the change facilitator, this study offers practical perspectives for the literature on change. Methodologically, this study

made use of the Concerns Based Adoption Model (CBAM) for the first time in the UK and for the first time in UK higher education. More specifically, this study investigated the role of the individual in facilitating change in either informal or formal roles by measuring concerns using the Change Facilitator Stages of Concern (CFSoC) online questionnaire. The limitations of this study relate broadly to case study research, and more specifically to the smaller, purposive sample size. Limitations were identified and mitigated by expanding the forms of data collection to include interviews and presenting the interviewees in the form of vignettes to provide robust narrative of their experience with facilitating change in relation to technology-enhanced learning. Suggestions for future research expand the existing study and propose ways to augment measuring change facilitator's concerns with the other two components of CBAM. This could also extend to different roles within the Case Study University, such as leadership, or be replicated at other institutions. Implementing change using a defined conceptual framework of strategic intent would be another suggestion for future research. Recommendations for the Case Study University are made and extended for review by other higher education institutions. These include structural recommendations to consolidate support services that align with institutional strategy and support digital competence and capacity. The chapter concludes where the study began, namely with the researcher's reflection on this research and the personal objective of successfully concluding this study.

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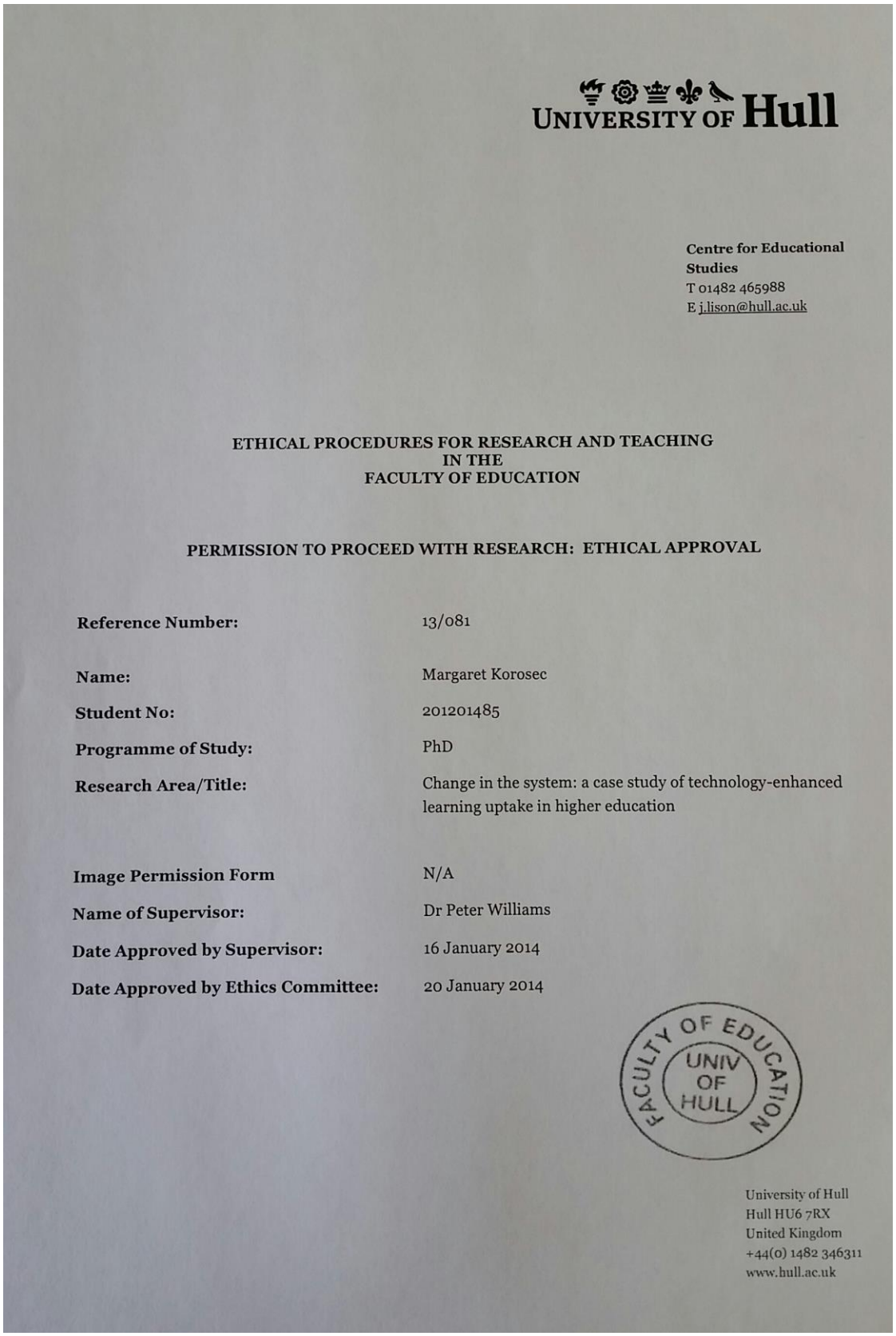
# Appendices

## Appendix A – Ethics Approval



UNIVERSITY OF Hull

**Centre for Educational Studies**
T 01482 465988
E j.lison@hull.ac.uk

**ETHICAL PROCEDURES FOR RESEARCH AND TEACHING IN THE FACULTY OF EDUCATION**

**PERMISSION TO PROCEED WITH RESEARCH: ETHICAL APPROVAL**

| | |
|---|---|
| **Reference Number:** | 13/081 |
| **Name:** | Margaret Korosec |
| **Student No:** | 201201485 |
| **Programme of Study:** | PhD |
| **Research Area/Title:** | Change in the system: a case study of technology-enhanced learning uptake in higher education |
| **Image Permission Form** | N/A |
| **Name of Supervisor:** | Dr Peter Williams |
| **Date Approved by Supervisor:** | 16 January 2014 |
| **Date Approved by Ethics Committee:** | 20 January 2014 |

FACULTY OF EDUCATION UNIV OF HULL

University of Hull
Hull HU6 7RX
United Kingdom
+44(0) 1482 346311
www.hull.ac.uk

## Appendix B – Interview Questions (Pilot study)

The following was used as a script for the pilot interviews. The purpose of the interview was provided and a consent form was offered and signed prior to commencing the interview, according to ethical principles and professional responsibilities in research (BERA, 2011).

I am interested in your view on the process of change and transition as the institution implements technology-enhanced learning initiatives.

1) How long have you been at the [name of case study institution]?
    a. How long have you been in your current role?
2) What is your current job title/role?
3) In which department is this?
4) Please describe what technology-enhanced learning means to you.
5) Please describe the current landscape of technology-enhanced learning at the [name of case study institution].
    a. Are there current examples of best practices?
    b. Is the current strategy achievable?
6) Given the current technology-enhanced learning (TEL) initiative, what changes …
    a. Do you hope to focus on during the coming year?
    b. Do you hope to see in one year / in five years?
7) In your role, are you explicitly applying a change management strategy to this institutional initiative?
8) Please describe your approach to introducing and supporting the change to increased TEL.
9) From your point of view, how will the university leadership ensure effective implementation of the TEL vision and roadmap?
10) What role will departments play in the change process?
11) What does "institutional system" mean to you?
12) Do you consider the technology-enhanced learning strategy a systemic change to the current institutional landscape?
13) What do you feel your role is in impacting the institutional system?
14) How wide/broad does your change initiative impact the system?

Thank you for your time and for your feedback. I have just three final questions.

15) Can you recommend publicly available resources you believe would be useful for my research?
16) Can you provide internal documentation you believe would be useful for my research and that you would be able or authorized to share?
17) Would you recommend another individual either inside or outside of your group you believe would be relevant for my data collection?

Thank you.

Appendix C – Questionnaire: Introductory text (Pilot study)

Dear Participant,

The purpose of this online questionnaire is to help me understand the stages of concern individuals, or change facilitators*, may have when using or implementing technology-enhanced learning. You are receiving this online questionnaire because of your curiosity or active use of technology-enhanced learning at [name of school withheld]. In this context, technology-enhanced learning refers to any innovative tool to help support student learning.**

This pilot will help me validate the use of this online questionnaire and specifically the open-ended questions. If you agree to submit your name and email, I may contact you for a 10 minute follow up conversation to ensure the open-ended questions were understood and that we have shared meaning and understanding. Your response is incredibly important for my research and I am grateful for your time.

Individual responses will remain confidential to the researcher and only aggregate data will be available, if requested.

If you have any questions, please let me know. Thank you for taking time to complete this online questionnaire.

**Please complete this questionnaire by 21 November 2014.**

Sincerely,
Margaret Korosec
PhD candidate

***Change Facilitator**: A person who uses technology to enhance student learning. One who positively contributes toward change by implicitly or explicitly impacting other individuals, departments or their school environment with their use of technology-enhanced learning.

****Technology-enhanced learning**: Innovations using technology to enhance student learning. This may include, but is not limited to, the use of a virtual learning environment, online learning resources, student or school owned mobile devices such as iPad or iPods, interactive whiteboards, flipped-classroom models, interactive or multimedia collaboration or online collaborative tools.

**Please Note: The use of the word 'program' is American English and ought to be understood as 'programme' or 'tool' or 'technology-enhanced learning'. This does not refer to a computer program in questions 2, 13, 19, 26.**

| Initial email for main study: 7 March 2015 |
| --- |
| Hello,<br>My name is Margaret Korosec and I am a PhD research student in the Centre for Educational Studies at the University of Hull. My research investigates how institutional technology-enhanced learning strategy is operationalised, or put into practice, at a higher education institute. It also looks at individuals who help facilitate change, whether formally or informally, as part of their job role. Change Facilitator is one who contributes toward change by implicitly or explicitly impacting other individuals, departments or faculties with their use or support of technology-enhanced learning. You have been selected as part of a sample for phase one of this research based on your active interest or involvement in technology-enhanced learning at [name of case study institution withheld].<br><br>Your participation is voluntary, but I would be grateful if you could spend approximately 10-15 minutes completing this confidential questionnaire.<br><br>The second phase of my study will involve an interview lasting 30 - 60 minutes. Please include your name and email address when requested if you wish to be considered.<br><br>Thank you for your time and contribution. Please contact me if you have any questions.<br><br>**Please complete the questionnaire by 20 March 2015.**<br><br>**CLICK HERE** to begin or paste the following into your browser:<br>http://www.sedl.org/concerns/cf/ *[Note: link is no longer active]*<br><br>Sincerely,<br><br>Margaret Korosec<br>PhD candidate<br>Technology-Enhanced Learning<br>Centre for Educational Studies<br>University of Hull<br>[email] |
| Follow up email for main study: 18 April 2015 |

Good Morning,
Thank you very much to those who completed the online questionnaire investigating the role of change facilitators in operationalising institutional technology-enhanced learning strategy at a higher education institute. Please disregard this email if you have already responded.
I am pleased to report a 35% response rate. However, the questionnaire is still open. If you are willing to participate, it will take 5-10 minutes of your time. Your responses are anonymous unless you voluntarily provide your name at the end.

CLICK HERE to begin or paste the following into your browser:
http://www.sedl.org/concerns/cf/ *[Note: link is no longer active]*

There will be no further notifications unless you have indicated you are willing to be contacted for a follow up interview. Thank you.

Sincerely,
Margaret Korosec
PhD candidate
Technology-Enhanced Learning
Centre for Educational Studies
University of Hull
[email withheld]

## Appendix E – Questionnaire: Introductory text

Dear participant,

Thank you for choosing to complete this questionnaire. I appreciate your time and contribution.

My research investigates how institutional technology-enhanced learning strategy is operationalised, or put into practice, at a higher education institute. It also looks at individuals who help facilitate change, whether formally or informally, as part of their job role.

Please contact me if you have any questions.

Sincerely,

Margaret Korosec
PhD candidate
Technology-Enhanced Learning
Centre for Educational Studies
University of Hull
[email and phone withheld]

### Supplementary information provided within the questionnaire for clarity:

The first section consists of multiple choice questions. Several open-ended questions precede the main section, which has 35 pre-set questions using a seven-point Likert scale. Please tick the answer with your initial response. The questionnaire concludes with a few open-ended questions. Your responses will be kept confidential.

*Please Note: The word 'program' is American English and cannot be changed in the copyright protected section of this questionnaire. This word ought to be understood as 'programme' or 'tool' or 'initiative'. This does not refer to a computer program in questions 2, 13, 19, 26.*

## Appendix F – Questionnaire: Pre-defined Questions

The following 35 pre-defined questions in the CFSoC form the basis for identifying stages of concern. The term *technology-enhanced learning* took the place of the word *innovation*.

Figure III.3 CFSoCQ -- Items for Each Stage of Concern

Stage 0 Awareness

2. I am more concerned about facilitating use of another innovation.
5. I am not concerned about this innovation at this time.
10. I am preoccupied with things other than this innovation.
22. I spend little time thinking about this innovation.
25. Currently, other priorities prevent me from focusing my attention on this innovation.

Stage 1 Informational

1. I would like more information about the purpose of this innovation.
7. I would like to know more about this innovation.
12. I need more information about and understanding of this innovation.
16. I would like to know what resources are necessary to adopt this innovation.
30. I would like to know where I can learn more about this innovation.

Stage 2 Personal

8. I am concerned about criticism of my work with this innovation.
11. I wonder whether use of this innovation will help or hurt my relations with my colleagues.
17. I want to know what priority my superiors want me to give this innovation.
24. I am concerned about being held responsible for facilitating use of this innovation.
29. I wonder who will get the credit for implementing this innovation.

Stage 3 Management

4. I am concerned because responding to the demands of staff relative to this innovation takes so much time.
14. I am concerned about facilitating use of this innovation in view of limited resources.
23. I see a potential conflict between facilitating this innovation and overloading staff.
28. Communication and problem-solving relative to this innovation take too much time.
34. I am concerned about finding and allocating time needed for this innovation.

Stage 4 Consequence

31. I would like to modify my mode of facilitating the use of this innovation based on the experiences of those directly involved in its use.
6. I am concerned about how my facilitation affects the attitudes of those directly involved in the use of this innovation.
18. I would like to excite those directly involved in the use of this innovation about their part in it.
21. I would like to determine how to enhance my facilitation skills.
27. I am concerned about how my facilitating the use of this innovation affects those directly involved in the use of it.

Stage 5 Collaboration.

3. I would like to develop working relationships with administrators and other change facilitators to facilitate the use of this innovation.
9. Working with administrators and other change facilitators in facilitating use of this innovation is important to me.
15. I would like to coordinate my efforts with other change facilitators.
20. I would like to help others in facilitating the use of this innovation.
33. I would like to familiarize other departments or persons with the progress of facilitating the use of this innovation.

Stage 6 Refocusing

13. I am thinking that this innovation could be modified or replaced with a more effective program.
19. I am considering use of another innovation that would be better than the one that is currently being used.
26. I know of another innovation that I would like to see used in place of this innovation.
32. I have alternate innovations in mind that I think would better serve the needs of our situation.
35. I have information about another innovation that I think would produce better results than the one we are presently using.

## Appendix G – Questionnaire: Categorical Questions

Table 18: Appendix G – Questionnaire: Categorical Questions

| Change Facilitator Stages of Concern: Categorical questions | | |
|---|---|---|
| 1 | Please describe yourself | Female, Male, prefer not to say |
| 2 | What is your current job role? | Senior Management, Dean, Associate Dean, Head of Academic Department, Lecturer, Teaching Staff, Support Staff, Other |
| 3 | Which faculty or department do you represent? | [Faculty names withheld] |
| 4 | Please identify your current professional level within the [name withheld]. | Associate Fellow, Fellow, Senior Fellow, Principal Fellow, None of the above, other |
| 5 | How many years have you worked in higher education? | Less than 1 year, 1-5 years, 6 – 10 years, 11 – 15 years, 16-20 years, over 20 years |
| 6 | How long have you actively been using technology-enhanced learning (TEL)? | Less than 1 year, 1-5 years, 6 – 10 years, 11 – 15 years, 16-20 years, over 20 years, I do not use TEL |
| 7 | Do you identify yourself as a facilitator of TEL-related change? | Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree |
| 8 | Do you actively promote the use of TEL within your current job role? | Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree |
| 9 | Do you feel supported to use TEL in your current job role? | Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree |
| 10 | Do you feel you are helping the [name withheld] in its strategy for increased use of TEL? | Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree |

Table 19: Appendix H – Questionnaire: Open Text Questions

| Change Facilitator Stages of Concern: Open text questions | |
|---|---|
| 1 | How would you define TEL? |
| 2 | Have you identified any significant barriers to effective use of TEL? If so, what are they? |
| 3 | Have you identified any significant benefits to effective use of TEL? If so, what are they? |
| 4 | Which TEL resources or tools have you found most beneficial in your job role and why? |
| 5 | Do you have a strategy of how to put TEL initiatives into practice? If so, please describe. |
| 6 | Do you have concerns of how to put TEL initiatives into practice? If so, please describe. |
| 7 | Please enter your name and email if you would like to be considered for the second phase of this research. The researcher may contact you for a 30 – 60-minute follow-up interview. |

**THE FACULTY OF EDUCATION ETHICS COMMITTEE**

**INTERVIEW QUESTIONS**

Further to the file, **Korosec Consent Forms April 2015,** which was provisionally approved on 11 May 2015, please find here the proposed interview questions which will be used in conjunction with the **Consent Form: Interviews.**

**Individual**

1. Please describe your personal use of technology.
2. Please describe your professional use of technology.
3. Do you try out new technology or innovations soon after they become available? Please give an example.
4. Do you use technology to enhance your own learning?
    a. If so, is that personal or professional learning?
    b. If so, how long?
    c. Can you give an example?
5. What motivates you to personally use technology-enhanced learning (TEL)?
6. Can you identify what originally prompted your interest in TEL?

**Job Role**

7. Tell me about your current job role
    a. Please confirm your faculty/department.
    b. Please confirm how many years you have worked in higher education.
8. Does your job role require you to support TEL?
9. Does your job role require you to facilitate TEL?
10. Does your job role require you to train others to use TEL?
11. Would you be interested in TEL even if your job role did not require it?
12. What motivates you to promote TEL within your professional role?
    a. What is your intended outcome of promoting TEL?

**Change Facilitator**

13. In the online questionnaire when asked if you identify yourself as a facilitator of TEL related change, you said you 'strongly agree' – can you please explain why?
    a. What does being a facilitator of TEL related change mean to you?
14. Do you feel there is agreement on the expectations of TEL-related change?

    a. Think about the department, faculty or institution.
15. **How can the change process be facilitated to achieve high levels of implementation? (Hall et al., 1991; Hall & Hord, 2011)**
16. **What factors and approaches can be applied for achieving widespread use of TEL? (Hall)**
17. Describe how you engage with others to help facilitate change.
18. What is the best part about facilitating change?
19. What is the most challenging part about facilitating change?
20. Do you feel you have a strategic role in influencing how TEL is used (in your department, faculty or institution)?
21. How do you go about making changes to existing practice?
    a. Personal or professional?
    b. Individual or group?
22. What approach do you use to promote the use of TEL within your current job role?
    a. Is facilitating change in your job description?
    b. Is using TEL in your job description?
23. What do you think is the best way to facilitate faculty-wide or institution-wide change initiatives?
    a. Team meetings, presentations, projects, action plans, departmental KPIs?

**Strategy**

24. Can you tell me about the University's Strategic Plan?
    a. How does the Strategic Plan impact your current job role?
    b. Is TEL included in the Strategic Plan?
    c. Are you aware of a TEL vision and roadmap?
    d. If yes, could you describe the TEL initiatives in your own words?
    e. Do you feel you have the capability to put the TEL strategy into practice?
25. In what ways do you feel you are helping the University with its TEL strategy or initiative?
    a. OR Do you feel you are helping the University to increase use of TEL? [Direct repeat from Questionnaire]
    b. Is the strategic direction to increase the use of TEL?
    c. Can you share any examples?
26. As a self-described change facilitator, do you feel you are meant to operationalise, or put into practice, the TEL strategy (initiative)?
    a. From a personal standpoint?
    b. From the perspective of your job role?
27. **How much precision is given in what operationalising looks like? (Hall)**

28. How do you, as an informal or formal change leader, communicate expectations to front-line members of staff OR colleagues?
29. What is your biggest concern about implementing the University's TEL strategy?
30. Have you worked on implementing TEL strategy elsewhere? What can you share about that experience?
31. What comes first (what is more important to you), your drive to facilitate change or alignment to the strategy?
32. In what ways do you consider facilitating change to be different to implementing strategy?
    a. Are they the same?
33. Would you like to share any additional thoughts about TEL, TEL strategy or any aspect of TEL or change facilitation?

**Other (Optional)**

Change as a process of implementation.
What is your perception of the organisational culture?
**What is the extent of implementation with each individual/each institution? (Hall)**
How do outcomes vary with extent of implementation?

**Parts**

1. Understand the TEL Strategy
2. Understand roles in the department as implementers – how do they see selves?
3. Understand plan to implement.

## Appendix J – Overview of Participants

Table 20: Appendix J – Overview of Participants

| # | Pseudonym | Gender | Role within the institution | Years in higher education | Years actively using technology-enhanced learning (TEL) |
|---|---|---|---|---|---|
| **824** | **David** | **Male** | **Academic** | **16-20 years** | **16-20 years** |
| 825 | George | Male | Academic | 6-10 years | 1-5 years |
| 827 | Mary | Female | Academic | 6-10 years | Less than 1 year |
| *829* | *Louise* | *Female* | *Academic* | *> 1 year* | *> 1 year* |
| 831 | Tracey | Female | Academic | 16-20 years | 1-5 years |
| 832 | Michael | Male | Academic | 16-20 years | 16-20 years |
| **834** | **James** | **Male** | **Academic** | **6-10 years** | **16-20 years** |
| 835 | Hannah | Female | Academic | 6-10 years | 11-15 years |
| *839* | *Thomas* | *Male* | *Academic* | *20+ years* | *20+ years* |
| 842 | Emma | Female | Academic | 20+ years | 20+ years |
| **843** | **Sarah** | **Female** | **Academic** | **11-15 years** | **6-10 years** |
| 844 | Lucy | Female | Academic | 1-5 years | 1-5 years |
| 823 | John | Male | Academic Manager | 16-20 years | 20+ years |
| 845 | Nancy | Female | Academic Manager | 11-15 years | 11-15 years |
| 828 | Gary | Male | Support Staff | 1-5 years | 1-5 years |
| 836 | Andrew | Male | Support Staff | 16-20 years | 16-20 years |
| **846** | **Katherine** | **Female** | **Support Leader** | **16-20 years** | **16-20 years** |
| 848 | Claire | Female | Support Manager | 20+ years | 6-10 years |
| *826* | *Lewis* | *Male* | *Support Manager* | *20+ years* | *16-20 years* |
| **841** | **Martin** | **Male** | **Support Manager** | **16-20 years** | **16-20 years** |
| **830** | **Helen** | **Female** | **Support Staff** | **20+ years** | **16-20 years** |
| *833* | *Richard* | *Male* | *Support Staff* | *1-5 years* | *1-5 years* |
| 837 | Brian | Male | Support Staff | 20+ years | 20+ years |
| *838* | *Peter* | *Male* | *Support Staff* | *20+ years* | *1-5 years* |
| 840 | Ian | Male | Support Staff | 6-10 years | 6-10 years |

Notes**:** 1.) The participants in **bold** were interviewed; 2.)The participants in *italic* did not self-identify as a change facilitator responding with 'neither agree nor disagree' or 'disagree'; 3.) The number (#) was auto-generated in the CFSoC online questionnaire and is retained here for reference only.