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Organisational Learning in the University - a Case Study of Change in Higher Education

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Submitted in fulfilment of the requirements for the Degree of
Doctor of Philosophy

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Abstract

Higher education is facing many challenges as universities contend with significant ongoing dynamic change in the external environment. As student expectations and needs evolve, many universities are reviewing the systems they use to support their business processes.

This study investigates the process of change using a theoretical framework which combines the related concepts of organisational learning and knowledge management, underpinned by a complexity theory paradigm. Examining the experience of one university over a period of several years, the study identifies the changes which have impacted upon academic advising staff using a case study methodology which has been informed by action research. This methodology employs a mixed methods approach which facilitates a deeper understanding of the source of problems and enables the critique of organisational systems. Using the knowledge management techniques of collaboration, mapping and taxonomies, the study involved processual enquiry and review as new knowledge emerged and was placed within the context of the wider organisation (Dawson, 2014). The Burke-Litwin Causal Model of Organizational Performance and Change (Burke and Litwin, 1992) was employed to analyse organisational documentation and focus group feedback and the complexity inherent in higher education and the causal effects of organisational change are examined. Such an investigation provides a means by which the discrepancies between the university's espoused theory and its theory-in-use (Argyris and Schön, 1978) can be identified and used to enhance organisational learning within the university.

The main findings reveal tensions which arise from the 'loosely versus tightly coupled systems' of the university (Burke, 2014) and from the requirement for staff to place new and revised processes within their knowledge of previous systems. Recommendations are made which are aimed at improving advising and student records system processes as well as enhancing knowledge management and organisational learning within higher education.

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This thesis is dedicated to my Dad. ‘There is a light that will never go out.’

Author's Declaration

I declare that, except where explicit reference is made to the contribution of others, that this thesis is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution.

Signature:

Printed name: Dawn McKenzie

Abbreviations

AR	Action Research
DHLE	Destinations of Leavers from Higher Education Survey
ELIR	Enhancement Led Institutional Review
FOI	Freedom of Information
HE	Higher Education
HEFCE	Higher Education Funding Council for England
HESA	Higher Education Statistics Agency
IT	Information Technology
KM	Knowledge Management
MIS	Management Information Systems
NSS	National Student Survey
PAR	Participatory Action Research
REF	Research Excellence Framework
RUK	Rest of United Kingdom
SFC	Scottish Funding Council
SMG	Senior Management Group
SRS	Student Records System
VP	Vice-Principal

Chapter One - Introduction

Introduction

As global social, economic and technical developments have impacted upon the higher education sector, there have been notable shifts in student demographics as well as in students' expectations of what they hope to gain from investing their time and money in higher education (HE) to gain a degree. Despite these changes, the core purpose of universities remains the creation, diffusion and refinement of knowledge through society (Bowen and Schwartz, 2005). Universities can therefore be seen to have a duty to seek new ways to create knowledge and investigate hidden or obscure information to build a greater understanding of the world around us.

In order to meet the challenges of this ever-changing HE landscape, universities are implementing IT systems in response to the increased need for the delivery of online services to students and staff and the requirement to capture more accurate data to meet the demands of internal and external stakeholders. These developments are inevitable, reflecting the progression to a networked society which is reliant on increasingly sophisticated technology and are occurring in organisations of all types and sizes across the world. This research aims to understand the process and impact of such changes. By studying the effects of the implementation of one such comprehensive IT system as a major change management process within a university, knowledge is generated which helps to inform programmes of organisational change management in HE as well as within other industries and sectors. Furthermore, any contributions to knowledge creation within higher education can be seen to be of wider benefit to those other sectors, as universities provide the research and graduates required by organisations and employed widely across society.

This study seeks to explore the concept of change, the ways in which organisational learning occurs as a result and the role of organisational knowledge

management systems in supporting this process. In this thesis, I explore the ways in which one university has instituted major change and the impact of this on the organisation, conceptualising the change process as a process of organisational learning. This organisational learning is supported by various knowledge management systems and these are investigated in order to provide answers to the questions posed by my research. The study was conducted over a period of several years, examining the reasons for change as well as the change process and its impact. The organisational learning which has occurred as a result of change is analysed using knowledge management techniques and the research was informed by theories related to organisational knowledge and change.

The specific focus of this study is on the implementation of a new student records system (SRS) and its role within the process of academic advising. The research employs a processual approach (Dawson, 2014), by examining problems and experiences at the micro level and drawing out the implications for the organisation and its organisational learning capabilities. Processual research provides 'narrative accounts of the continuously developing and complex dynamic of people in organisations' (Dawson 1997). Analysis of those accounts was carried out using the Burke-Litwin Model of Organizational Performance and Change (Burke and Litwin, 1992) and a case study methodology which employed mixed methods of data collection. Investigation into the role of the adviser provided a rich seam of data in relation to the problems being faced by individuals and groups and their relationship with the wider institution, as understanding grew in relation to the processes they are required to carry out and their dependencies on other tasks which occur throughout the organisation.

Background to Study

The research focus of this case study is single Scottish university and its experience of change. There are currently 19 higher education institutions in Scotland, funded by the Scottish Funding Council (Scottish Funding Council, 2016). Most of this funding is granted using the Teaching Grant, however they do also provide funding

for research and infrastructure. The funding allocated to teaching is limited to students who are resident in Scotland or the EU, with students from the Rest of United Kingdom (RUK) paying a subsidised fee and international students being charged the full rate for their programme of study (Scottish Funding Council, 2016). The Scottish Honours degree structure differs from that of RUK in that it is a four-year duration, rather than three and is believed to encourage greater breadth in education (Studyinscotland.org, 2016). The first year of a Scottish degree is intended to provide the additional specialist knowledge gained by A-Level students from other UK educational systems, however this additional year of study has provided challenges for Scottish higher education (HE) in relation to fee-setting and attracting undergraduate students more accustomed to a three-year Bachelor's degree structure (Insidehighered.com, 2016).

Despite differences in relation to the policies on university funding and degree structures, universities in Scotland and the rest of the UK have a great deal in common as they grapple with the same challenges being posed by change in the external environment and they look to identify effective means by which those changes can be navigated or exploited. As highlighted in the introductory section, organisations of all types are increasingly seeking technological solutions to manage change and increase their competitive edge. The 'knowledge economy' (Drucker, 1969, p.294) has influenced our need to communicate instantly across great distances and in turn this has created an even greater need for more advanced technology and more sophisticated processing. This has had an impact on HE in a number of ways; it has redefined the skills and knowledge required by graduates, it has changed the ways in which students communicate with each other and the university and it has transformed the expectations of students in relation to the services they expect.

Over the past few decades universities have often built their own IT systems and networks, however such a model is becoming increasingly expensive to sustain and maintain and the university in this study decided such an approach would not meet their ongoing needs (Doc Ref 001). An increased drive to automate tasks and integrate different processes has greatly increased the complexity of university

systems and, as a result, many are looking to use third-party software to meet their operational needs. However no software solution which is standardised across the sector is able to meet all the needs of all its users, particularly given the huge variety in process and practice both across and within institutions. Therefore universities deciding to implement such a system must contend with the challenges and problems which arise when the work of groups and individuals is significantly impacted by change, technology and standardisation. It is this social aspect of systems change which is crucial to its success.

The university studied during the course of this research introduced a new system to manage student records (SRS) several years ago and this thesis charts the experience and outcomes of this change. The system was implemented to replace several custom-built systems and it was stipulated that it should meet several requirements, including: individualised timetables for students, automated progression of students meeting their academic requirements and more detailed and accurate data for both students and staff (Doc Ref 001). The system incorporated processes related to the entire 'student lifecycle': Admissions, Student Records, Student Finance, Graduation, Management and Statutory Reporting.

A high-level diagram of the system which was implemented is presented below (Figure 1). It depicts the various elements contained within the system and their relationships. At the top level is reporting and this is a requirement for various bodies throughout the lifecycle of the student. The level below, student support, represents the range of services that students can access from the time they are admitted as a student and the academic advising process is enacted from the point a new student is invited to register until they graduate. The curriculum element includes the teaching elements of the programme; students are enrolled in classes, which are the timetabled elements of the courses offered within the programme of study. Students progress from year to year and their final degree result is assessed and awarded according to their performance in these courses. The individual elements representing admissions, funding, registration, etc. are

the processes with which the student engages and the outputs below show the type of data captured at each stage in the process.

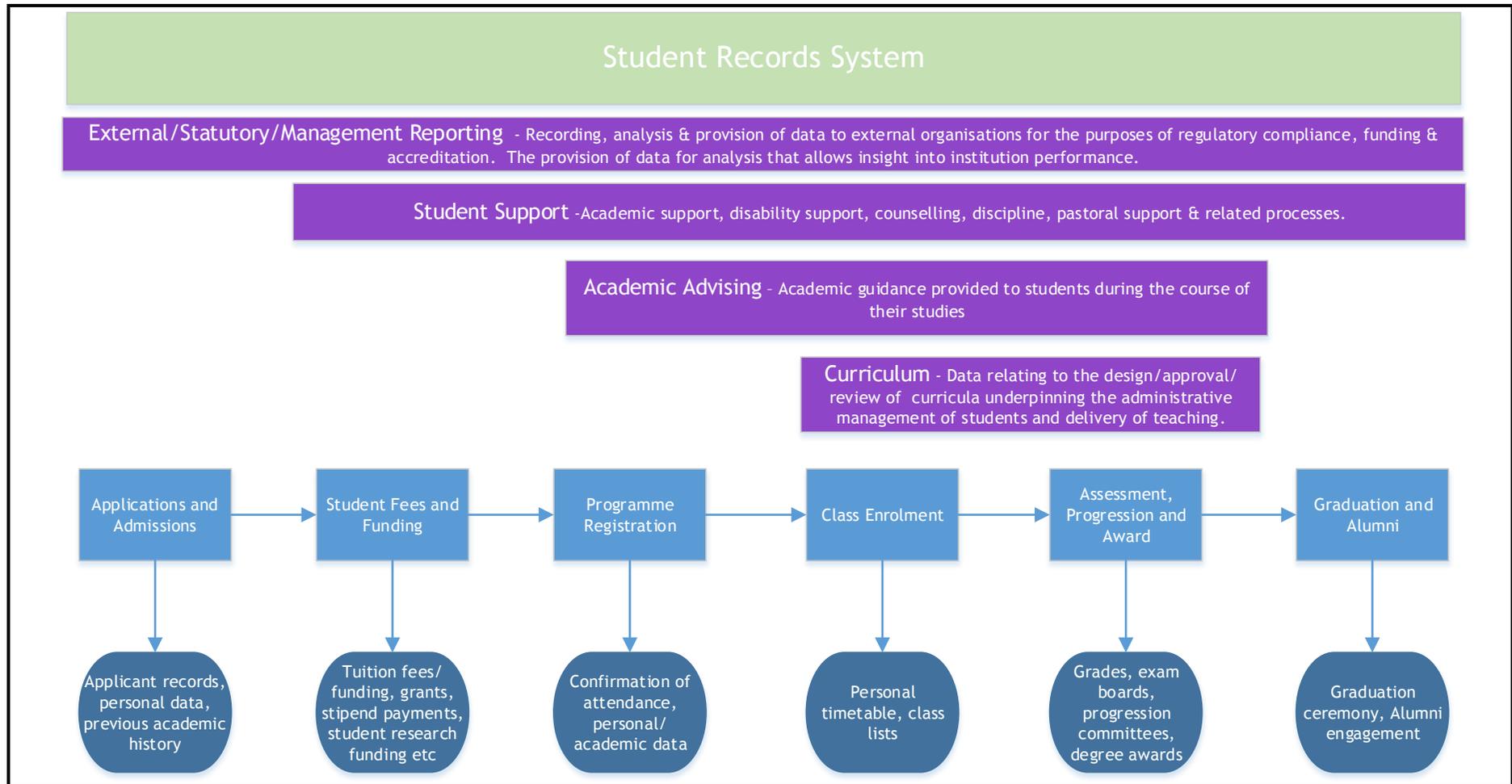


Figure 1 Overview of the Student Records System

The academic cycle is an annual process, with various tasks taking place at the same time each year and each dependent on the other. The academic element of the system is presented below in Figure 2. Each swim-lane represents one of the core roles involved in the annual academic cycle and their actions within the system.

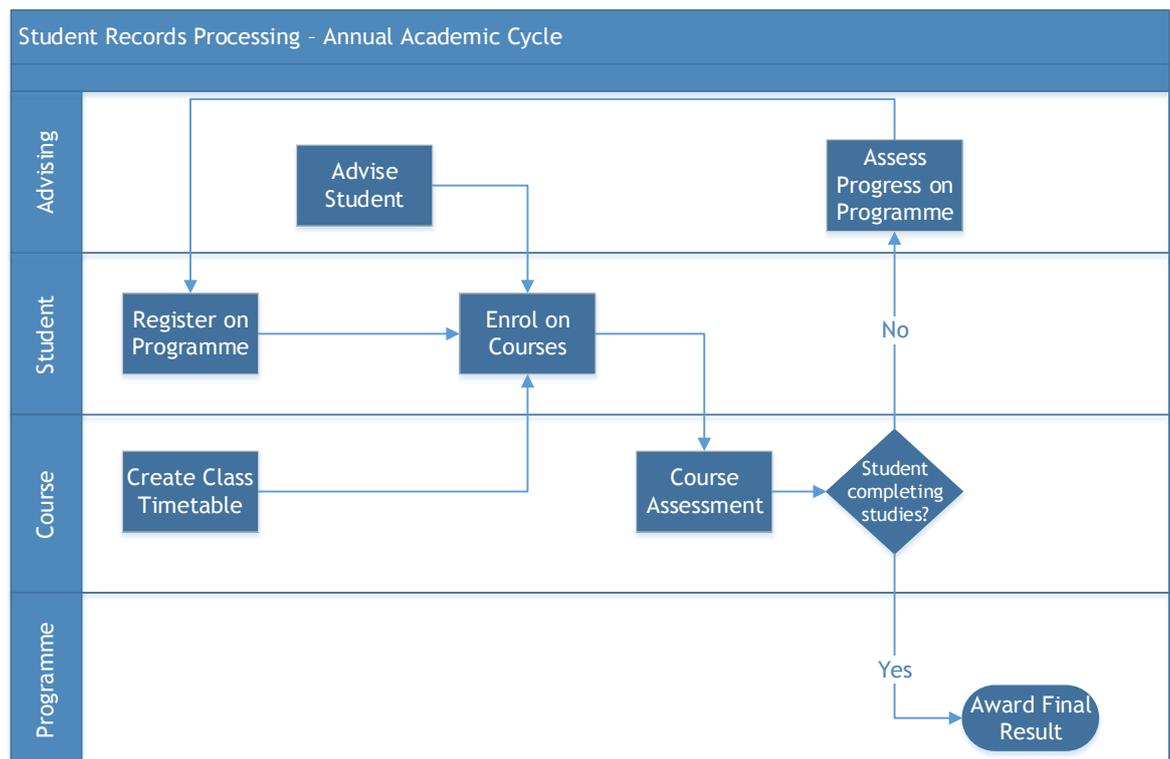


Figure 2 Student Records Processing - Annual Academic Cycle

When the student is admitted to the university they are required to register on a programme of study and this programme determines the fee the student is charged and the curriculum available to the student. The programme also determines which adviser of study will be assigned to the student in order to provide academic guidance and support. The student is then required to enrol into the assessed courses defined by their curriculum; these are timetabled by the staff responsible for organising and teaching the individual classes - lectures, labs, tutorials, etc - which make up the course. The class enrolments provide students with a personalised timetable and access to the appropriate online learning

facilities with grades recorded against the course following assessment. The results achieved are assessed in relation to the requirements for the overall programme of study and students meeting the requirements are progressed from one year to the next. Following their final year exams, the results are validated in relation to the requirements for their programme and students are either granted their degrees or, for those who are not successful in attaining a degree, exit awards such as certificates and diplomas.

The successful completion of these tasks and the accurate recording of student data is of critical importance to the university. Quite apart from the statutory and commercial considerations for the institution, the provision of validated and accurate data relating to a student's learning and knowledge is a key, tangible product of a university education. The grades recorded against a student and the final award that they achieve demonstrate the student's performance to other stakeholders and they must be able to have confidence that any documentation confirming the student's achievements contains useful and accurate information and represents accredited and validated knowledge.

Purpose of Research

The purpose of this study is to investigate the nature of change, the learning which occurs within organisations as a result and the ways in which knowledge management can be used to support and enhance that organisational learning. The data and analysis provided by this study provides a deeper understanding of the organisational issues impacting upon the experience of staff and students and the reasons for them. The analysis of the data is firmly grounded in theories related to organisational learning, change and knowledge management and is placed in the wider context of the university's external environment and the changing pressures impacting upon the higher education sector. Case study research was selected for use as it is a methodology ideally suited for the investigation of complex systems from within an organisation and over a period of time (Eisenhardt, 1989).

The practical focus of this study is on the specific experience of one university and, more specifically, the experience of staff using IT to provide academic advising services to students. This work derives its importance from the broader themes it seeks to address through research and the applicability of its findings to other universities and different types of organisation. The literature, theories, approach and methods used were selected based on their suitability by providing knowledge and understanding about where problems lie within higher education and the reasons for those problems. By studying the experience of one university within that wider context, the themes identified can be seen to have direct relevance to other institutions which are operating in the same environment and experiencing the same pressures and organisational difficulties when responding to and planning for change.

The case study methodology for this research has been placed within a complexity theory paradigm. The strength of this approach is that it does not seek to provide a universal understanding of change, instead its aim is to provide further knowledge and learning which helps to inform our understanding of complex phenomena (Flood, 2010). It is this facet of complexity theory which also ensures its suitability for the study of change as it aims to 'examine change processes as they emerge and interweave over time with the intention of identifying interlocking patterns of activities in order to gain a temporal understanding' (Dawson, 2014). The 'temporal' nature of processual knowledge is critical; as new knowledge emerges and understanding deepens, previous knowledge becomes forgotten or obsolete and this adds greater complexity when attempting to make sense of a situation. The organisational learning which occurred in the university following a period of significant change represents a major shift in the temporal understanding of processes held by staff in the university. My research involves the examination of problems and challenges within the knowledge management systems of the university which have led to problems within the business processes and tasks carried out by staff and the implications for the wider organisation.

Relevance of Research

Complexity theory provides a means by which an emerging understanding of experience and observation can be reached through the use of multiple routes of investigation (Cohen et al, 2011). Networked IT systems are now ubiquitous in both the workplace and our homes and, as a result, organisations are under constant pressure to stay abreast of technological changes and implement ever more sophisticated technology to carry out tasks that were previously done manually and on paper. The move to a more technologically-reliant society has proved to be a complex and challenging process, often resulting in a great deal of unpredictability and anxiety for people as they attempt to manage increasing amounts of data and information (Gleick, 2011). The complexity theory paradigm provides a lens through which the messy and unpredictable nature of change is embraced and examined and this provides a contrast to early change literature which viewed change to be a purely linear process which could be managed using highly-structured plans and designs (Burke, 2014).

The higher education sector is a notable example of a complex system. As previously highlighted, the university's primary function is devoted to the production of knowledge in society (Bowen and Schwartz, 2005), which means that its outputs are difficult to quantify and measure. Nonetheless, changes to the environment in which universities operate have resulted in significant change and upheaval for institutions over the past few decades. These pressures are political, financial, social and technological and they have resulted in a more market-driven sector which is concerned with competition and investment and the achievement of high scores in the proliferation of rankings and awards which are viewed as representative of a university's worth (Times Higher Education, 2016).

Despite this emerging focus on more corporate activities, the core purpose of the university remains unchanged and this results in various conflicts over priorities and resources, with tensions arising, including between: teaching and research, local and international students, undergraduates and postgraduates. In order to

assist with the management of processes related to these various groups and activities, universities have increasingly turned to IT solutions. However there are significant challenges which arise when attempting to implement a system which will effectively facilitate such a knowledge-rich environment. These difficulties are not entirely related to the availability of suitable technology, but also come as the result of other organisational and human factors. The external environment is the over-riding driver for change as it continues to advance more rapidly than the organisations which operate within it, however problems also often arise internally and are related to the interactions and relationships between elements such as leadership, strategy and culture and their impact upon the workings of the organisation (Burke, 2014). In this respect universities are no different from any other business or organisation, but where they do differ significantly is that they do not exist to make money for shareholders; they exist to generate knowledge for the betterment of society. Therefore they have a greater responsibility to learn effectively in order to meet their social obligations (Bowen and Schwartz, 2005).

This particular study examines the organisational learning experience of a university using the Burke-Litwin Causal Model of Organizational Performance and Change (Burke and Litwin, 1992) in order to understand how change affects operational processes and human behaviours and, by extension, the wider organisation. This model is used to help frame the background to the organisational changes that occurred over a period of several years and facilitates an analysis of the dependencies and relationships which exist within the university as well as an understanding of the impact of the external environment upon its operations. The experiences of a particular group of staff - undergraduate academic advisers - are investigated and analysed using the framework to gain a deeper understanding of why the problems identified within the institution are occurring and determine appropriate actions in response. This allows a more robust comprehension of the main source of problems related to the processes involved in supporting students and provides important insight into the impediments to improved performance and organisational learning within the university.

The Burke-Litwin model is well-regarded within the literature related to change (Kondacki et al, 2006), however there are limited examples of previous academic research using this model within the higher education sector. Kondacki et al (2006) describe the Burke-Litwin change model as being widely used within studies of organisational change and argue that previous studies into organisational change tend to be approached from a policy, rather than managerial perspective. Their focus on the structural and functional elements of higher education in response to externally-driven change helps to fill a gap in existing literature and their employment of the framework helps to conceptualise their argument. Smith (2011) uses the Burke-Litwin Model in a case study of restructuring at the University of Nevada, however its application is limited in that it does not consider all twelve factors that Burke and Litwin (1992) set out for consideration in organisational research. This study uses the entire Burke-Litwin framework as a diagnostic tool to understand the drivers and impacts of change which occurred within the university and in this regard it too can be seen to provide additional relevance to the use of organisational change models within higher education institutions.

While traditionally suspicious of initiatives which can be seen to be ‘faddy’ or too closely aligned to corporate values, higher education institutions are increasingly starting to view organisational learning interventions as an important means to better understand how knowledge is managed and used (Kidwell et al, 2000; Rowley, 2000; Metaxiotis and Psarras, 2003; Solanki, 2013). This research seeks to understand whether the application of the tools and techniques associated with organisational learning can be of benefit to higher education and this provides one additional perspective to the growing body of literature concerned with the management of organisational knowledge.

Research Questions

Based on evidence of negative feedback relating to the student records system (SRS) from all levels of the university, a clear perception that the system was not fit for purpose was identified (Doc Refs 002/003/004/005). While various issues arose during the implementation of the new system, these had largely been addressed through reviews of business processes and had not required a full-scale or extensive redevelopment of the software itself, with most changes actioned being largely based on existing, delivered functionality. By the start of 2014 there were no requests for major fixes or changes to the system with the majority of technical developments related to student records being related to new processes and services. This discrepancy between the feedback being reported publically and that which was being reported directly to the support team formed the basis for the initial research-based investigation into the issues which were affecting staff using the system. This involved the use of a wide variety of organisational documentation as well as system knowledge about the data and processes involved in supporting student records management. The focus of the study then became concentrated on undergraduate academic advising as the processes involved in its provision contribute to both the academic achievements of students and the accurate recording of academic data. Little (2010) argues that it is important for universities to recognise the importance of the knowledge created by their staff and students and that practices related to knowledge management need to become embedded in the culture of advising and the wider university; this study is an attempt to develop a deeper understanding of how this can be achieved. It was also hoped that actions taken to resolve issues with advising students would have wider implications for other processes carried out within the student records system, such as course co-ordination, postgraduate study and management reporting.

In order to better understand the process of change and the reasons for the problems experienced by those affected, the following question is posed by this study:

How does organisational learning occur in a university and how is organisational knowledge managed to support it?

The study uses practical aims to fulfil the aims of the research project and to provide answers to the research question above. The objectives of the practical project are to:

- Identify the changes and address the student records system issues directly impacting upon the process of academic advising.
- Identify any further changes or actions required to enhance the service provided to students.
- Work collaboratively to address the challenges of managing change and organisational knowledge within the context of academic advising.

These practical aims generated data which formed the basis of the answers to the following research aims of the study:

- Understand the underlying issues which are impacting the effective provision of academic advising to students with reference to appropriate organisational theories.
- Critique organisational systems to understand dependencies and causal factors.
- Make recommendations to help facilitate more effective organisational learning, based on the examination of evidence and the application of theoretical knowledge.

These aims were achieved through the systematic analysis of organisational documentation produced by the university and feedback gathered in response to the various changes which took place over a period of six years. This analysis was conducted using the Burke-Litwin Model proposed by Burke and Litwin (1992) which provides both the background to the study and also defines the main problems experienced by the university as a result. This model also contributes the context required for interpreting the views of advisers attempting to provide academic advising services to students during a period of dynamic change and uncertainty. The opinions of staff involved in advising were gathered through the use of focus groups with advising heads, who were selected based on their experience of dealing with both students and advisers and also because of their role in the university, which permitted them to recommend or authorise actions agreed as a result of the focus group discussions. The data generated by these focus groups was also analysed using the Burke-Litwin Model providing a deeper exploration of the specific problems experienced by groups and individuals which are impacting upon the university as a whole.

By exploring the university's processes, knowledge is generated which explains why the problems identified in the operationalisation of organisational strategic aims are occurring and this helps to make sense of change (Dawson, 2014). Key concepts related to the different levels of the organisation and the feedback effect between each is important both within this study and also within the wider theory related to organisational knowledge and learning. It is through exploration of these concepts that recommendations are made to enhance the provision of services to students and, by extension, enhance the learning of the organisation and contribute further scholarship to organisational learning theory.

Principal Findings

The main findings of this research demonstrate that organisational knowledge is being created by the university, however there are significant challenges related to its management and use. The documentary analysis provided using the Burke-

Litwin model demonstrates that changes which have occurred in the university over the past few years have created a great deal of 'obscurity' (Argyris and Schön, 1978, p.56) with both staff and students confused and frustrated by a number of changes which have affected structures, systems and management practices. This has led to significant changes to tasks and business processes as more standardised methods of gathering and recording data have been introduced in an attempt to replace the variety of systems and methods which had been used previously. As a result, many staff report that they do not have the skills and knowledge required to undertake tasks in the new system. This has had a detrimental impact upon the university as staff have struggled to operationalise strategic aims. However, despite these difficulties, the university's performance in relation to a variety of external benchmarks has not been notably impacted; indeed it can be seen that according to some indicators, the performance of the university has improved since the introduction of the changes that have occurred and benefits are being realised. Nonetheless this does suggest that a better understanding of the systems supporting performance would help to enhance the university's performance even further.

The reasons for these problems are related to the issues identified within the organisational factors defined by Burke and Litwin (1992), most notably a lack of understanding of the relationships between different systems and parts of the university and an organisational culture which has resulted in a great deal of silo-working, where co-operation between different subject areas has traditionally not been encouraged and ownership of processes can be difficult to identify. Actions taken as a result of the focus group research relate to the business processes specifically involved in academic advising, however the recommendations made in relation to knowledge management are aimed at the enhancement organisational learning and change management at an institutional level and any improvements to the advising process in terms of student or staff experience have implications for other roles and responsibilities within the university.

Value of Research

The value of this research is not confined to either a single institution or sector. The application of emergent theories and practice related to the management of change and knowledge contributes to the developing theories of organisational learning. Beyond the scope of this institution, the study also provides emerging knowledge in relation to the theories and models used to inform understanding of the data and this can be used by other organisations to help inform their own understanding of change and organisational learning and how they can be managed to better effect.

The methods and techniques used to gather data are explicit and can be easily replicated. However, by enabling learning at the individual, group and organisational levels, complexity theory challenges the traditional focus of research on predictability and replicability and examines networks at both the micro and macro levels (Morrison, 2010). Therefore the intent of this study is not to provide methods which will provide identical results for another organisation, but to help to develop our understanding of complex relationships and the context of interactions which lead to a certain set of results. This knowledge can then be applied to future projects and studies and used to help draw parallels and distinctions between patterns and behaviours. By employing the Burke-Litwin framework (Burke and Litwin, 1992) a model is provided against which such comparisons can be easily made and dependencies can be mapped out. This shows the value of such a model as a tool for diagnosing and managing change (Burke, 2014).

Structure of Thesis

Chapter Two - Literature Review

Chapter Two explores the literature related to change and organisational learning. Drawing upon the theories of Argyris and Schön (1978), the concepts of double-loop learning and espoused theory vs theory-in-use are explored. This involves discussion of the difference between information and knowledge and between different types of knowledge. I will also explore the main concepts related to dynamic change and the ways in which a deeper understanding of processes helps to develop enhanced knowledge management techniques and strategies. These theories are placed in the context of Management Information Systems (MIS) and higher education and their applicability for research into academic advising is discussed.

Chapter Three - Conceptual Frameworks for Modelling Change and Knowledge

This chapter will concentrate on the conceptual frameworks underpinning research into organisational learning and introduce the model selected for use in this study: the Burke-Litwin Causal Model of Organizational Performance and Change (Burke and Litwin, 1992). The model's application has been placed within a complexity theory paradigm and the reasons for this are explained, along with a description of the key techniques involved in the development of knowledge management.

Chapter Four - Methodology and Methods

Chapter Four provides the rationale for the case study methodology employed and a justification of the mixed methods research design and methods selected. The research question driving this study, its aims and the operationalised questions

are discussed in relation to the methods and techniques selected. The process of data analysis is also described along with an exploration of ethical concerns and the constraints and limitations placed upon the research.

Chapter Five - Documentary analysis using the Burke-Litwin Causal Model of Organizational Performance and Change

Chapter Five analyses the organisational documentation and feedback within the framework of the Burke-Litwin Causal Model of Organisational Performance and Change (Burke and Litwin, 1992). The major changes which have taken place within the university in relation to the provision of academic advising are identified and the dependencies between each factor are examined and mapped, providing further insight into the complexity of the organisation.

Chapter Six - Focus Group analysis using the Burke-Litwin Causal Model of Organizational Performance and Change

Chapter Six investigates the specific business processes related to academic advising and the problems experienced by advisers in provision of the service. This data provides an understanding of the source of problems being experienced by staff and students across the university and a deeper comprehension of how knowledge can be better managed to produce enhanced results and reduce errors in both business and knowledge processing. The placement of the data within the Burke-Litwin Causal Model of Organizational Performance and Change (Burke and Litwin, 1992) provides the means to identify where responsibility for change lies and the ways in which the experiences of individuals and groups can be related to the wider organisational experience.

Chapter Seven - Conclusions, Implications and Recommendations

The final chapter lays out the conclusions and recommendations arising from this research. Key findings related to the operation of the university are described, along with an explanation of their wider implications for other organisations and for the development of organisational learning theory.

Chapter Two - Literature Review

Introduction

In this chapter I will expand further upon the concepts of organisational learning and change which were introduced in Chapter One, as well as develop an understanding of the role played by various forms of knowledge and how they can be managed by organisations to help them with the organisational learning process. This involves looking at how change impacts upon organisations and considering the ways in which the process of change creates new organisational knowledge and learning which then, in turn, creates further change. The aim of this study is therefore to identify theories and models which can find practical applications to enhance the creation and diffusion of organisational knowledge.

The ability to manage change and the knowledge which results from it is crucial to universities who are facing the challenges and threats of the global economy. As the concept of the 'knowledge economy' (Drucker, 1969) has gained traction over the past years, so too have ideas related to the creation of organisational knowledge and how it can be employed to cope with the demands of change from the external environment and to increase organisational capability and capacity. It has been argued that academics are the original 'knowledge workers' as the role of knowledge has been the driving purpose of university education for many centuries prior to the emergence of the knowledge economy and its predominance in global society (Freitag, 2008). While this core objective has remained unchanged, there are now financial and technological expectations placed upon educational institutions which have radically changed the ways in which academics carry out their work and provide support to students and this study examines these changes and the organisational knowledge produced by their introduction with a view to better understanding how organisational learning occurs in universities.

This discussion begins with an examination of the issues related to change in organisations, specifically looking at the problems which result from change and which impede organisational learning, by laying out some of the key ideas related to these concepts. The different types of knowledge used by organisations are also described and their uses explained. All organisations operate by using and producing knowledge, however they often experience challenges in determining its validity and sharing it in an effective way. Organisations therefore have a great deal to gain from developing a deeper understanding of the ways in which organisational knowledge can be surfaced by analysing the obstacles encountered in the process of change. It is through this process that organisational learning may be achieved (Argyris and Schön, 1978). As a result of a rapid growth of technology in society, there is an increased use of Information Technology (IT) to support operational aims and attempt to meet the expectations of both staff and customers or clients. Organisations have had to change in order to make effective use of the systems introduced and this change is an ongoing process as new technology is introduced and systems become obsolete. One significant change relates to the attempt to move from *information* management systems to *knowledge* management systems over the past few years. Although IT solutions tended to focus primarily on the information required to carry out operational tasks, many systems are now far more comprehensive and require diverse actions by different groups, creating new dependencies and relationships and requiring the use of different types of knowledge. These changes have required organisations to 'learn' in order to adapt and use new technology, underlining the social aspect of technological development.

While the potential applications for knowledge management within higher education are explored, the literature demonstrates that within universities there is a great deal of mistrust of such approaches as they are viewed as being concerned primarily with the world of business and therefore inappropriate for an educational setting. However the limited research available into this area suggests that institutions which fail to manage organisational change and knowledge effectively will struggle to innovate new ways of thinking about teaching students. Teaching includes the development of subject-specific knowledge as well as a range of critical and creative skills important in an increasingly globalised and

technology-dependent context. It is this limited use of explicit organisational knowledge management within the changing higher education sector and the need for further research into the concept which has determined the approach for this study. Academic advisers perform a significant role in developing students and do so using various forms of knowledge. Their practice is informed by research and scholarship, as well as by making use of the institutional data and information available to them. This provides them with the knowledge they require to carry out the functions required of an adviser, however the greatest challenge involved in understanding the issues and concerns related to advising comes from the tacit nature of much of the knowledge used and produced by academic advisers in the carrying out of this role. Universities are increasingly turning to technological solutions to help them to capture this tacit knowledge and make it explicit to both staff and students alike, however they face difficulties when implementing the changes required to do so. This study therefore focuses on the changes taking place within higher education, within the context of academic advising, and aims to understand how organisational knowledge can be more effectively managed to help the university learn *from* change in order to learn how *to* change.

Organisational Learning and Change

The management of change is a highly complex process, but one with which all organisations must engage. Dodgson (1993) cites change as the driving force behind organisations' need to adapt and become more efficient and argues that the more uncertain the environment, the greater the need for organisational learning in order to be able to successfully adapt. In their seminal work on organisational learning, Argyris and Schön (1978) contend that to understand change it is necessary to understand that stability within an organisation is not possible. They argue that the solutions created to deal with change invariably lead to more, different problems as the unintended consequences of actions and the discrepancy between expectation and outcome become apparent. The impetus for change comes both from the influences of the external environment which the organisation cannot control and also from the organisation's own reaction to those external factors along with the influence they in turn exert over their

environment. Additionally, the variety of rules and organisational objectives invariably leads to conflict and 'obscurity' (p.56). By that, the authors refer to vague task specifications, ambiguous structures, information overloads/deficits and the inability of organisations to test their 'espoused theories' (p.11) to identify where problems are occurring. They explain that with this obscurity comes dangers as the individuals and groups who make up the organisation struggle to access the information they require to meet their objectives. This then leads to a discrepancy between what they say they do - the aforementioned espoused theory - and what they actually do in practice, which then leads to errors. This is referred to as espoused theory vs theory-in-use and is an important concept which will be explored in further detail in this study.

Some of the discrepancies between the espoused theories and the results can be ascribed to the norms which exist in all organisations. This is what Argyris and Schön (1978) call the 'paradoxical requirement of maintaining yet changing the steady state' (p.125). This is the result of inherent contradictions present in all organisations where individuals are expected to adhere to conflicting behaviours. For example they are expected both to take initiative and to obey the rules; be alert to errors but also face punishment for creating those errors; and work co-operatively while also competing for resources, prestige and success. These contradictions are rarely recognised, never mind addressed, and the natural evolution from this results in counterproductive behaviour which is in turn addressed by attempts at greater management control. These behaviours are embedded in the informal learning systems of the organisation in that they have come about in reaction to the contradictory nature of an organisation's stated aims and objectives and the actual practice underlying their achievement.

However it is not only the expectations which are placed upon employees which can cause problems; often the way in which organisations manage change contributes as many problems as those the change was intended to resolve. Burke (2014, p.10) refers to the 'Paradox of Planned Organizational Change', a non-linear process which organisations tend to attempt to manage using a linear process plan. He makes the argument that to succeed, organisations must be

concerned with change and how it is managed rather than with stability if they wish to survive. In order to address unforeseen or unplanned issues organisations are required to 'loop back' (p.12) to fix the problems created by the change process and understand that, while it is vital to plan for change, it is inevitable that those plans will themselves be subject to review and change as the results yielded differ from expectations. It is this looping back as a result of change, which creates new organisational knowledge and learning.

This process is highly complex and fraught with difficulties and challenges. Dodgson (1993) refers to psychological theories which assume that conflict is required for learning as individuals attempt to place new knowledge within the context of their existing understanding. Where there is conflict between outcomes or behaviours as a result of this process, individual learning occurs and he argues that this inevitably has an impact at the organisational level. Yet, while learning may occur, it may not result in positive outcomes for the organisation. As understanding of organisational learning has grown, so too has the systematic use of knowledge to provide a competitive edge over others in a changing environment. Wang and Ellinger (2011) contend that organisational learning occurs in reaction to the individual members' understanding of their environment as well as by their attitudes towards the structures and systems put in place to facilitate their learning in the face of unrelenting change. However, if the systems and structures in place reinforce negative attitudes and behaviours, organisations may find that the effort they have made to encourage learning has proven to be counter-productive and that they struggle to deal with their changing environment. It is therefore important that organisations have some concept of the issues related to change and understand that they need to support staff, not only in making the changes required to business processes, but also in providing the structures and systems required to allow individuals to understand the revised processes within the context of a changed environment. Often it is this element of change which is neglected and which then leads to change initiatives being deemed to have failed, because staff are not provided with the understanding they require to adapt successfully to change.

Where organisations fail to provide this form of support, they are ill-equipped to deal effectively with the problems experienced by their staff and to ensure appropriate corrective action is taken when unanticipated results occur as the result of change. Argyris and Schön (1978) differentiate the learning which occurs as a result of looping back between single-loop and double-loop learning. Whereas single-loop learning allows organisations to detect and correct errors by making changes within the scope of existing norms and knowledge, double-loop learning takes place when the underlying rules, policies and objectives themselves are questioned in light of the new knowledge created by the change outcomes and are modified in order to better facilitate the correction of problems. The informal learning systems of an organisation are key to double-loop learning as the confines of the formal organisational structures do not permit recognition of the contradictions created by those structures. The informal learning which takes place in order to negotiate the gap between espoused theory and theory-in-use must be surfaced and discussed in order to close the gap and correct the problem. However, to be able to utilise this knowledge and feed it back in to the knowledge used by the organisation as a whole, it is necessary to address the feelings created by the organisation's contradictions and be aware that single-loop learning leads to a belief that real change is unattainable. Without doing so, the authors conclude that an organisation can never achieve double-loop learning and effectively manage change; indeed they go further by claiming that they have not yet found any organisation truly capable of such learning. They claim that organisations and the individuals within are not even aware that they are ascribing to a limited single-loop learning system and without that recognition a more complex learning system is impossible to achieve. This is a disheartening assessment and underlines the enormous challenge faced by organisations that not only need to look at their behaviours in different ways, but also to manage the conflict which results from such an approach. Nonetheless it is important that organisations recognise these issues and try to address them in order to ensure they are taking effective actions and are able to innovate appropriate solutions to problems.

The formal vs informal systems also manifest themselves in the form of change itself. Revolutionary change is described by Burke (2014 p.76) as a 'jolt to the system', an extraordinary event which causes the organisation to undergo a significant change. These events can be the result of both internal and external pressures, but the change action undertaken normally follows a formal, top-down process which can be subject to resistance. Evolutionary change, on the other hand, is a more incremental process leading to less radical and disruptive actions, but resulting from the adaptations required to deal with the unexpected outcomes of changes to the environment. Burke argues that organisational dynamics have a major influence on the success or failure of change. The six main areas he highlights are organisational culture, resistance to change, leadership, ability to learn, trust and 'loosely versus tightly coupled systems' (p. 374). The final one refers to the difference between organisations which operate with a high degree of diversification in product, process or policy (loosely-coupled) and those which operate with greater focus on centralised control and shared values (tightly-coupled). In a globalised economy it is becoming more important that organisations understand the need to operate as both a loosely and tightly coupled unit, rather than viewing the options as being one or the other. The issues which arise from attempting to manage such a structure will be further explored in the data and analysis chapters to follow.

The impact of failure to adapt successfully to change through the application of single-loop solutions to complex problems can result in disastrous consequences for the organisation, or in some cases, society as a whole. In the face of constant change and with the understanding that a steady end state is impossible to achieve, Burke (2014) determines that organisations must not focus on short-term goals, but accept that personnel will face frustration and productivity will be affected when implementing long-term organisational change. Firestone and McElroy (2003) measure progress in terms of new problems and knowledge created by change - if the resulting new problem can be viewed as 'better' than the old one and new knowledge has been created to be fed back into the problem-solving process, progress has been achieved. However this definition fails to determine the concept of 'better'; where there is conflict and disagreement within a group

or organisation it may be that there are also differences in opinion as to how the term is defined. Alternatively, what may be an improvement for some may come at the detriment of others and this may lead to resistance and anxiety. Nonetheless, the authors believe that by engaging in change in order to improve problem-solving and knowledge-creating abilities - rather than simply applying single-loop solutions to immediate problems - organisations engage in behaviour which stands them in better stead to be able to adapt to a constantly changing environment and this helps them to survive in the longer-term.

Critical to understanding the effectiveness of change is the ability to test and validate information and, by doing so, produce knowledge related to the change process itself. Argyris and Schön (1978) posit that one form of assessing the effectiveness of an intervention into an organisation's learning system is by testing how many previously 'unsolvable' problems are solved by the introduction of a new approach to tackling issues. They argue that the best way to understand a system is to change it, but if solutions are applied to situations where conflicts have not been surfaced and addressed, the solutions will not yield the intended results. In order to be able to test their effectiveness it is important to understand what goals an organisation wants to achieve in order to have a clear vision towards which they can work. Without this clarity, robust testing of ideas cannot take place. For this to occur however, the authors argue that individuals must take responsibility for their own actions and the learning systems they create through their behaviour and that they are also responsible for ensuring effective learning at the organisational level. To do this, they must be aware of their own behaviours and limitations and understand both their cause and effect. However change is such a complex and far-reaching concept that it can be difficult to determine which factors are actually responsible for the problems being faced and it is unrealistic to expect individuals to be able to make significant changes to an organisation's learning system if the management of the organisation do not provide recognition of the problem and support for staff to be able to make the necessary changes.

This management support is crucial in helping to form an overall picture of the organisation and the reasons for change. Given the number of variables that can be involved in any one change, it can be difficult to determine true cause and effect. In outlining various conceptual models for understanding organisational change, Burke (2014) outlines the feedback loops operating between different elements and explains that change can rarely be made to one part of the organisation without impacting other parts in some manner. Furthermore, change can occur at various levels within an organisation: at system, group and individual level. While a change to one part of an organisation does not constitute organisational change, an understanding of change and how it impacts other parts of the organisation can help to build up a picture of the whole.

Ortenblad (2002) takes a different view of the concept of change, highlighting the lack of criticism in organisational learning literature and arguing that there is too little attention paid to the power dynamics of learning. He argues that the concept of change is concerned with reform rather than revolution and, as such, managers remain in control of what is learned. In an attempt to create an emancipatory system, he recommends that organisational learning is not restricted to the achievement of organisational goals and suggests that a wide variety of perspectives be included and shared, even when those views are critical of the organisation and its leadership. This form of democratic expression requires a formal structure to support it and this must be introduced by those with the authority to do so. He also argues that competition between workers for jobs hinders the free exchange of ideas and that the responsibility placed on them for the success of the organisation places undue pressures on staff which can have negative impacts. Highlighting the fact that most organisational learning theory is concerned with 'survival' (p.95), he contends that society does not benefit from the existence of all organisations and that a radical perspective in organisational learning would allow people the space to reflect on the social benefits of their organisation and work to close them down if society gains from their demise. Accepting that the adoption of such a theory could only occur if society was to undergo revolutionary change, Ortenblad (2002) nonetheless recommends

elements of this approach can be applied today to help shape current organisational structures and learning.

Within the literature that has been produced, various conceptual frameworks and techniques have been developed in an attempt to assist with the task of understanding and exploiting knowledge in order to create organisational learning and optimise opportunities for change. These will be discussed in the following chapter. However, in order to understand how knowledge is used and can be created and transmitted, it is important to understand the differences between types of knowledge as well as the nature of their relationship to one another. The next section outlines various arguments related to the meaning of knowledge and how it is differentiated from information.

The Role of Knowledge

The creation, diffusion and refinement of knowledge require both the use and understanding of knowledge itself. Organisational knowledge management therefore requires a multi-disciplinary approach and it is a concept that has gained increasing recognition since the early Nineties and the growth of the knowledge economy (Drucker, 1969). However there is a distinction to be made between the concepts of 'information' and 'knowledge' as well as key differences between different types of knowledge and how it is used. Davenport and Prusak (2000, p.5) classify information as shaping or changing the receiver's perspective in some way. It differs from data, in that it has been given meaning by the communicator by placing the data in context, a process which can only be accomplished by humans. In contrast, they define knowledge as follows:

Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes

embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms.

Davenport and Prusak (2000) make it clear that the concept of knowledge - and its transformation from information - is highly complex. It is therefore difficult to measure with any degree of accuracy, however their description of knowledge does not fully reflect its complexity and provides a rather simplified understanding of the concept. Nonetheless, their definition demonstrates the human nature of knowledge creation and the way in which it is fundamental to the operation of every level of an organisation.

Other writers expand further upon the idea of knowledge, distinguishing the different types of knowledge we use. Mokyr (2002, pp. 2-6) describes two different types of 'useful' knowledge, the first of these being 'propositional' knowledge which he describes as the observations and natural laws which underpin our understanding what is around us. 'Prescriptive' knowledge (sometimes also referred to as 'procedural' knowledge) is used to determine *how* to do something. According to Mokyr (2002) knowledge need not be true, it need only be believed to be true by some for it to be considered knowledge. 'Tight' knowledge, by his definition, is that which is widely accepted and which can be easily demonstrated through testing, conferring greater confidence in its accuracy. The tighter the prescriptive knowledge employed, the better we come to understand the world around us, thus enhancing the validity of our propositional knowledge.

Related to and helping to form these types of knowledge, is 'tacit' knowledge. This is an important concept and one which has gained greater prominence in recent decades. Writing in *The Tacit Dimension* (1966, p.4), Polanyi describes this form of knowledge as 'the fact we know more than we can tell'. Herschbach (1995) describes tacit knowledge to be that which is implicit, but cannot be formally described or communicated coherently. It is often tacit knowledge which is given greatest credit for providing an economic advantage to certain organisations or national economies, as it is not an asset which can be easily transferred or

transmitted, a quality which has gained it recent interest. It is argued that tacit knowledge provides value to companies and plays a crucial role in regional development (Wolfe, 2005).

Increasingly the focus has turned to the concept of tacit knowledge and attempts to understand how it can be converted into explicit knowledge and better utilised by the organisation as a whole. Blackler (1995, p.1023) addresses this by reframing the debate and suggests the concept is better understood when viewed from the perspective of *knowing* being something that is done by people, as opposed to the view of knowledge being something that can be possessed. He explains that as technology comes into conflict with people's previous understanding of their situation, dialogue is required to solve problems and resolve conflicts which have arisen as previously hidden or ignored practices are exposed. This is the result of the increased integration between systems, processes and locations. Blackler (1995) cites Nonaka's (1991, 1994) theories on knowledge creation being the result of dialogue between tacit and explicit knowledge. However Blackler finds this approach to be limited in its understanding of the interrelatedness of different forms of knowledge and their relationship with learning and highlights a lack of literature available which looks at the cultural impact of changes to roles and activities as a result of increasingly complex environments. Weick (1995, p.187) also uses a reframing of language to attempt to make better sense of organisational learning, by arguing that process and change underpin organisations and that the use of nouns in organisational literature, such as 'organisation' or 'knowledge', belies the concept of them being *things* which can be fixed. He recommends that verbs are used when describing organisational phenomena, as they better represent the true nature of managing ongoing change and innovation.

Given the ubiquity of change in society and its widespread impact, in recent years there has been increased attention paid to the role of processes in regards to knowledge creation and learning. Becker et al (2005) expand upon this concept by arguing that processes, or 'routines,' are crucial to understanding how organisations work and the process of change. They argue that organisational routines, which define how to complete a task, help to shape the direction of an

organisation by providing a means by which learning occurs. This is because routines can be seen to capture both the organisational memory and the capabilities required for learning. They reinforce the significance of tacit knowledge, but highlight that codification of tacit knowledge often leads to changes to practices and this leads to resistance. Nonetheless, an understanding of routines and how they are carried out helps to identify dependencies, tensions and weaknesses within organisations and helps to highlight the social and technical aspects of processes. Becker et al (2005, p.778) reference Schumpeter's (1934) theory of Creative Destruction, describing the way in which new routines destroy those which went before and this can lead to unrest and disruption as changes occur to both the tools required to do the job, as well as the people involved and their interdependencies. The authors differentiate these aspects between the 'physical' and 'social' technology involved in change and recommend that diverse methodologies and longitudinal studies are utilised to research the emergent nature of routines or processes and the knowledge required to understand the key drivers of change within an organisation.

The role played by tacit knowledge in the development of processual knowledge is further underlined by Nicolini (2011). He makes the case that practice cannot be separated from knowing and examined in isolation as each informs the other and leads inevitably to change and learning. As feedback occurs between individual 'practicings' and 'knowings', knowledge is gained which helps to place practice in a wider context and create knowledge which informs future practice. This knowledge, when developed on an individual or group basis, often remains tacit and is therefore difficult to express to others who may find it to be of use. Again, this applies equally to creating an understanding of processes for those who carry them out, as well as to the process of researching routines in an attempt to enhance our broader understanding of change and learning. It is the conversion of the tacit into the explicit which provides a challenge for the organisations attempting to manage change and the researchers attempting to investigate and describe the phenomena. Weick (1995, p. 170) believes that within both the practical and research spheres there is the need to create 'sensemaking systems' which help to develop our understanding of our environment through continuous,

social inquiry. As reliance on technology grows, making sense of organisations in order to understand their needs and goals has become increasingly critical. However the desire for organisations to survive and the decisions made in order to fulfil that desire should not come at the expense of wider societal concerns. Systems and policies implemented to help organisations need to also be made within the context of cultural, ethical and social concerns and it is often a failure to understand the role played by these tacit qualities which leads to problems when organisations attempt to change and adapt in the face of new technology and industry.

Investigation of processes and the knowledge they reveal helps researchers to better understand aspects of change that have previously been hidden. Dawson (1997, p.1) writes that case studies of processes within organisations can provide important data that helps to describe ‘the way change unfolds in practice, and how the substance, context and politics of change all interconnect and overlap in shaping the dynamic odyssey of workplace change’. He describes the focus of this work to be the provision of narrative accounts of change and again stresses the importance of tacit knowledge required both to understand the organisation and the processes underpinning its operation and to be able to effectively carry out what Dawson (1997) refers to as ‘processual’ research. This form of enquiry seeks to make sense of complex accounts of change, taking into account the history and culture of an organisation, as well as the political aspects and the scope of the changes involved (Dawson, 2014).

In order to better understand the relationships between different forms of knowledge, organisations need not only to understand the knowledge required to undertake tasks successfully, but also the knowledge required to be able to adapt that knowledge further by providing a means of feeding information back into the organisation. Firestone and McElroy (2003) explain that organisational knowledge is created as changes occur and decisions are taken and the knowledge claims which inform those decisions are subjected to testing. They define knowledge as information which has been subjected to some form of testing and validation. Following testing some knowledge claims will survive, some will be found to be

false and some will remain undecided, however the status of each is known and explicit. Knowledge production also results in personal beliefs and predispositions which often determine the actions of those involved in producing knowledge. They assert that learning occurs when new knowledge is created as a result of new ways and methods of looking at problems related to tasks and business processes and describe organisational knowledge management using a three-tier framework. This separates out the activities involved in business processing, knowledge processing and knowledge management and is presented below in Figure 3.

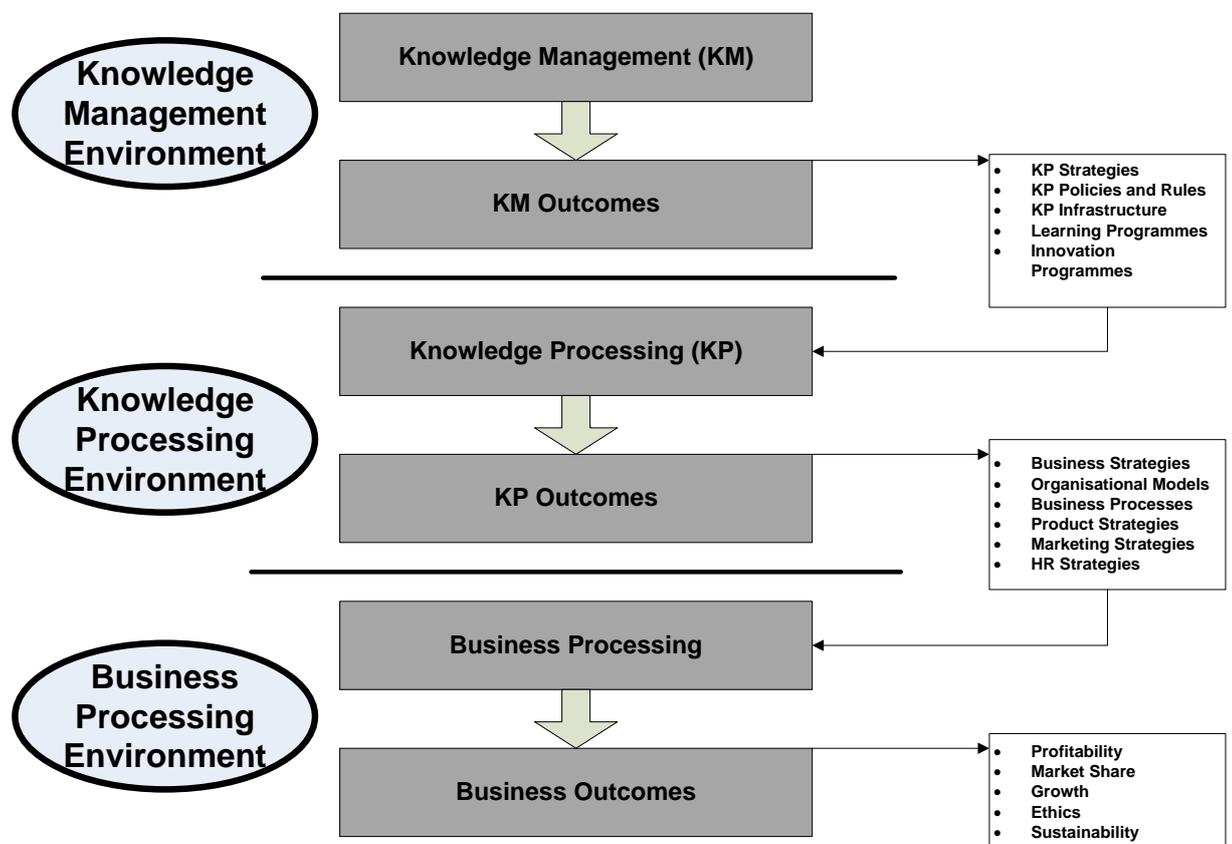


Figure 3 The Three Tier Framework (adapted from Firestone and McElroy, 2005. Permission to reproduce this figure has been granted by Emerald)

The Business Processing Environment depicted in the diagram creates knowledge about how to carry out routines and processes and it uses knowledge from the Knowledge Processing Environment to do so. The Knowledge Processing Environment creates knowledge about how to create knowledge about processes

and uses knowledge from the level above, the Knowledge Management Environment, to enhance its knowledge processing capabilities. While this activity occurs in all organisations, it is often not explicit or fully understood and many organisations struggle to create the knowledge management required to maximise their knowledge processing capabilities. As a result, there is often a discrepancy between the expectations of the organisation and the actual business outcomes, which represents the divergence between the espoused theory and the theory-in-use (Argyris and Schön, 1978). In order to close that gap, organisations need to focus more on how they manage knowledge to help them detect and correct the errors causing the problems. In order to understand the impact of a change the organisation must complete some sort of 'as-is' analysis in order to understand the current situation and the likely outcome of any changes made. This information is gathered from a wide variety of organisational sources and the information is modelled to provide knowledge about the organisation and identify emergent patterns in behaviours and responses to changes (Firestone and McElroy, 2005). This must also be informed by knowledge of past decisions and actions which led to the current situation in order to try to avoid repeating previous errors.

As understanding of how various types of knowledge can be used to the benefit of organisations has grown, so too has research and investigation into how knowledge can be better managed and used in order to enhance organisational learning and manage change. This increased desire for organisational knowledge has created a need for ongoing development of and investment into technology, both in terms of its widespread use as well as its increased capabilities. The following section will address some of the concerns related to the use of technology and its role in the development of organisational learning, expanding upon the issues related to the different types of knowledge described above, as well as the crucial social element of technology.

Management Information Systems and Information Technology

The prominence of the knowledge economy (Drucker, 1969) in economic discourse and the growth of Information Technology (IT) and networking throughout both organisations and society as a whole demonstrates the increased role of knowledge in its various forms within modern society. For some organisations, IT is utilised to better support productivity through the provision of information and data to employees; for others the information itself is the product; and for yet more it is the means to develop new products and services. However, while the use of IT and Management Information Systems (MIS) provide organisations with access to a vast amount of information, this can lead to information overload with people unable to identify truly useful information or using inappropriate information to solve a problem. This then leads to further problems, with systems often being blamed rather than the human factors which have led to the errors in the first place. Gleick (2011, p.403) describes the anxiety that this causes and explains that this is because the deluge of information which has become available via technology has created confusion about what is actually *known*. As technology advances, previous methods for creating and using knowledge become obsolete and people struggle to develop new ways to filter information, provide it with meaning and validate its worth.

The anxiety and problems created by information overload underlines the human element required for successful knowledge creation and the development of effective management technology. In order to be able to distinguish knowledge from information, organisations find themselves in a situation where they not only have to develop and maintain increasingly complex technology to support their aims, but they are also required to find ways to help people to make sense of the information presented to them. Database systems store data within a structure of tables and fields and this is displayed to users as information through the use of categorisation into menus, pages and descriptions. However users often do not understand the meaning of the information provided to them unless it is placed within the context of wider knowledge. This knowledge is provided via means such as training, communications, practice and experience and one of the greatest

challenges faced when implementing any form of IT is ensuring that the knowledge required to make sense of information is also effectively provided to those who need it. Davenport et al (1998) determine the four main knowledge management aims to be the creation of knowledge repositories, improved access to knowledge, an enhanced knowledge environment and the management of knowledge as an asset. While organisations have turned to MIS to help them achieve these aims, the authors highlight the fact that the structure required to support this involves the creation of new roles for staff who have the skills to work on projects related to these endeavours. Many organisations fail to enhance their knowledge through technology because they fail to address the issues relating to the structures supporting the changes, demonstrating once more that it is the human factor which is crucial in the deployment of knowledge technology as knowledge can only be created and understood by people. Additionally, many IT projects fail to fully understand the tasks they are attempting to systematise and the underlying reasons for those tasks. Such failures can then lead to mistrust of technology and change, as the tools implemented to assist organisations achieve their aims are viewed as unsuitable for use or create more problems than they sought to resolve.

An understanding of the difference between the systems providing information and those supporting knowledge creation and their interdependencies is fundamental to the use of technology. Firestone and McElroy (2003) differentiate the uses of IT into those which assist the organisation in carrying out its business processes and those which provide information about how knowledge is being used in the organisation. They explain that networked systems allow users to share and retrieve information, exposing it to wider testing and validation and, as a result, organisational knowledge is created. Some systems are highly complex and the data dependencies built in can help to provide better management information which is then fed back in to make further improvements to processes and the MIS itself. However that strength is also a weakness. The constraints placed on users in terms of recording and using information as well as the increased ability for management to view and control how processes are carried out can lead to mistrust and resistance. Argyris and Schön (1978) describe the dilemmas placed upon individuals in these circumstances; users become aware of errors or

contradictions in the theories-in-use but feel unable to discuss them due to fear of punishment for exposing themselves or others in the organisation. By trying to eliminate errors through increased automation of tasks, systems can also reduce understanding of the underlying process or the knowledge informing it and that can also diminish feelings of responsibility when errors occur as users are encouraged to believe that those errors are caused by a system imposed to control them.

The social nature of knowledge creation and diffusion contradicts a commonly held perception of knowledge or information management as being a purely technical endeavour. Nonaka et al (2000) lay out three elements of knowledge production in their model of knowledge management: the SECI process, ba and knowledge assets. They argue that organisations use knowledge assets to create new knowledge through the social process of converting tacit into explicit knowledge, thereby creating new knowledge assets which create further knowledge. This occurs within ba, which is the shared context which provides meaning. The social element of knowledge creation through its expression of tacit knowledge between individuals is reinforced by Takeuchi and Nonaka (2002). However, despite the prominence of this work, it is not without criticism, with Gourlay (2006) concluding that Nonaka's model is more concerned with management decision-making than the concept of knowledge creation.

The view of knowledge management as a technological exercise means that staff are less likely to engage with a system which they feel should be the responsibility of a technical team and are also less likely to take responsibility for errors within the system. However this situation has arisen as a result of organisations encouraging this belief through previous custom and practice. Chatti (2012, p.830) believes that the current definitions of knowledge management relate to one of two perspectives: knowledge is a 'thing' which requires a technical solution or it is a 'process' of interactions. This has placed limits on its use and understanding as greater focus has been given to the technical codification of tacit knowledge over the sharing of that knowledge. This has led to its isolation from context, resulting in knowledge which is out of date or of no practical use. By removing the

context, the meaning of organisational knowledge to individuals is lost as it reverts back to being mere information once more. Chatti (2012, p.833) believes that the technical aspect of knowledge management should be of secondary consideration and argues that 'best practices capture yesterday's knowledge'. As a result he proposes a more human-focussed, self-organising knowledge management system that would allow an emergent approach which empowers the knowledge worker and facilitates double-loop learning.

Chatti (2012) defines his proposed approach as a complex adaptive system which emerges from the bottom up and he recommends it as the most effective means of creating knowledge. However, he does not address the issue of how workers can be encouraged into such a form of working without there being some direction from the top-down. It is difficult to see how effective knowledge management can emerge spontaneously from workers without any management input, however this in itself may inhibit organisational learning. Argyris and Schön (1978) highlight the challenges organisations face when it comes to encouraging collaboration and knowledge-sharing, due to the behavioural conflicts highlighted previously. Attempts at increased management control which result from these contradictions often lead to defensiveness and mistrust between workers and managers and a knock-on effect from that is a rise in conflict between departments and a reluctance to share information, lest it lead to one area gaining competitive advantage over another. This severely impacts the organisation's ability to learn and create new knowledge and a vicious circle of management control and ineffective decision-making ensues, threatening the organisation and its ability to operate or respond to new challenges and changes. Furthermore, they argue, attempts to restructure in order to encourage double-loop learning often result in mistrust as workers remain cautious of the changes introduced as they await the results. This caution is often interpreted by managers as resistance either to change or to management themselves and this then reinforces the behaviours which led to the structural changes being introduced in the first place. Inevitably these problems also have an impact upon the systems and processes introduced in response to change and this can lead to something of a self-fulfilling prophecy; if

there is no belief that a change will be of benefit, there is no motivation to work towards effective change.

In order to help combat the mistrust instilled by the imposition of MIS, Firestone and McElroy (2003, p. 294) argue that the inclusion of *metaclaims* in IT is necessary. These are defined as being 'claims about claims' and are the means by which we test knowledge against what we already know. This is because users not only need to know the best way to do something, but why it is the best way to do it. The authors argue that a 'second generation' system which both allows business processing as well as capturing knowledge processing is the key to better knowledge management. Knowledge processing allows users to feed knowledge back into the system, allowing it to be communicated with other stakeholders and validated through shared enquiry. Firestone and McElroy (2003) believe that the technology already exists to help support this type of knowledge management, they argue that most organisations do not use MIS effectively to differentiate between claims and metaclaims and to support the capture of information about why knowledge claims are considered to be true or otherwise. By using MIS as a form of map, organisations can enable learning by pulling together information within the context of experience and making it explicit to those who can use it and contribute to its further development. However Malhotra (2000) warns of the commonly held misconceptions about knowledge management and an over-reliance on technology. Agreeing that human experience is a crucial factor in any knowledge management system, he cautions against the idea of knowledge management being able to anticipate the information people need or being able to communicate human intelligence and experience. For second generation knowledge management to become a reality Malhotra (2000) believes that both knowledge management and the best practices identified must be subjected to continuous review and adjustment in order to be truly effective. That in itself poses significant challenges as staff are likely to see such a system as increasing their workload and further complicating tasks. For such a system to be successfully implemented, staff would need to be clear on its purpose and its benefits in order to share the organisational vision of a truly second generation knowledge management system. Furthermore, Karsten (1998, p.29) highlights an issue within

the literature relating to the use of technology to enable knowledge-sharing; much of it is focussed on the short-term and fails to understand the wider implications of change at the organisational level or the processes underpinning successful transformation.

Despite these challenges, there are few organisations today that have not implemented some form of technology to support their operations. Businesses that are unable to keep abreast of their customers' needs and expectations in relation to technology and innovation are unable to compete with those who have learned how better to exploit new technological developments. Universities are not immune to this trend; indeed many institutions compete to develop and implement leading technology in their fields and disciplines of study. However it is not only the research and development of new technology which is critical to the operation of the university. They also rely on IT to provide knowledge and information to their students, staff and other stakeholders using systems to support the management of student records, quality assurance, finance, human resources and statutory reporting. In the following section, I will discuss how universities have utilised knowledge and theories related to organisational learning to manage the changes they have experienced in recent years, as the use of technology has increased and the shape of the higher education landscape has changed.

Applications of Knowledge Management in Higher Education

While business corporations have led the way in using knowledge management to better anticipate change, such practices are often viewed with mistrust within academia as they are seen to be related to private enterprise and not conducive to educational enquiry. It is perhaps ironic that higher education, a sector primarily concerned with the creation and diffusion of new knowledge through research and teaching, is viewed as slow to respond to change and composed of brittle structures, policies and processes. This is in contrast to the corporate world, where the theories relating to the enhancement of organisational learning

and knowledge emerged and have been embraced more enthusiastically. Much of the concern expressed may be related to the fact that the overriding objective of organisational learning is concerned with improving 'productivity' through better change and knowledge management. However the ability to adopt a double-loop approach to learning (Argyris and Schön, 1978) should arguably be a product of higher education as students should be instilled with the ability to think critically and question existing norms and processes in order to create new knowledge and make ethical decisions. To teach students how to modify their beliefs and behaviours in response to their experiences, universities must understand how they foster such a culture of learning within their own operations. By doing so, the 'product' of a university education will be enhanced and universities will be better placed to provide the educational programmes and research required by a changing world, and so compete and survive.

Despite the scepticism of what are regarded to be 'business' theories, increasing numbers of researchers are investigating universities within the context of organisational learning, identifying problematic areas and applying theory to their practice. Organisational knowledge is evidently already being created by universities, however a focus on learning through the management of organisational knowledge and change provides higher education with a means to capture this knowledge and also understand the external factors which are shaping the sector allowing them to adapt, innovate and compete more effectively (Shaffer, 1992). Furthermore, knowledge management can be used as an important tool to break down competition, not only between universities but also within them, by facilitating dialogue and knowledge-sharing (Wedman and Wang, 2005). Highlighting the disparity between the use of knowledge management in business and universities, Rowley (2000) asserts that its adoption in higher education is an evolutionary and inevitable process, vital to the success of institutions, a view shared by Solanki (2013) and Metaxiotis and Psarras (2003). Kidwell et al (2000) agree that there are significant benefits to be gained by the application of organisational knowledge management throughout the various structures within the university, including research, strategy, student services, administration and curriculum development. As these are all areas which have been subject to significant, ongoing change in recent years, it would appear

logical to assume that the adoption of methods to better inform understanding of the issues being faced by universities would be something that would be welcomed by staff working within higher education. Lawler and Sillitoe (2013) argue that organisational learning enables members to gather knowledge, with KM being the method employed to systematise it for use and recommend that universities seriously consider how learning can be facilitated through knowledge management (KM) systems by bringing the concepts of organisational learning and KM together.

As universities increasingly implement technical solutions to address the challenges they are facing, there are significant concerns about their effectiveness. Marshall (2010, p.181) writes that one of the key issues facing universities engaged in technological change is that there is little strong evidence that the changes are actually benefitting students, and are instead being driven by financial concerns. Nonetheless he warns that universities face threats from non-traditional educational organisations who are providing lower-cost, more flexible learning to students and recommends that a 'clear avenue for further action is finding ways that the experiences of students and staff can be used to frame future technology supported organisational and pedagogical change' (p.189). The inevitability of change and technical development clearly poses challenges for universities, however the manner in which they learn from the experience of change and manage the organisational knowledge created is key to the process of adaptation and ongoing relevance.

Universities therefore have a social duty to manage change and learning, in order to sustain institutions which create and diffuse knowledge. To fulfil this duty they must understand the ways in which they can use technology to help them in this endeavour. There are four areas which Rowley (2000) identifies as key to knowledge management: knowledge repositories, knowledge access, knowledge environment and valuing knowledge. In terms of knowledge repositories, she argues that universities are very far from the creation of comprehensive systems which provide users with the combined organisational knowledge they need, placed in the context they require. Although many have taken the first step in this process by adopting new information systems and creating new organisational

structures to support change, the structures that have emerged have often been determined by the system itself rather than the knowledge contained within it. As a result they are often badly organised and poorly integrated. In order to combat this, the encouragement of a knowledge environment and the valuation of innovation is critical. Sedziuviene and Vveinhardt (2009) back up this argument, asserting that knowledge management must become embedded in the philosophy of higher education in order to allow institutions to remain competitive, both by innovating new ways of thinking that go beyond the practical application of learning and by teaching students themselves how to innovate new ideas. However the development of a philosophical approach to knowledge management presents universities with a greater challenge than the mere implementation of a technical solution to try to address a challenge.

While academia remains suspicious of knowledge management approaches, the adjustment in thinking that is required to realise its benefits is a long way off. Rowley (2000) and Cranfield and Taylor (2008) both challenge the belief that knowledge management is simply a fad. However as it is a fairly recent development, there are not many studies which examine the use of knowledge management within the context of the university, and this makes it harder for the concept to be accepted by academics whose profession is based on the study and critique of evidence placed within the context of theory. In order to combat this mistrust, Cranfield and Taylor (2008) believe that knowledge-sharing must be actively encouraged within the university in order to mitigate the working practices and decentralised structures which inhibit collaboration and knowledge creation among staff and prevent the application of knowledge management at the institutional level. Using grounded theory, the authors determine that knowledge management activity is taking place across universities and several are now reflecting their understanding of its potential through the creation of senior posts explicitly concerned with knowledge management and associated processes. Nonetheless, they conclude that few have succeeded in implementing knowledge management at an institutional level. Clearly there remain challenges in communicating the benefits of knowledge management and the authors assess the taxonomies in use to be problematic, with the use of business terminology

encouraging mistrust of its implementation. They recommend that development of this taxonomy can only be made possible through further research into this emerging field of study.

In order to assess the effectiveness of knowledge management in education Sedziuviene and Vveinhardt (2009) argue that systems must be able to accurately capture information about students' abilities and skills in order to provide a framework in which graduate attributes can be compared. This information can therefore be seen as a product of its own as well as a tool used by universities to innovate solutions and enhance quality. While database systems are used to record this information, the system can also be seen to represent the validated organisational knowledge of the university, by recording and transmitting data relating to approved results and accredited teaching content and outcomes. This data is only published in the system following a process of validation to ensure academic standards and quality assurance and, once published, users reasonably expect it to be an accurate and comprehensive record of students' learning and knowledge.

The data captured within these systems is not only valuable in terms of what it means to those who use it; it also provides an important means of better understanding the context of the data, the processes supporting its use and its wider relevance. Luan (2002) argues that use of 'data-mining' university systems can provide important information in regards to various processes which support higher education by providing predictive data analysis. By increasing graduation rates they assert that data-mining techniques prove to be of value to society and not just the institution or student. However Olssen and Peters (2005) raise concerns with regard to the rising influence of neo-liberal economics on education, arguing that the state is removing itself from knowledge production by allowing the increasing privatisation and corporatism in higher education leading to a blurring of the boundaries between knowledge produced for economic or academic purposes. Deem and Brehony (2007) describe the emergence in higher education of managerial structures which they assert reflect the ideological changes within higher education and reinforce the power structures which inhibit

organisational enquiry and Peters (2013) argues that this new form of managerialism marks a shift towards the use of quantifiable outputs and an associated focus on the market-based elements of education.

The increased interest in knowledge management applications in HE is not restricted to operational aspects. Brewer and Brewer (2010) recommend that universities adopt knowledge management approaches within their business curricula to develop graduates who can succeed in a competitive global market and are committed to lifelong learning. They describe the university's role in preparing students for the knowledge economy and the requirement this places upon the institutions to be able to evolve and respond to change. However the authors refer to the students involved as 'human assets' (p.332), underlining the idea that the purpose of a university education is to provide a skilled workforce and competitive advantage by adopting the language of business within education, further reinforcing Cranfield and Taylor's (2008) concerns about the prevailing terminology and the mistrust it engenders. It is therefore important that studies into knowledge management within universities encourage inclusive contributions to its development and remain aware of the organisational power dynamics at play when assessing its effectiveness as well as being clear about the objective behind any knowledge management activity.

In an increasingly competitive, global market, institutions are required to exploit their knowledge both as a product and a tool for innovation. Emerging higher education markets, such as India, are looking to knowledge management as a means of improving performance in higher education (Bhusry et al, 2011). Cranfield and Taylor (2008) conclude that in the UK it is mainly pre-1992 institutions who are undertaking substantial measures to adopt knowledge management compared to the former polytechnics as the upheaval involved in their transfer to universities has left them wary of implementing further changes without assessing the evidence of its efficacy. The authors make an important point in their conclusion that this reluctance to adopt knowledge management practices and theory may end up leading to a decline in student numbers as post-1992 institutions find it more difficult to respond to and anticipate changes in the

external market and this threat may lead to a reduction in the number of universities overall. On balance, it would therefore seem more advantageous to the sector as a whole to adopt methods of knowledge management, with Pokharel and Hult (2010) providing evidence in public organisations which suggest that interventions aimed at increasing organisational learning help universities to manage the conflict they face in the demand for additional services in an environment of reduced public funding and resources.

In order to implement effective knowledge management universities must manage the challenges above. Omona et al (2010) reinforce the argument that strategic vision is required for success and this vision must be aligned to key objectives, whether that is sharing knowledge or best practice, building external relationships or storing knowledge for future use. They argue that institutions must move beyond double-loop learning to triple-loop learning (p.86), referencing Wang and Ahmed (2003, quoted in Omona et al, 2010) who define this form of learning as continuously questioning all internal and external aspects of the organisation and adjusting their practice as required. Within the area of student records management Omona et al (2010) state that the critical knowledge management processes are capturing, organising and retrieving knowledge. However they do not see planning, using, maintaining or evaluating knowledge to be key processes within this activity, as they do for teaching, learning or research. In doing so they disregard the need for all those activities to be involved in the area of student records management to help ensure an appropriate system is employed, the correct contexts are provided for users and data and processes are reviewed on an ongoing basis to assess quality and relevance.

Despite the challenges evident in the implementation of knowledge management to facilitate learning within higher education, there is a clear argument to be made in favour of its adoption in an attempt to better understand the ways in which organisational knowledge is created in universities. This is because the sector is more exposed to market forces than ever before and universities find themselves operating within a system which they cannot control, but do influence. It is therefore vital that robust methods of anticipating and responding to change

are developed within higher education, but with the understanding that the purpose of education is not merely to serve the markets. This requires further investigation, with Wang and Ahmed (2003) highlighting important gaps in current research, namely: the impact of IT on knowledge management; the use of knowledge management and IT in the enhancement of collaborative learning; the needs of users; the achievement of strategy through the use of IT; how to measure knowledge management; and the co-ordination of resources. Additionally, while many studies into knowledge management in higher education are undertaken by researchers external to the organisation, there is little in the way of practitioner-based research. This is partly as a result of the mistrust of knowledge management activity, especially when introduced by senior management with consultant-based interventions. Individuals may also be inclined to see knowledge management activity as additional workload rather than an attempt to assist with workload issues. Even research carried out by insiders can be subject to suspicion and mistrust for various reasons, so while more research conducted by individuals or groups internal to an organisation is required - if for no other reason than to fill a gap in existing knowledge - insider researchers face various challenges when attempting to study and reflect on their own organisation. These challenges will be explored in greater detail in Chapter Four.

Management of Academic Advising

This study is an attempt to understand more about how a university managed change through an examination of processes, the knowledge required to undertake and enhance them and the organisational learning which resulted. However the complexity of an academic institution is great and there is a vast range of activities and systems used within the organisation, all of which depend on one another to a greater or lesser extent and which require staff to understand their role within the wider organisation and the reasons for the ways in which they execute their tasks. One role within the university which plays a critical part in student engagement and cross-organisational collaboration is that of the academic adviser, a role many academic staff assume in addition to their research and teaching activities. Advising is a core service offered by universities to help students choose a programme of study and help ensure the student remains on

track to achieve their degree by making appropriate curriculum choices and performing to the standard required to do so.

The National Academic Advising Association in the US (Gordon, 2008, p.523) describes advising as 'integral' to teaching and learning in the university. It is this process which enables students to think critically about their learning experience and prepares them for graduate life. However it would be incorrect to view advising as another method of career counselling for students; Gore and Metz (2008) make a clear differentiation between the role of the adviser in regards to career services with counsellors being recommended for students experiencing difficulties in deciding upon a career path, while advisers play a role in developing the skills and knowledge required by all students to understand the variety of options available to them and how to make the most of them. This is an important distinction to make given the current focus on graduate attributes and employability within the knowledge economy, as it demonstrates that the role of the academic adviser is to encourage self-development and decision-making skills which will help students throughout their lives, as opposed to providing advice related to specific careers. In their role, advisers make wide use of a variety of knowledge from different sources; IT, policy, theory, practice and experience. It is therefore important for staff involved in academic advising to be able to access a wide range of information and be provided with appropriate methods by which they can filter the information they require and transform it into knowledge which can be used by students and graduates.

The wide range of activities undertaken by advisers inevitably means that there are also many processes and tasks involved in the provision of academic guidance. O'Banion (1994) describes the process of advising as a method to understand more about the student's life and work goals; identify an appropriate programme of study from that information; advise which courses to take in order to achieve the desired goals; and provide information about the class schedule. Frost (1991) describes critical changes which have taken place in the provision of advising and how it has developed beyond simply advising students about course choices into a relationship which aids academic learning, helps retain students and better equips

them with the skills they require after leaving university. As the personal development of a student has attracted greater focus, the academic's role as an adviser has broadened and now requires an array of skills and knowledge which lies outside their subject specialism.

This requirement for the ongoing learning of both staff and students poses a challenge to universities. Hagen and Jordan (2008) contend that an effective model for advising also needs to take different learning styles into account. Citing Kolb's Learning Styles (1984) where he mapped different academic disciplines to different learning styles and recommended different advising approaches based on those assessments, the authors conclude that academic advising provides a rich seam of further research as it can draw from a wide range of experience and theory using the academic knowledge of those involved in the process. They assert that academics have a duty to be open to a variety of theoretical perspectives on advising because of the complexity of the task they are involved in and because they come from a range of academic backgrounds with different perspectives on theory and method. The range of processes involved in advising, the recent changes that have taken place and the dependencies that exist within the systems, structures and policies used by advisers in their day-to-day role also provide a critical insight into the organisational learning of the university and the ways in which knowledge is used, produced and managed. Investigation into the processes involved therefore has implications for the wider university, rather than being confined to the role of the adviser and their tasks.

Another factor which influences the provision of academic advising to students is the culture of the university. This cultural aspect adds complexity to the development of effective systems to support advising as there is no one ideal approach to the processes involved, with their development depending on the needs and values of the university and the students involved. Kuhn (2008) sets out different models for supporting advising which predominate in different types of institutions, warning that the culture of an institution can inhibit effective advising. He describes differences between models which support curriculum selection only, online services, stand-alone advising units which are separate from

academic departments and those which provide a holistic advising services supporting all areas of academic and vocational education as well as extra-curricular activities. Of particular relevance to this study, he found that research universities employ diverse models, with differences between research-led institutions and even within the universities themselves. Frost (1991) and O'Banion (1994) believe that collaboration is key in achieving the goals of advising and both believe that an effective advising system aids students in helping them to take responsibility for their own learning by viewing advising as a joint enterprise between the student and the university. This demonstrates the shift that has taken place in education over recent decades where students are now expected to take an increased role in their own development, academic staff are required to constantly acquire new knowledge in support of this endeavour and new ways of learning are sought in order to manage the changes taking place.

In order for universities to be able to provide effective advising services to students, they must be clear as to the role of the adviser and what is expected of them. White and Schulenberg (2012) assert that advisers help develop the student's individual decisions, skills and understanding of how their learning across their degree is developed, but this requires more than just accurate information and adviser availability. They argue that universities need to recognise advising as an academic activity and this involves recognising the multiplicity of roles involved in the process of advising as well as providing training and guidance for staff in order to achieve real benefits (Petress, 1996). Gordon et al (2008) also recommend that steps are taken to address the challenges now faced by advisers as relates to internationalisation, adviser support, adequate resourcing and research into the field. By understanding the range of activities and skills involved in advising it allows universities to build a clearer picture of the overall process and how different roles are inter-linked and where dependencies lie. It is through management of this activity and the knowledge required to facilitate it that this understanding can be achieved and enhancements can be made to advising provision and the systems supporting it.

Another important change in how advising is provided relates to the technological advances of recent years. The increased use of technology has not only changed the way in which student teaching and learning is supported, but also the way in which services are provided to students (Macfarlane, 2011). Amador and Amador (2013) believe it is vital that academic advising make greater use of the technology available in order to sustain effective relationships with students who have grown up in a digital world. Looking at the integration of social networking with advising and based on research which suggested students interact with sites such as Facebook more than they look at their emails, Amador and Amador (2013) found that students preferred social networking as means to gain straightforward information, but preferred face-to-face discussions about more complex or personal issues. They also found that use of such technology strengthened relationships between students and their advisers as they related to them as a professional 'friend' in an online space and that they found posts about advising issues on their adviser page to be helpful and the information readily retained. The authors assert that this represents additional value as the provision of an easily-accessible service was not previously available to students, however their research is limited in that it only involved six participants and further research into this model is required.

While the use of social networking is inevitably playing a greater role in the way universities communicate with their students, as a result of its ever-increasing prevalence in society, it is unrealistic to expect all academic staff to embrace the idea of 'friending' their students in order to provide them with academic guidance. Leonard (2011, p. 292) describes the 'digital divide' between students and many advisers. This manifests itself in different learning styles as students, who have grown up with technology and view it as an integral part of their lives, expect almost instant access to advice and information. Advisers on the other hand tend to have come to technology later in life and, as a result, have greater difficulty in meeting the technical demands of their students. Nonetheless Leonard (2011) is clear that technology in advising will not disappear, it will only increase, and as such he recommends not only that advisers understand students' digital expectations when developing methods of advising, but also that a wide

range of digital solutions should be employed to meet different needs and different ways of learning. As universities use different approaches to supporting their students, they should be encouraged to learn from the experiences of others and adopt or adapt technical solutions to meet the needs of their own students and staff.

One main way many universities are moving to a more networked approach is through the provision of online systems which provide guidance on course selection and facilitate enrolment. Phillips (2013) highlights the problems advisers face when attempting to remember all the available course combinations in an ever-changing academic environment and the mistakes that result from such a model and its reliance on tacit knowledge. She describes the move to an electronic method of providing curriculum and progression guidance to students and argues that such systems free academics to focus on the more specialist aspects of their advising role, rather than the administration of ensuring students have chosen an appropriate curriculum. Additionally, as student progress is tracked throughout their time at university, it allows advisers to concentrate on those who are encountering difficulties rather than having to regularly review the performance of all students. Phillips (2013) argues that such a system enhances the provision of advising to students and helps support advisers by providing them with more accurate data. However she emphasises the fact that such a development requires the input and collaboration of the whole university. What she fails to explain is how she succeeded in effectively engaging with staff across the university as the development of such a system represents a huge challenge for any institution and demonstrates the difficulties involved in attempting to bring diverse opinions and perspectives about the benefits of technology and education together into one coherent strategy. Nonetheless, the implementation of such a system does provide the university with the opportunity to take stock of its existing policies and practices and identify where enhancements can be made.

Even given the increasing role of technology, the use of such systems should not come at the cost of a personal relationship with the student. Ambrose and Williamson Ambrose (2013) outline the dangers of prioritising efficiencies in

advising over the potential advantages that can be gained through the use of new methods. They recommend the use of blended learning to help develop student engagement with technology employed to help students prepare for advising meetings in advance and to provide a means to reflect upon their learning. The process they describe again stresses the need for a variety of technological solutions and while this range of tools helps to increase the support available to students, it also places additional demands upon staff who are less familiar with technology or who are less adaptable to the rapid changes taking place within the technical world. The call for blended approaches is backed up by research from the Educause Centre for Analysis and Research (Dahlstrom and Bischel, 2014). They reported that 71% of students tend to use online services such as Google and Youtube to find support and found that this was especially prevalent for younger students who were less likely to use university helpdesks than older students. While this data is important for understanding how support should be provided, it underlines the difficulties universities face in not only adopting technical solutions but also in providing an adequate range of solutions which will meet the needs of not only all their students, but also their staff.

In order to truly understand the potential benefits of technology in the provision of advising, further research is required. This involves an examination of the issues raised by the transition to a more technical solution, as attempts are made to codify knowledge which has traditionally remained tacit, leading to increased demands being placed upon advising staff. Resolution of any issues experienced at the organisational level can only be achieved via communication and collaboration between various groups and with an understanding of the changing demands of students and higher education as well the ever-evolving external environment. By examining the processes involved in advising to gain a deeper understanding of how change has impacted upon HE and how organisational knowledge and learning can be used to help adapt and enhance advising provision, this study asks the following question:

How does organisational learning occur in a university and how is organisational knowledge managed to support it?

To contribute further understanding to these issues, this study will use frameworks and methods associated with organisational change and knowledge to better understand how changes to advising and student expectations are combining to impact upon the role and the systems used to support it. By looking at the experience of a research institution and using a collaborative approach to work with advisers to action changes to enhance the service, data is revealed which provides a deeper comprehension of the issues inhibiting organisational learning within the university as well as their underlying reasons. This analysis will help to contribute to the body of knowledge related to organisational learning within higher education and the role of technology in facilitating knowledge production. In the next chapter I will further describe the techniques and frameworks employed and the reasons for their use.

Summary

The increased focus on knowledge as a factor of production and the concept of 'knowledge workers' (Freitag, 2008) has been accompanied by growing interest in concepts related to organisational learning and the change and knowledge management required to facilitate such learning. Change is inevitable but the areas and direction of change need to be managed in order to achieve organisational goals. However change processes are challenging, especially when organisations are large and complex and are facing the issues related to 'loosely versus tightly coupled systems' (Burke, 2014). Through the use of the techniques which help to better understand and manage organisational knowledge, it is possible to identify discrepancies between espoused theory and theory-in-use (Argyris and Schön, 1978). Ideally, this then provides a means to identify the true source of problems in an attempt to apply 'double-loop' solutions to resolve them (Argyris and Schön, 1978). In order to be able carry out this process, it is necessary to understand the different types of knowledge used by organisations, the ways in which they are used and the interdependencies between each. Critical to this understanding is an examination of the ways in which organisational knowledge is produced through validation and codification. While many organisations have

adopted IT solutions to assist them with this process, a focus on the technical aspects of the change - as opposed to the social and cultural aspects - often results in resistance to and mistrust of change, the reasons for it and its management.

The world of higher education is not immune to these same issues. Indeed, as universities find themselves competing in an increasingly marketised, global environment, they are finding that the challenges presented by the revolutionary and evolutionary aspects of change (Burke, 2014) have led to problems. These problems manifest themselves in increased conflict and a decreased understanding of how the complexity of the university can be managed effectively through the creation of 'sense-making systems' (Weick, 1995). Approaches which provide a means to test knowledge and understand cause and effect can be seen to be very much in line with the core academic function of the university; the creation and diffusion of knowledge. However there is reticence within the sector to overtly conduct organisational learning interventions due the mistrust of the business origins of the related theories. Despite this, given the university's key role in the creation and diffusion of knowledge throughout society, higher education also provides an important source of data for building understanding of how organisational knowledge can be managed to better effect in order to support the university's core aims and objectives and how systems can be developed and enhanced to help manage this knowledge.

By studying the role of the academic adviser, a greater understanding of how knowledge is used and produced can be gained. Freitag's (2008) belief that the recognition of academic advisers as knowledge workers will enhance the retention and efficacy of advisers also provides universities with a motivation to develop their understanding of how advising knowledge can and should be managed to better support student success and cope with change. Furthermore, the range and diversity of activities undertaken by advisers provides a valuable insight into the workings of the university and the inter-relationships between different parts of the organisation.

In the next chapter I will outline the approach for this study and the tools and techniques selected. The reasons for their use are placed within the context of theories related to systems and complexity and help to develop an understanding of the ways in which knowledge can be managed to help facilitate enhanced organisational learning.

Chapter Three - Conceptual Frameworks for Modelling Change and Knowledge

Introduction

This research is based on the concept of the university as a learning organisation, with the central focus of the study being an exploration of how change impacts upon the university's ability to learn and the ways in which knowledge can be better managed to enhance organisational learning and the results of change. I propose that the study of systems and processes is an important means by which an enhanced understanding of the complexity of organisations and the ways in which they produce knowledge can be reached.

In the previous chapter I outlined the main concepts related to organisational learning resulting from dynamic change and how this learning and change is driven through building an understanding of processes, the knowledge required to carry them out effectively and the management of this knowledge. This chapter will concentrate on the conceptual frameworks underpinning research into organisational knowledge and learning and introduce the model selected for use in analysis in this study: the Burke-Litwin Causal Model of Organizational Performance and Change (Burke and Litwin, 1992). This model was selected following review of alternative change management models as it is concerned with several factors which are of interest to this study. It provides a framework for analysis which allows thorough investigation of change at all levels of an organisation and it differentiates between transformational change which is directed from top-down and transactional change which relates to the organisational routines, processes and human factors. The design of the model is also highly cognizant of the influence of the external environment on organisations. The Burke-Litwin model allows both researchers and practitioners a means by which they can build understanding of the interrelated nature of change and the interdependencies which exist between various organisational factors to identify both *what* needs to change as well as *how* it should be approached and implemented.

Using commonly applied knowledge management (KM) techniques - collaboration, mapping and taxonomies - the model relies on an understanding of the espoused theory of the organisation and of stakeholder feedback, which helps to identify where there are discrepancies between the espoused theory and theory-in-use (Argyris and Schön, 1978). These techniques provide both a means to learn more about the practices within the organisation as well as more about how the organisation itself learns. This is accommodated by the selected model's dual role; both to facilitate planning for change as well as responding to unplanned change on an ongoing basis. The Burke-Litwin framework is explicitly grounded in an understanding that change is a dynamic and ongoing process. In order to understand how an entity utilises these KM techniques to enable their organisational learning, the same techniques must be built into the design of the study and the model provides both the structure and flexibility to adapt and amend a variety of methods which provide rich data and analysis.

The Burke-Litwin model is not, however, without its limitations. A common criticism relates to its complexity and the requirement to be able to access and analyse large amounts of data, which means that its effectiveness is limited where there is little or no leadership or management buy-in to the planning or diagnosis of change. This suggests that the model is itself a form of top-down management. Furthermore it is rooted in open-systems theory and is typically concerned with *predictability* of results. Due to the highly complex nature of higher education (HE), the variety of systems and results emerging from institutions and the influence of the external environment on the future of HE, the selection of complexity theory as a lens through which these phenomena could be studied was determined to be appropriate. While systems and complexity theories are very closely related - indeed, the latter has emerged in recent years from the former - there are some significant differences, not least the focus of complexity theory on the *unpredictability* of systems. The following section describes the evolution from systems to complexity theory and the complimentary nature of their application when studying large, complex organisations and systems. Given the limitations of an approach based purely on systems theory, as the Burke-Litwin

framework is currently, this thesis attempts to reframe the model within an additional complexity theory paradigm and to provide a means by which results which were not predicted or predictable can also be understood in relation to the organisation as a whole. It is intended that such an approach will provide a means by which organisational learning is enhanced and more robust methods for responding to unplanned and unpredicted changes can be devised.

Complexity Theory

Processual research, as previously defined in Chapter Two, is an exercise in sense-making which accounts for all facets of an organisation by examining operational processes (Dawson, 2014). In order to better understand the value of learning from this, it is necessary to place this concept within a theoretical framework. By doing so, a deeper comprehension of the underpinning ideas can be reached. A common feature of many of the theories related to organisational learning is their foundation in systems theory and a focus on a holistic approach to building knowledge (Mele et al, 2009). As these theories have been applied to organisational research, various different and complementary theoretical strands have emerged. Senge (1990) brought the idea of *systems thinking* to the fore in his work, *The Fifth Discipline*, where he described it as a framework to understand complex relationships within organisations. He argued that such thinking, combined with four other elements - shared vision, mental models, personal mastery and team learning - is key to learning within the organisation. This work was considered ground-breaking and led to further development in the field, with increasing numbers of researchers applying systems theory to their work and further developing its meaning and the concepts underlying organisational complexity. However, despite its usefulness in helping to provide a means by which the relationships between factors can be better understood, systems theory is also subject to criticism for being too vague and failing to recognise the dynamic nature of change and its evolutionary nature. As a result, researchers are increasingly looking to theories which reflect the non-linear nature of change and its unpredictability (Amagoh, 2008).

One researcher who has further developed the theory related to systems is Cabrera (2008), who places the development of concepts themselves within the realm of Complex Adaptive Systems. Arguing that concepts are critical to knowledge and learning, Cabrera builds upon previous work looking into the practical challenges posed by systems thinking. Working with Trochim et al (2006), Cabrera had previously broken the vast range of systems theory literature down into two ideas and two metaphors: dynamics and complexity; mechanical and biological. Cabrera (2008, p. 1) went on to propose a cross-disciplinary lens which provides an understanding of how concepts are directly informed by and adapt to other related concepts. This work has proven to be influential in the field of systems theory and organisational learning and has furthered our understanding of complex systems. As research and thinking into systems in relation to learning has progressed, so too has the role of complexity theory and the development of tools and techniques to help investigate the ways in which learning and knowledge can be managed in dynamic organisations and evolving environments.

A further differentiation proposed within the study of social systems is the delineation between *systems thinking*, which is based on an assumption that systems exist within society and attempts to represent them as they occur, and *systemic thinking* which is based on a belief that systems within society are a theoretical construct used to make sense of the world and its interrelatedness (Flood, 2010, p. 269). Flood describes complexity theory as emerging from systemic thinking with its defining feature being the understanding that we will never be able to fully comprehend the nature of complex systems due to the multitude of interactions which take place. However he argues that it is through such systemic thinking that we come to 'know of the unknowable' (Flood, 1999, p.3) and posits that the pursuit of research grounded in complexity theory provides us with a means to learn and act appropriately within the realms of what we don't know and cannot predict. In order to be able to effectively carry out an intervention into organisational learning, an approach is required which provides the opportunity to make the changes which produce knowledge and contribute to learning. Church et al (2001, p. 302) argue that such interventions are carried out 'correctly' through the use of action research (AR), as this is an approach which

permits investigation into complex systems as a result of its basis in complexity theory. As the aim of this study is to understand the process of change and the ways in which practices may be enhanced and sustained, this approach will be further discussed in the following research methods chapter.

Another related theory which has emerged from systems thinking is activity theory. Sharing many similarities with complexity theory, activity theory is described as a systems thinking approach, but one which focusses on the cultural and social aspects of learning (Gedera and Williams, 2015, p. 142). Activity theory has been increasingly applied to educational research in recent years, however while it provides a basis for understanding how social change relates to knowledge and practice, it does so within the boundaries of cultural and historical influences and does not allow for examination of the physical and biological systems which are also critical to learning (McMurtry, 2006, p.210). In contrast, complexity theory takes all influencing factors into account and, as a result, seeks to provide a more complete understanding of relationships and dependencies involved in knowledge production and change.

This study is based on a complexity theory paradigm, with an understanding that the social and cultural aspects of learning cannot be separated from our understanding of humans as living organisms who are subject to changes related to both scientific and socially scientific phenomena. Phelps and Hase (2002) argue that complexity theory helps to bridge the paradigm gaps between science and social science and benefits from a mixed methods approach. This marks a departure from the more traditional view of research falling into either a subjective or objective ontology, however Morrison (2010, p. 379) warns that it is important not to become confused by the descriptive nature of complexity theory and make assumptions as to its prescription in other situations because outcomes cannot be assured.

The evolution of organisational learning theories to incorporate complexity theory has provided a framework within which researchers are able to study and describe

complex systems where factors cannot be isolated and examined separately from other variables and there is an awareness of the uncertainty inherent in any organisational system. Cohen et al (2011, p. 116) provide the following definition:

(A) complexity theory paradigm rests, in part, on an ontology of self-organized emergence and change through the unpredictable interactions and outcomes of constituent elements of a whole ecological entity, and on an epistemology that argues for understanding multiple directions of causality and a need to understand phenomena holistically and by examining the processes and outcomes of interactions.

While complexity theory is deeply rooted in systems theory, Schneider and Sommers (2006) highlight the critical differences. Both forms of theory are concerned with the conversion of external energy as it is processed through the system and output in another form, however complexity theory concerns itself with unpredictability and the emergence of ideas and behaviours and has a greater focus on the process itself and the variety of outcomes that can be produced. Systems theory, in contrast, examines how multiple routes can be used to arrive at the same conclusion. Litaker et al (2006) argue that complexity theory can be seen as a diverse set of ideas and techniques and can be split into two forms. Mathematical complexity has its origins in chaos theory and is used to make sense of the behaviours which result in seemingly non-random systems operating in a manner which appears random. By studying how those systems adapt to change a description of probable outcomes can be developed. This form of thinking is important to organisations when attempting to provide a technical system solution to help manage change, as it helps to ensure valid and accurate data. This is a critical factor for organisations as they rely on predictable systems to support their operations. Aggregate complexity, on the other hand, examines how different elements interact to produce certain behaviours. As an example of this, Litaker et al (2006) describe the different behaviours produced by different combinations of individuals who are in separate teams formed by the same number of people holding the same roles within the same structure. The authors describe aggregate complexity as a more qualitative approach than mathematical

complexity which has a greater focus on statistical analysis, however they recommend the two be used together to provide a fuller picture and help to manage the non-linear nature of processes.

The unpredictable aspect of complexity is also addressed by Manson (2001), who writes that aggregate complex systems are defined more by the relationships between factors than by the individual factors alone. This is because the sub-systems which comprise the overall system are dissimilar as a result of the various and varied relationships involved and the self-organising nature of the structures formed to support the system. At times of crisis these structures may be formed and reformed in reaction and in an attempt to survive, with the rate of change itself posing a threat to survival. Furthermore, an individual sub-system may belong to more than one overarching system with all systems being highly sensitive to changes in their environment. Manson (2001) asserts that the main value of aggregate complexity is its view of systems as being subject to constant change and adaptation as a result of external factors and the organisation's own reaction to those factors. But while aggregate complexity provides rich information relating to the emergence of change it is also a theory which contradicts much of the evolutionary theory which has gone before it. For that reason Manson (2001) recommends it should be used in conjunction with other social theories in order to better understand its application and further develop data collection and analysis techniques in order to further examine the ontological and epistemological issues underlying its development.

Gell-Mann (1995) argues that the potential complexity of a system is determined by its past and the outcomes of individual events which would have resulted in a different system had any of the events produced different results or relationships. It is this feature of organisational change which proves so challenging for organisations to manage; the ability to be able to achieve predicted outcomes is heavily influenced by previous outcomes and cultural factors. Without an understanding of the issues which led to change previously, organisations are destined to repeat mistakes and impede further organisational learning. This lack of understanding can in itself be seen as a failure to learn and demonstrates the

dangers inherent in single-loop learning (Argyris and Schön, 1978). It is therefore important that organisations are able to identify simplified tools and methods which provide a means to develop and encourage double-loop learning and knowledge creation in complex environments. By doing so they can develop strategies which will allow them to better adapt to unforeseen change and unpredicted results.

However there are significant challenges inherent in providing a simplification of complex ideas. Morin (1992) described complexity theory as a system paradigm which requires an understanding of how seemingly discrete factors combine and affect one another. He warned that simplification of complexity is impossible, as it is an approach which focuses on an understanding of the whole rather than creating order within individual components of a system. Cilliers (1998, cited in Uhl-Bien et al, 2007, p. 302) differentiates between a complex and complicated system. While a complicated system can be understood by looking at its constituent parts and how they work together, a complex system can only be truly understood when examined in the context of its interaction with its environment. Uhl-Bien et al (2007) argue that complexity theory takes account of the non-linear nature of change in organisations with the unpredictability of these interactions being a key feature of a complex system and this leads to innovation and learning as the people and factors involved interact with one another.

While complex systems and an understanding of them also enable organisations to identify and correct errors more effectively, this relies on the appropriate structures to be in place to support the social interaction required and many organisations find that their management structures and cultures inhibit the sharing of knowledge and learning across the organisation. Nonetheless, the increased application of techniques aimed at encouraging feedback - such as staff and customer questionnaires, performance reviews, quality assurance exercises and other engagement strategies - demonstrates that organisations are recognising the value of learning from their employees and other stakeholders, even if they often produce limited results. By enabling learning at the individual, group and organisational levels, complexity theory challenges the traditional focus

of research on predictability and replicability and examines networks at both the micro and macro levels, which helps to develop an understanding of their symbiosis (Morrison, 2010). The building of an overall picture of how individual and group activities influence organisational results provides an enhanced comprehension of relationships and dependencies, which in turn can help to improve performance, however this requires the selection of effective methods for studying complex organisational phenomena and the process of change.

Therefore, while there are challenges inherent in attempts to decipher complex phenomena, there are also many benefits to be gained from identifying means which aid our understanding and explain systems in simplified terms. The employment of knowledge management (KM) techniques in the study of organisational learning is well-established with practitioners of organisational learning turning to KM methods in order to help them better understand the creation and communication of organisational knowledge (McElroy, 2000). However a more recent development has been the placement of these concepts within the realm of complexity theory. McElroy (2000) argues that this demonstrates that KM has now progressed from its previous focus on copying successful technical approaches, to the application of KM methods in order to innovate ideas which will lead to the creation and maintenance of the conditions which foster new organisational knowledge. It is this concern with both the supply and demand sides of knowledge processing which McElroy (2000) defines as the key characteristic of second generation knowledge management. Complexity theory provides a paradigm within which the ideas of change, knowledge management and organisational learning can be explored and explained because it provides an understanding of the rules underpinning knowledge creation along with a basis to investigate knowledge processing and how that then feeds back into reshaping the existing rules. Therefore theories relating to organisational learning provide the goal, knowledge management provides the means and complexity theory provides the ontological framework for making sense of the interactions involved in organisational change.

In the following section I will describe the techniques required to provide an understanding of organisational learning and their application with regards to knowledge management. These techniques will provide the rationale for the methods chosen to study the complex and dynamic nature of change within a university environment, which will be expanded upon further in the next chapter.

Knowledge Management Techniques for Creating Organisational Knowledge

Despite the challenges and differences in opinion as to the best way in which to manage knowledge, there is little dispute that organisations rely on the creation of knowledge to function and that they should be concerned with its enhancement. In order to facilitate the development of effective organisational learning and knowledge management, several techniques must be employed which are common to the various existing models and frameworks. These include mapping, taxonomies (labelling) and collaboration. These methods are employed to pull together fragmented knowledge and communicate it effectively in a way that can be understood by all those who require it. Through the employment of such techniques, complex phenomena can be broken down into meaningful categories, patterns can be established and potential or actual outcomes from action can be assessed.

Organisations seeking to manage change use the techniques described above to understand the practical and social issues which can result in unpredicted or damaging outcomes and attempt to avoid them. Argyris and Schön (1978) describe 'correctable errors' (p.109) as those which enter a learning cycle, resulting in some sort of action which then either leads to the expected outcome or to new problems. Uncorrectable errors are those which are not exposed and this limits the organisation's ability to learn, not least because these sorts of errors are often the result of unawareness on the part of groups and individuals that they themselves are contributing to the problem through their own behaviour and interactions. In order to reduce the frequency of uncorrectable errors organisations must engage in organisational enquiry, resulting in 'good dialectic'

(Argyris and Schön, 1978, p. 42) where members of the organisation not only reflect on the issues they are facing and how to address them, but also assess the impact of their own learning systems in order to adjust as required to achieve more effective error correction. The mapping of knowledge is used to understand whether the outcomes of actions meet expectations, thereby confirming - or otherwise - that the organisation's theory-in-use matches their espoused theory. Where there is a mismatch, the source of the error must be identified and new approaches devised to deal with the errors. However, for organisational learning to be achieved these new approaches should be input into the organisational maps which are used to inform future actions. This involves a collaborative approach to ensure that learning does not simply occur at the individual level but can be shared more widely to better effect.

Therefore organisations must create maps of their learning systems in order to be able to identify where errors occur. Argyris and Schön (1978) argue that by drawing together the views and experiences of individuals and groups, organisations can create a shared image of the organisation's current state. The knowledge which informs the maps must be tested through organisational enquiry and, furthermore, the map itself must be tested in order to ensure it presents an accurate picture of the current state of affairs. Where that is found not to be the case, it must be changed to reflect the situation in order to be of use to the organisation. Maps not only need to illustrate where an organisation is currently, but also how it got there and where it intends to go. Decisions based on erroneous maps can result in disastrous outcomes at all levels of an organisation. The authors explain that viable maps require an investigation of underlying policies and norms, structures, processes and dependencies along with an understanding of the cultures which exist within the organisation, the assumptions upon which these factors are based and an idea of the envisaged end result of any change. Shared data, information and knowledge, gathered systematically with an aim of building organisational memory and collaborative working, should be encouraged to help maximise the amount of knowledge claims input into the decision-making process. Where errors are detected in the assumptions upon which decisions are made, revealing either an incompatibility between espoused theory and theory-in-use or

a problem with overarching policies and strategies, they should be exposed and confronted and effective tests devised to assist with the identification of more accurate assumptions. This then leads to changes to the norms and systems themselves allowing learning to occur at a double-loop level. However Firestone and McElroy (2003) make the critical point that the detection and correction of errors through the application of knowledge management techniques should not simply attempt to achieve strategic aims. They argue that strategy itself is nothing more than a set of knowledge claims and that, once subjected to testing, they too must be reviewed in light of knowledge which demonstrates them to be unworkable or detrimental to the organisation or society. As the steps taken to achieve strategic organisational vision start to impact upon individuals' roles and tasks, the viability of the vision begins to be tested, along with the adaptability of the organisation and its ability to learn.

The creation of organisational maps is, therefore, a social process. Firestone and McElroy (2003, p. 329) argue that effective error detection and correction can only occur through the creation of 'communities of inquiry'. While first generation knowledge management espouses the use of communities of practice, they tend to focus on a consensual approach rather than one of testing and validation. The mapping of organisational knowledge must not only include information about the knowledge claims which are found to be valid, but also those which are invalid and why that is believed to be the case, as rejected ideas and the knowledge which informed them are as important to learning as those which are found to stand up to scrutiny. Mapping also allows organisations to detect patterns and similarities between situations and this information, placed in the context of knowledge *metaclaims*, allows organisations to better predict the effects of change. Defined in the previous chapter as 'claims about claims' (Firestone and McElroy, 2003, p. 294), in decentralised decision-making organisations, metaclaims allow workers to place knowledge claims in the context of previously evaluated surviving knowledge claims and allow the testing of new information to determine its validity. They also help to ensure that the correct problems are being addressed using the correct tools and provide knowledge not only about the best way to do something, but why it is the best way to do something, helping to

inform future decisions. The use of best practice is valuable to an organisation, but where an organisation faces a gap in their knowledge and they are unable to determine the best course of action to address a problem, workers are required to use their own skills to evaluate which claims are relevant to the current problem based on their understanding of the context of the issue.

Further underlining this concept of knowledge creation as a social phenomenon, Jian (2011, p. 49) explores the concept of articulating organisational identity, describing it as 'a discursive action in which managers and other organizational stakeholders contend to assign meaning to a collective with regard to its goals, values and beliefs within particular Discourses'. Distinguishing between the focus of management on strategic matters and employees' concerns with more cultural issues, he describes the ways in which the conflict between the identities formed by each of these groups provides a means by which change and knowledge production becomes an ongoing process that produces learning throughout the organisation, rather than an attempt to achieve stability or solve an immediate problem.

Collaboration also enables specialisation which can help to facilitate effective knowledge claim evaluation, but again the exploitation of this strength requires the effective use of maps. Lambe (2007) makes the case that specialisation helps to ensure sustainability, as group members may change, but the knowledge held by the group is retained. Process maps are used to make tasks and processes explicit and allow users not only to find information but also assist organisations in understanding how they can operate in a coherent manner. This is especially crucial in large, decentralised organisations where people are less likely to share values and cultures. Willcock (2013) outlines the challenges faced by organisations in encouraging collaboration as they try to overcome the behaviours influenced by internal maps, which are used by individuals to inform their own decisions and actions. These maps are based on personal experience and values which often bring people into conflict and result in people employing strategies which have worked for them in the past but which might not be effective in confronting current challenges. To counteract these problems he claims it is necessary to

create teams which have a clear understanding of their purpose, vision, task, infrastructure and culture and help to encourage collaboration and change across the organisation by breaking down silos and their resulting working practices. By reflecting on their experiences they are able to review their approach in light of new knowledge, using good dialectic, to produce outcomes which provide knowledge about the task in hand and the way it is managed. Groups are only able to take a strategic view when they are given the opportunity to review their ways of working and performance and Willcock (2013) believes that this should occur at all levels of an organisation, not only among senior management. This requires an integrated approach to developing collaborations throughout the organisation, with groups supported in their examination of tasks, processes and structures and the beliefs that underpin them.

It is therefore vital that careful consideration is given to the design of the maps and the collaborative approach selected to ensure that any meaning derived from these techniques can be clearly understood and interpreted and patterns in outcomes and behaviours can be clearly identified. Key to this is the requirement for clear taxonomisation of knowledge, data and information. However the creation of an effective taxonomy goes beyond the task of labelling and communicating to also include what Lambe (2007, p.11) refers to as 'taxonomy work', which is concerned with the dynamic process of feeding knowledge back into the creation of taxonomies in order to ensure they remain relevant and usable in the context of new understanding. By developing innovative enquiry organisations not only apply previously tested methods to solve problems, but also to develop new ways of thinking which can be incorporated into the learning process. Argyris and Schön (1978) state that threats to an organisation are opportunities for learning and that the conflicts and frustrations brought about by those threats should be used to enable more effective change. As confidence in the ability of an organisation to detect errors and innovate solutions to correct them grows, the desire to continue to invent solutions to problems also increases leading to more effective change management. Vasconcelos et al (2009, p. 4) argue that innovation is the product of 'dynamic capabilities'. These are processes which allow organisations to adapt to external demands and produce innovative

solutions and services which provide a competitive advantage. However Lambe (2007) outlines the challenges involved in innovating in terms of taxonomies as there is a conflict between the labelling of the current situation and the creation of new, as yet uncategorised ideas. Nonetheless the use of structured taxonomies provides a foundation against which new ideas can be tested and by looking at the existing categories in the light of new thinking, new patterns and structures can emerge. This is a basic principle of research and the development of propositional knowledge, with current ideas and knowledge informing new theories and their tests. Indeed it is often the knowledge about knowledge processing which emerges from research which is of more value than the actual research output itself. This principle can equally be applied to the creation of the processual knowledge used by organisations. Through the use of collaboration, mapping and categorising there is an opportunity to try to understand and retain as much as possible to allow us to create organisational knowledge which can be added to, refined or rejected as new ideas emerge.

In the following section I will further expand upon the ways in which these knowledge management techniques have been employed within organisational learning research. I will also describe the ways in which the model selected for use in this study - Burke-Litwin's Causal Model of Organizational Performance and Change (Burke and Litwin, 1992) - can be seen to employ the techniques described above and to provide a means by which ideas can be tested to understand their relation to one another within a complex environment and a paradigm of complexity theory.

Modelling Organisational Change

There are various models related to the study of change, but they each share certain features which provide a means by which the trajectory of change can be categorised and mapped. However, despite these similarities, there are also critical differences between various change models and the appropriate selection of a model is dependent on the phenomena one wishes to explore. In this section

I will provide a justification for my selection of Burke-Litwin's Causal Model of Organizational Performance and Change (Burke and Litwin, 1992) as a tool of analysis, by providing a description of the model, an explanation of its strengths within the context of this study and in relation to alternative models and also a discussion of its weaknesses and how these can be mitigated.

Differentiating between change that happens to an organisation and planned change which is initiated from within the organisation itself, Cummings and Worley (2014) compare three of the main models of planned change: the Lewin Model, Action Research and the Positive Model. While the first two focus on the issues within an organisation and the steps which should be taken to resolve problems, the Positive Model is focussed on attempts to achieve a better future through the use of best practice. Despite differences between the models, all three share enough features for the authors to propose a general framework of four activities required for planned change. These are as follows:

1. Entering and Contracting - identification of the change project
2. Diagnosing - gathering, analysis and feedback of data
3. Planning and Implementing Change - leading and managing change
4. Evaluating and Institutionalising Change - reviewing and adjusting change process

These activities can commonly be seen to be employed in organisational projects, to varying degrees of success. As change occurs in the external environment, organisations are increasingly required to keep on top of the changes required to successfully adapt and this has resulted in an increase in information and knowledge-related projects, which are often managed using change management techniques which adhere to the four phases listed above.

However organisations not only need to have an awareness of the different stages of change, they also need to make sense of the activities they are undertaking. Todnem By (2005) suggests that problems experienced as a result of change may be ascribed to the variety of organisational change theories-in-use and

recommends that change is managed in a way which allows for its emergent and unpredictable nature to be understood in a way that is not possible when it is viewed as a linear process. It is through this understanding of change as an ongoing and inevitable process that learning occurs. As organisational relationships and the consequences of actions are revealed, the focus of change shifts from the implementation of new practice in an attempt to achieve some new form of steady-state to the development of new ways of acquiring knowledge on a continuous basis.

The diversity of focus within organisational literature is also highlighted by Crossan et al (1999). While they acknowledge that many theories related to organisational learning share certain features, they also concern themselves with different domains. They too argue that the focus of change should be on ongoing strategic renewal of the organisation and its learning, developing a comprehension of the relationship between the different levels of an organisation and their actions. The authors compare seven of the best known organisational learning frameworks of the 1990s: March and Olsen (1975), Daft and Weick (1984), Senge (1990), Huber (1991), March (1991), Watkins and Marsick (1993) and Nonaka and Takeuchi (1995). They conclude that only one - March (1991) - considers the importance of not only making best use of existing knowledge, but also using it to create further knowledge on an ongoing basis. They also state that all seven frameworks cited did consider the feedback effect between knowledge and action, but there was little attention to the relationship between differing levels of the organisation and their impact.

Cawsey and Deszca (2007) compare three further change models in their *Toolkit for Organizational Change*; the McKinsey 7-S model, the Nadler and Tushman model and the Burke-Litwin model. In their analysis they conclude that the McKinsey 7-S model does not provide an explanation for the reasons for change and its impacts and, as a result, does not provide a robust means by which cause and effect can be observed. This information is crucial, as solutions which do not address the root cause of a problem are likely to create further difficulties elsewhere in the system and this perpetuates the negative experience of change.

Lawler and Sillitoe (2013) discuss the issues which arise as the result of such bad experiences; if there is not sufficient support or rationale for change, then meaningful learning cannot be achieved and staff will be unable to implement effective, collaborative change as they will be reluctant to repeat stressful experiences. This problem is further compounded by the nature of tacit knowledge, as they contend that not enough innovative thought has been given to its capture and communication to make it more useful in helping to achieve continuous improvement and reflection. However they do not go as far as recommending an approach for capturing and storing tacit knowledge. While Cawsey and Deszca (2007) select the Nadler and Tushman model for their own purposes, it is a model which is primarily concerned with the alignment between factors within the organisation in order to achieve strategic aims and, as such, does not provide a framework which allows an examination of the process of change itself to be examined.

The Burke-Litwin model proposed for use in this study provides a method by which researchers can investigate both *what* needs to be changed as well as *how* to change (Kondacki et al, 2006, p.11). Writing about the process of internationalisation in higher education, Kondacki et al (2006) describe the Burke-Litwin model as an effective method by which the range of organisational factors at all levels and their relationships with each other and the environment can be understood. The Burke-Litwin framework also provides a model which allows both planned and unplanned change to be studied and has been validated by researchers over the course of numerous practical studies. As such, they conclude that the model provides a comprehensive framework which is highly appropriate for application in a study related to the complex nature of higher education.

Similarly, Galvin and Clark (2015), writing about change in the US Military, recommend the adoption of the Burke-Litwin model due to its detailed nature and its concern with the various levels of the organisation. Arguing that the current model commonly applied within the military - Kotter's 8-Step Process for Leading Change - is insufficient in terms of understanding 'bottom-up' change (Galvin and Clark, 2015, p. 2) within the organisation, they state that the Burke-Litwin model

allows researchers to understand the impact of change which is led by management as well as the changes that occur to routines and tasks and the effect of those changes on the organisation and its learning. There are several parallels to be drawn between the military and higher education (HE) with regard to change management; both are highly complex in nature and subject to external, financial and political pressures. Additionally, the increased internationalisation agenda within HE means that universities are now also required to operate across geographical distances and within a global dimension. This dispersal of staff, students and resources provides a great challenge in terms of managing the tightly-coupled nature of strategy, leadership, culture and a central vision alongside the more loosely-coupled factors to encourage innovative solutions to problems (Galvin and Clark, 2015, p. 6).

Burke (2014) argues that to attempt to understand change as well as create a working theory, it is necessary to capture the three elements of pattern, structure and process which are integral to a complex organisation. In order to fully represent these elements, the Burke-Litwin Causal Model of Organizational Performance and Change (Burke and Litwin, 1992) was developed and is presented below in Figure 4.

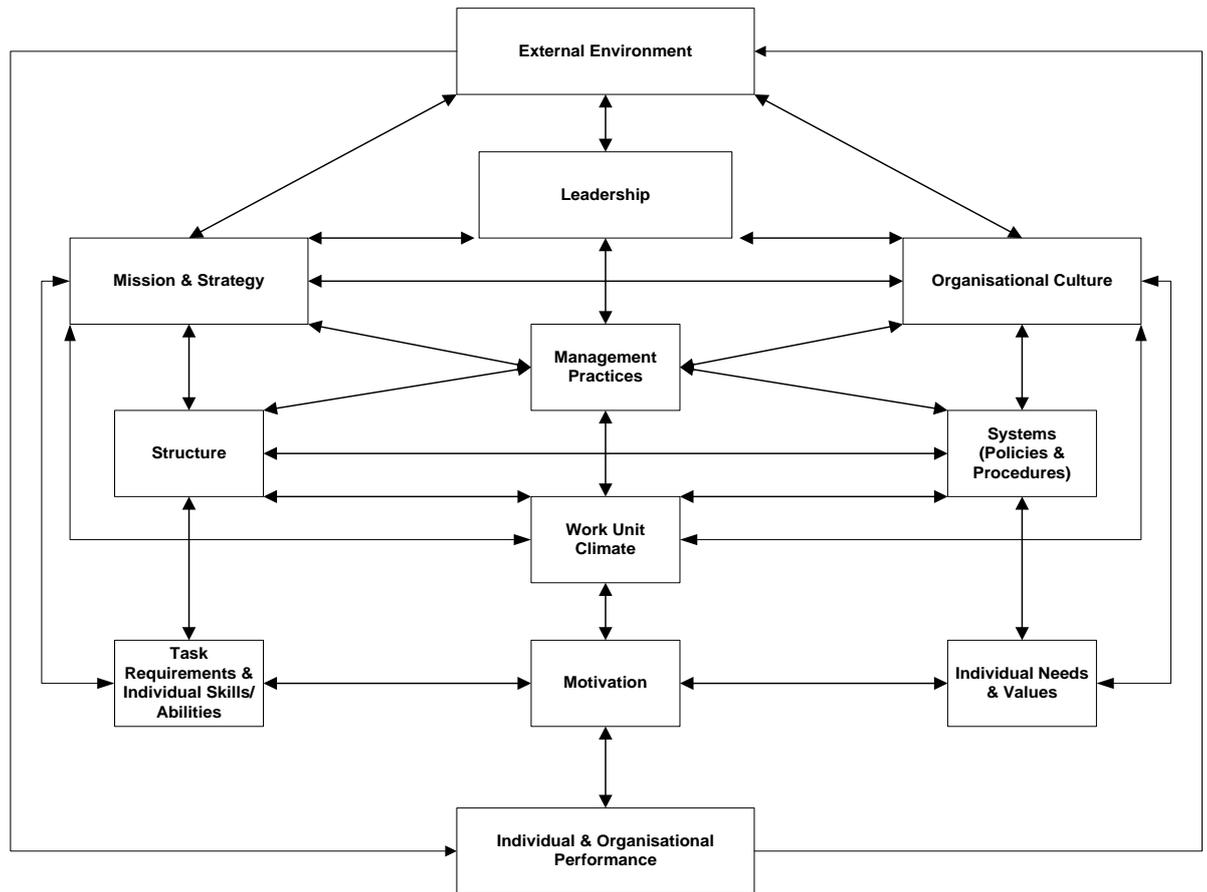


Figure 4 *Burke-Litwin Causal Model of Organizational Performance and Change (adapted from Burke and Litwin, 1992. Permission to reproduce this figure has been granted by SAGE Publications)*

Burke proposes the model answers all the questions inherent to a valid theory of change - what, how, why and who/where/when - more completely than previous organisational change models. This model categorises factors such as external environment, mission and strategy, leadership and culture as being ‘transformational factors’ (Burke, 2014, p.228) and describes them as responsible for ‘revolutionary’ change. Structure, tasks and skills, motivation, management practices, work unit climate, systems and needs and values all fall under the category of ‘transactional factors’ and tend to be subject to more evolutionary processes. Burke (2014) argues that all twelve factors must be considered when trying to understand the current situation in order to manage change within an organisation. The factors are placed within a hierarchy with the external

environment at the top, transformational factors placed below and transactional factors underneath. It is this structure which develops understanding of change and learning across all levels of the organisation and permits a wide-ranging holistic study of how strategic and leadership decisions impact upon processes and routines and the feedback loops between them.

The model therefore provides a means by which these distinct, but related, organisational categories can be mapped and the issues of cause and effect can be addressed. Writing about the challenges faced by higher education in relation to the development of shared service models to support enrolment management, Cooper (2015) employed the Burke-Litwin model to investigate the relationships between four of the factors highlighted above: structure, motivation, management practices and task requirements/individual skills and abilities. In contrast, the scope of this research incorporates all facets of academic advising within the context of the twelve factors contained in the model. Burke and Litwin (1992, p.525) propose that their model provides a method which not only allows organisations to plan for change, but also to analyse the impact of change, integrating two previously distinct activities. As such, my study attempts to diagnose the causes and impacts of major change within a higher education institution, while also providing recommendations for further planned change resulting from the analysis. The initial starting point for this research relates to the systems factor contained in the model. By studying the changes which have occurred in relation to the implementation of a new student records system and advising policy, it is possible to use the model to identify how changes to systems impact upon different elements within the organisation and the ways in which systems are themselves impacted upon by changes occurring in other parts of the university.

Burke and Litwin (1992) stress the importance of the environment on prompting change, basing their ideas on open-systems theory. However, while systems theory can be usefully applied in the development of policy, complexity theory provides a means by which the uncertain and emergent nature of change can be studied and this is required to reflect the move towards greater decentralisation and

stakeholder engagement in public administration (Amagoh, 2008, p.10). Shaw (1997, p.248) argues that practitioners of organisational development are constrained by the traditional perspective of planned change and the concept of a steady state and that complexity theory provides a more effective means to study the contradictions which affect people involved in change and allows the emergence of innovative ideas. Therefore for the purpose of this study, the Burke-Litwin model has been placed within a complexity theory paradigm as the concern of this research relates primarily on an understanding of the various factors which led to a varied set of outcomes, rather than on the predictability and replicability of results. This again illustrates the flexibility of the model, as it can be adapted and employed to provide a means of analysis for researchers who are interested in various and varied change phenomena. The model also fits Manson's (2001) description of aggregate complexity by acknowledging the requirement for constant change and adaption as a result of pressures from the external environment and altered relationships. By using the model to understand what can be predicted, it also provides important information about the results of change which are either unpredicted or unpredictable and demonstrates the interrelated and complementary nature of theories related to open systems and complexity. This is valuable knowledge to an organisation as it facilitates enhanced learning that, in turn, helps organisations to deal with further change.

The principal limitations of the model relate to its own complexity and the amount of data required to provide meaning (Johnson, 2004), however this can also be seen as a strength when undertaking a comprehensive analysis of an organisation (Vitale et al, 2008). The study undertaken in the course of this research was a longitudinal study, examining the impact of change across several years. It therefore required the employment of a model which provides a means to select and make sense of data across such a timeframe and which can accommodate inputs from a wide variety of sources. The Burke-Litwin model facilitates both of these requirements as well as providing a method of analysis which informs understanding and action, helping to explain complex ideas and provide important organisational knowledge about change and its effects.

Summary

This chapter has provided a justification for the model selected for use in this study, the Burke-Litwin Causal Model of Organizational Performance and Change (Burke and Litwin, 1992). The model was chosen on the basis of its flexibility and its concern with several elements which are of interest to this study and not available via other change management models. The Burke-Litwin model provides a framework which allows researchers and practitioners to understand both the process of change as well as the content and is concerned both with planning for change and adapting to unforeseen change, which helps to facilitate the double-loop enquiry and enhanced organisational learning proposed by Argyris and Schön (1978).

The model itself is complex, however this does provide a comprehensive means by which complexity in itself can be understood. This is cited as its main weakness, even by Burke and Litwin (1992, p.528) themselves, however they also acknowledge that the model remains an oversimplification of the reality. Nonetheless it is a tool which provides its users with a method of categorising, mapping and gathering data in a collaborative manner and comparing the situations within different organisations. These commonly applied KM techniques are key to organisational learning and change management and the model's design contains twelve organisational factors which should be investigated when attempting to understand change within the organisation. Furthermore, it charts the relationships between the factors which aids comprehension as to cause and effect in change.

While the Burke-Litwin model was devised from an open-systems perspective, it also meets the conditions required to investigate phenomena within a complexity theory paradigm. The comprehensive nature of the model and its placement of factors within a hierarchy according to their level within the organisation and degree of influence over change allows researchers to examine the organisation

in a holistic way, via multiple strands of enquiry and investigate processes and actions undertaken in the pursuit of strategic goals and their impact. According to Cohen et al (2011), these are the key characteristics of complexity theory. It is proposed that the placement of the model's use within this paradigm to aid understanding of both the predictable and unpredictable aspects of change are not at odds with its original systems-based perspective, but is instead a complementary application of the tool.

In the following chapter I will outline my justification for the case study methodology selected for use in this study. A mixed methods approach was chosen, in keeping with the complexity paradigm, as this provides the means by which the various strands of investigation can be pursued and different organisational levels can be examined. The methods described are documentary analysis and focus group research and the reasons for their selection and intended application will be outlined in detail, along with a description of their limitations and other methodological concerns related to this study.

Chapter Four - Methodology and Methods

Introduction

One of the key challenges within organisational research is identifying where to start the investigation and the ways in which meaningful data can be gathered for analysis. This study began as a result of my professional experience of change and the problems and challenges experienced when implementing and managing a higher education IT system over a period of six years. Through my research I was interested in investigating the impact of change across the organisation and the interrelatedness of various initiatives which had occurred during the time period. My intention was that my own professional practice would be enhanced as a result of the study, the operation of the organisation would be improved through better design and use of IT and that the research involved would also contribute to organisational learning scholarship.

Given my focus on the institution in which I was employed and its systems, a case study methodology was selected for use. Case studies are a useful tool for researchers and practitioners who wish to develop an in-depth understanding of specific problems or situations (Zainal, 2007, p.1). However, while the story of this university is unique as a result of the varied and various factors which led to the situation described, it remains of value to other universities and organisations as they too try to adapt and adjust in the face of environmental pressures and constant change. This perspective places the case study methodology selected within the complexity theory paradigm, as it seeks to understand the unpredictable nature of change and systems within a single institution by examining its experience. The case study also serves to contribute one more piece to the overall puzzle, rather than attempting to provide an exhaustive and fully-comprehensive diagnosis of change across all organisations. As outlined in the previous chapter, complexity theory acknowledges that we will never fully understand our situation, but argues that increased knowledge of the different elements within systems and their relationships is of critical value in building our

comprehension of the world around us, helping to develop our learning and ability to continuously adapt.

The case study methodology also allows investigation of multiple routes of enquiry in order to bring greater meaning to data through triangulation and the collection of data over an extended period of time. Observations and theories may be validated using a variety of methods and this helps to ensure more robust findings and analysis (Eisenhardt, 1989, p.538). This study can also be seen to be informed by action research (AR), which is concerned with emergent knowledge and its application to practical problems through an understanding of processes and activities. By informing the study with this approach it is possible to investigate real-life phenomena which cannot be placed under artificial, experimental conditions. AR can produce useful, practical results and contribute important propositional and prescriptive knowledge about situations.

This study reflects upon the routines and outputs of the organisation and, during the course of the research project, changes were made to systems in response to the feedback gathered. These actions were, in turn, analysed in order to understand their effects and their role in the creation of organisational knowledge. As an insider researcher, studying my own sphere of work within the university, it would have been impractical to attempt to assume the role of passive observer. Therefore this thesis is written from the perspective of an actor within the study itself and, as such, this requires an awareness of the multiplicity of roles inherent in participative organisational research; the strengths, weaknesses and ethics of the approach; as well as critical reflection on my practice as a professional and a researcher.

The methods chosen are commonly used in case study research (Dawson, 1997). Documentary sources were analysed to provide evidence of events and to track decisions, actions and knowledge through the organisation. The documents themselves provide a map of the institution and its governance and help to expose the tensions between the university's espoused theory and its theory-in-use

(Argyris and Schön, 1978). By revealing the contradictions between the organisational message being transmitted through official documentation and the feedback provided via sources such as employee surveys, media articles, committee reports and minutes of meetings, the problems resulting from change are demonstrated. This feedback is further enhanced by the focus group data provided by the advising staff involved in the study and helps to build a picture of how decisions taken at the top of the organisation impact upon processes and roles and, by extension, factors such as staff morale and satisfaction.

The employment of methods such as those outlined above assures the design of the study includes the knowledge management (KM) techniques described in the previous chapter. Categorisation of data within the Burke-Litwin framework (Burke and Litwin, 1992) provides a method of analysis which helps to identify where the problems within the organisation have arisen and how actions taken within one of the organisational factors can have an impact in other parts of the model, either for better or for worse. Combining official documentation and stakeholder feedback builds a map of the organisation; it is only by collaborating with others and categorising data related to their work and their concerns that the maps can be created and knowledge about the changes which have occurred can be produced. However this in itself demonstrates the illusory nature of stability; as data is gathered and understanding reached, it is inevitable that one finds oneself having to place that knowledge within the perspective of a newly-changed environment. The 'current situation' is fleeting and that again underlines the suitability of complexity theory as a framework from which a deeper comprehension of change can be reached. With that in mind, the aim of this research study is not to develop a method which attempts to reveal how the university can reach some form of steady-state, but instead seeks to identify ways in which it can continue to perform and develop organisational learning in the face of dynamic social change and continue to support the university's core purpose of research and learning.

In the following section I will further detail my reasons for adopting a case study methodology and its ontological placement within complexity theory. I will also

expand upon the epistemological reasons for the AR influence in the research design and the ways in which the methods selected were applied to gather data and form an understanding of the organisational situation. Later in the chapter, the strengths, weaknesses and constraints of the study will also be discussed as well as the ways in which the data was analysed and meaning in relation to organisational learning was derived from the results.

Rationale for a Case Study Approach

The selection of an appropriate methodology was crucial to gaining a deeper understanding of the process of major change in the institution in which I was employed, its impacts and the organisational learning gained from the experience. The starting point for the investigation is the implementation of a new student records system (SRS) and the impact this major change had on the organisation. The SRS can be seen to be located in the *systems* category within the Burke-Litwin framework (Burke and Litwin, 1992). Reflecting the complexity of the institution itself and the processes required for its operation, the SRS is comprised of many different user roles, providing varied levels of permissions to carry out inter-related processes and produce accurate, validated results. Within the scope of this research it is not possible to investigate use of the entire system across all activities. Given my own role in providing systems to support academic advising and following my own practical experience in relation to how changes affected the provision of the service, I chose to focus on investigating the ways in which *processual* (Dawson, 1997) change affected advising staff and students and the implications for the wider university. The process of advising, as described in Chapter Two, underpins all activities involved in teaching and learning and therefore allows the examination of a wide range of functions which are performed by individuals but have a wider impact at both the group and organisational level.

Concentrating the research on this aspect of university provision allows scope for an in-depth analysis of emergent data in relation to theory as well as the

opportunity for both action and reflection. Additionally, as advising incorporates various university services, policies and processes, this focus allows for a thorough investigation of the dependencies within the institution, the causal factors involved and their relation to organisational theory. Given these aspects of the study, it was determined that a case study methodology would be most suitable to answer the following question:

How does organisational learning occur in a university and how is organisational knowledge managed to support it?

The development of the case study methodology is credited to Frédéric Le Play, who pioneered the idea of gathering data through fieldwork (Encyclopædia Britannica, 2016). Dawson (1997, p.3) describes case study research as a processual approach to build and refine understanding as new information and knowledge emerges over time, rather than to develop a universal theory. For this reason, research into a single organisation contributes to the overall body of literature on organisational learning by providing a descriptive account of change experienced in real-life situations. It offers a means by which preconceptions and predictions can be challenged as much of the knowledge revealed through the course of case study fieldwork is tacit in nature. This element of the approach makes it a valuable tool in organisational research, as does its focus on the effects of dynamic change.

Case study research fits comfortably into the complexity theory paradigm, given its concern with emergent knowledge and it is highly suitable for longitudinal studies spanning longer timelines. This study looks at the changes which took place in the university over a period of several years and, because of the length of the research and the vast amounts of data available over such a time period, the case study approach was selected due to its ability to give a comprehensive and versatile account of change within an organisational context. The varied data sources available in case study research is one of its strengths, however researchers must take care when deciding which methods to apply in order to

frame the problem under investigation appropriately and to ensure validity of the results produced (Soy, 1997). As the intended outcome of this study is to identify methods and techniques which will help the university to learn *from* change and also how *to* change, the research design requires the application of a methodology which itself reflects the ability to learn from experience and take action to make changes where required. Nelson (2003, p.19) cites this redrawing of boundaries within the case study process as a critical quality as it helps to develop a holistic understanding of where boundaries are drawn and relationships exist within realistic situations, providing practical and useful results. Eisenhardt (1989, p.547) characterises case study research as an iterative process of combining and reviewing methods and tools. The creation of theory from data is important as it can lead to new ways of understanding and validating what we know, but case studies can also suffer when they attempt to explain too much or, conversely, too little.

While case studies are useful in investigating a wide variety of differing organisational phenomena, they often follow a similar path. Soy (1997) describes the initial step as the identification of the questions being asked and why. The cases and data gathering techniques are chosen, the data collection is prepared and executed and the data is analysed. The findings are written up in a report which should present complex issues and phenomena in a way which can be understood by the reader. This permits them to place the experience described by the research within the context of their own experiences and knowledge. However, while this process may seem straightforward, the reality is often messier, with different stages of the process occurring at the same time, as new evidence is revealed and new contexts exposed. Yin (2012, p.5) highlights the relevance of case study research when attempting to describe or explore real-world situations, however acknowledges that it is often viewed as less rigorous and more prone to bias than other, more traditional methods. In order to counter criticism of the approach, he recommends case study researchers are methodical in their selection of cases, tools and means of analysis to ensure that descriptive results may be further generalised to other organisations or situations. By doing so, the value of case study research is enhanced and it is better able to break

down the reservations many have when considering undertaking such a study. Only by carrying out multiple case studies can a greater general understanding of complex issues be reached, therefore he writes that it is critical that poorly-designed studies do not reinforce any prejudices against this form of enquiry.

The subject of this case study is a large research institution operating within the Scottish and UK higher education (HE) sector. While there are differences in funding and HE structures between Scotland and the rest of the UK (RUK), there are also many environmental and internal factors which are common to all UK institutions. These factors lead to a diverse range of impacts and results across universities as a result of the varied ways in which they react to and implement change, however one way in which they are all responding to advances in technology and changing stakeholder expectations is through the introduction and development of IT systems to help them manage their business. Over the past two decades universities, like most organisations, have moved away from paper files and handwritten records to computerised records systems. As the available technology has advanced, so too has the potential and complexity of the systems used to support staff in their roles and provide students with validation of their studies. This has led to a greater understanding that electronic data is not only used by staff to carry out their work, but can also be seen as a core product of the university itself. These system changes come at great cost to universities who are increasingly required to account for funding and investments and who face challenges when identifying revenue streams, placing internal and external pressure upon universities to manage change projects effectively. The complexity and scope of the changes occurring make research into the development of such systems an appropriate application of case study research and provide a valuable insight into the social experience of technological change and its impact.

The case study methodology is particularly suited for the study of 'how' or 'why' things have occurred (Soy, 1997). This thesis seeks to understand how organisational learning occurs in a university, the ways in which it is influenced by change and the ways in which unpredictable results may be better managed. This requires both a practical element to the research, as well as a scholarly focus in

order to justify the rationale of the approach and validation of the results. By focusing on academic advising and why changes and events related to this process occurred, new knowledge is created which adds to the existing body of work related to organisational change and learning. With this in mind the following practical research aims were identified:

Practical project aims:

- Identify the changes and address the SRS issues directly impacting upon the process of academic advising.
- Identify any further changes or actions required to enhance the service provided to students.
- Work collaboratively to address the challenges of managing change and organisational knowledge within the context of academic advising.

These practical aims are intended to enhance the creation of knowledge within the university by investigating the ways in which the work of academic advisers has changed, what can be learned from their experience and how this knowledge can be fed back to develop learning at the organisational level. The enhancement of IT to supply users with validated organisational knowledge via the student records system provides the basis for the practical project and allows deeper investigation into the *demand-side* of knowledge, which is defined by McElroy (2000, p.200) as being related to the creation of new knowledge and providing the structures and processes which enable organisational learning.

In order to better comprehend the ways in which organisational knowledge production is supported and help to develop an understanding of the conditions involved in both the creation and diffusion of knowledge within an organisational context, the following research project aims have been defined:

Research project aims:

- Understand the underlying issues which are impacting on the effective provision of academic advising to students with reference to appropriate organisational theories.
- Critique organisational systems to understand dependencies and causal factors.
- Make recommendations to help facilitate more effective organisational learning, based on the examination of evidence and the application of theoretical knowledge.

By studying how knowledge is created within the institution through the lens of the processes and routines involved in advising, further knowledge is produced about the structures and motivations required for organisations to cope with the demands of relentless change.

While the SRS implementation, which forms the basis of this study, was undertaken by a number of external consultants and contractors, the project team also included members of university staff who worked with the system specialists to gain knowledge of the new system and place it within the context of the university's policies and procedures. As one of the university employees engaged on the project and the ongoing support and development of the system, I cannot be seen to have outsider status when undertaking a case study about its impact. Furthermore, my role within the team meant that I too was a participant in the study itself, as actions taken and changes made in response to the data and feedback gathered proceeded to influence results and outcomes. Kawulich (2005) asserts that this role enables the researcher to participate as a member of the group in order to better understand the issues under discussion for the purpose of

obtaining data and argues that this is the most ethical form of observation as the researcher's role and aims are explicit.

The insider nature of my role within the research was also informed by an action research (AR) methodology. The origins of AR are commonly ascribed to the work of Kurt Lewin (1946) and John Dewey's (1938) theories about experiential learning and its role in equipping people for life and not just work. The key characteristics of AR are its basis in both theory and evidence, the emphasis on reflection and, critically, the role of taking action and effecting emancipatory change in order to better understand the system as a whole. The emancipatory nature of AR reflects its aim of encouraging both critical and self-critical thought by practitioners in an attempt to address dissatisfaction, powerlessness and alienation (Kemmis, 2001, p. 92). AR is an emergent form of research and as such is required to allow for flexibility in response to and anticipation of external factors and the self-organising nature of society. Brannick and Coghlan (2007) argue that contrary to widely-held opinion, insider or participant action research (PAR) can provide rich insights into organisations that cannot be gained from externally-generated results, however those engaging in insider research must be aware of the pitfalls which often result in such studies being dismissed as not being real research. While immersion in a subject can provide unique insight to and recognition of issues, assumptions based on this insider knowledge may result in too few questions being asked and insider researchers can also encounter difficulties in accessing the right people, an issue which is less likely to be faced by an external agent engaged by senior management in an attempt to address already identified issues. Additionally, insider researchers are also subject to political influences which may affect their research. According to Kemmis (2001) the emancipatory aims of AR are not only to achieve practical outcomes and valuable opportunity for self-reflection, but they also facilitate the critique of the organisation and allow the questioning of organisational goals. Only by understanding the restrictions placed upon individuals and the social, historical and cultural factors which influence views and behaviour can the sorts of questions be asked that lead to double-loop learning and organisational learning and improvement, however participants may

feel reticent to express their beliefs in fear of conflict or punishment in some form.

Case studies share many common features with AR, as both are concerned with investigating real-life situations, however there are also some key differences. Blichfeldt and Andersen (2006) recommend that AR adopt some of the key features of case study research in order to be seen to be of greater academic relevance. They argue that increased clarity of process and greater applicability of results have contributed to the wider adoption of case study methodology and suggest that AR would benefit from greater attention in these areas. Harrison and Callan (2013) differentiate between AR and case studies by describing the latter as the investigation of events from an outsider perspective. AR, they claim, necessitates the researcher being an actor in study as well as being an observer. The methods employed to support my methodology, which will be described in further detail in the next section, required a collaborative approach to change and action and as I was involved as a participant in this work, this led to the AR influence within the research design. However, the advisers' involvement in the study did not extend beyond the practical aims of the research nor were they engaged in collaborative reflection on the scholarly questions raised by the changes in the university. As the collaboration with others did not occur throughout the phases of planning, acting, observing and reflecting this research cannot be seen to be undertaken from a purely AR approach (Carr and Kemmis, 1986, p.7).

The influence of AR in the research design also relates to its placement within the complexity theory paradigm and the inherent uncertainty and unpredictability of organisational outcomes from change. Burns (2007) argues that AR may only have a significant influence on society if it tackles issues at the organisational level rather than concerning itself solely with individual and group issues and the development of creative solutions and practices requires appropriate action as opposed to repeated use of previously tried and tested methods. For policies to be sustainable they must also take the wider context of the policies into account and be embedded in a model of participation, rather than mere consultation. Crucial to the development of participatory action is the enablement of multiple

strands of enquiry and action with participants working towards the same goals in different ways. This enables greater understanding and learning with researchers identifying issues to be addressed by examining the connections within a system and also researching the understanding people have of those connections based on their own experiences. This is a concept Burns refers to as 'resonance' (p.53) and it is facilitated within this study through the employment of the Burke-Litwin model (Burke and Litwin, 1992) and the analysis of a wide range of data from different sources to help establish relationships between organisational factors. However, while the methods described in the following section can be seen to meet many of the requirements of AR methodology, this research is limited in its reach and ability to effect organisational 'transformation', a critical element of emancipatory AR (Carr and Kemmis, 1986). Instead, using the case study approach, this research seeks to understand an element of the wider system and its interaction with the rest of the organisation, rather than attempt to transform the organisation itself.

In the next part of this chapter I will outline the data gathering methods selected, the justification for their use and their relationship to the organisational theory and conceptual frameworks described in the previous chapters. The case study methodology involves the application of multiple methods to ensure validity and reliability. Given the length of the study undertaken and the timeframes involved, it was critical to identify methods which would allow me to make sense of a great deal of complex data. This involved the consideration of various methods, with some being rejected due to their unsuitability or difficulties identified in their application. These alternatives and the reasons for their eventual rejection will also be discussed in the subsequent section.

Research Methods

As described previously, case study methodology prescribes that once the questions and cases for investigation have been identified, the appropriate methods and tools for providing answers should be selected. A mixed methods

approach is applied in order to gather data from multiple sources, helping to ensure greater validation and more robust results from the analysis. Two primary methods were used to complete this study; documentary analysis and focus group discussions. In line with the knowledge management techniques described in the previous chapter, the data was gathered to allow it to be categorised within the Burke-Litwin framework (Burke and Litwin, 1992) and for the relationships between factors to be mapped. The research also involved a highly collaborative element, as the input of advising staff and other groups played a critical role in the validation of data and taking action on any changes to systems, processes and policies as a result of the feedback provided.

This thesis concerns a single institution and the use of data provided by varied sources determines the study to be an embedded, single-case study (Yin, 2012, p. 7). The holistic objective for this thesis is to understand how learning occurs and can be enhanced within the subject organisation. That understanding is informed through the examination of 'embedded subcases' (p. 7) provided by documentation and feedback produced by members of the institution. While the aim is not to provide a method by which other universities may replicate the end-results of the changes under examination, the methods employed, the reasons why and the results achieved are described in order to allow others to evaluate, adopt and adapt them for their own use. This flexibility is a key characteristic of case study research, with a variety of data sources being employed in its pursuit. Yin (2012, p. 10) lists the available tools to be direct observation, interviews, archive records, documents, artefacts and participant-observation. Given my own role in this research, that of systems analyst and identified researcher, this study draws upon participant-observation, supported by both archival and documentary evidence as well as focus group insight to form the basis of the methodological design.

The mixed methods approach facilitates the triangulation of results, contributing to more robust research outcomes. Burns (2007, p.161) describes the triangulation of data to be the investigation of various types of enquiry with patterns identified from multiple sources and their resonance tested helping to identify priorities and

generate quality actions based on reliable knowledge. Data is therefore gathered from and produced by multiple, often originally unanticipated sources throughout the research process. This helps to provide greater insight into a system than one method alone. Triangulation of quantitative and qualitative data can also help to ensure more robust results and collaboration can allow findings to be shared and checked by other participants and stakeholders to assure the process and validate outcomes (Koshy, 2010). By making this information available for wider testing, Coughlan and Coughlan (2002) argue that issues of personal bias are addressed and greater understanding about both the topic and how conclusions were reached is provided.

Cohen et al (2011) recommend that triangulation of methods is used to better represent the complexity of social systems and also provides another, less direct, benefit by countering the tradition of choosing certain positivist or interpretive methodologies based on either their familiarity to the researcher or their perceived superiority over other methods. Additionally, triangulation is not confined to the collection of data. Researchers can use multiple theories, investigators, methodologies or forms of analysis as well to either validate results or provide a deeper understanding of the phenomena being investigated. While triangulation of methods in research also allows investigation into the advantages provided by using such methods and mixing both qualitative and quantitative data in research, Biesta (Arthur et al, 2002) warns that mixed designs can also prove to be more challenging unless the research and the resources available are considered carefully.

To help achieve the aims listed in the previous section, more specific questions were asked. By defining operational research questions, answers are provided which add to the existing body of knowledge (Cohen et al, 2011). Yin (2012, p. 12) refers to this as a 'case study protocol', questions that are aimed at the researcher rather than the study's participants and provide a framework for the direction of enquiry. The questions below break the research aims down into different components in order to facilitate understanding of the relationships between organisational factors.

- What are the issues being faced by staff in providing advising to undergraduate students?
- What changes can be made to improve this service?
- How is the effectiveness of changes to the advising system evaluated?
- What are the current systems supporting the provision of academic advising and how have they been developed?
- In what ways are these systems integrated and where are the dependencies?
- What are the structures involved in supporting these systems and how do they make decisions and communicate?

In order to obtain the data required to answer these questions it was necessary to use a wide range of data sources for evaluation. While a large number of sources can provide a comprehensive picture of an organisation, it is also necessary to apply a systematic approach to data collection (Soy, 1997). This includes planning the data collection phase of the study and careful organisation so as not to become overwhelmed by the sheer volume of available data. However this is not to say the data collection or analysis stages follow a purely linear course; in this study, as new knowledge emerged from different sources, that then went on to inform the ways in which further documents or lines of enquiry were identified and investigated. In the following sub-sections, I will detail the methods I employed as well as the methods which were deemed to be unsuitable for this study and the reasons for this.

Documentary Sources

The documentary data selected for use in this study was obtained from resources which are available to staff in the university, either as internal or public communications. The data was chosen based on its suitability for helping to build an understanding of the context within which academic advisers are carrying out their role. Atkinson and Coffey (2004) assert that documentation should be viewed as a source of data rather than simply a means to cross-check results produced by

other methods and that documents are crucial for both the effective function of organisations and society as a whole. They argue that analysis of documentation needs to go beyond what it is written to providing an understanding of how documents are produced and consumed, as well as how different documents relate to one another. Fitzgerald (2007) states that documents produced by educational institutions can provide researchers with primary source data about the organisation and how it views itself. However they also provide the opportunity to try to understand what is not made explicit and in order to do that, several questions must be asked of the documents under analysis. These include determining the author as well as when and why the document was written. Questions must also be asked about the intended audience of the document and identification of key contents, omissions or comparative sources in order to establish validity. Soy (1997) asserts that skilled case study researchers use documents both as a source of facts and to identify further lines of enquiry and methods of investigation as the need arises. By combining evidence produced via documentation and other, more collaborative methods, researchers gain a deeper comprehension of the social element of the questions they are asking.

The documents selected for use in this study fall into two broad categories: those which represent the university's espoused theory and the tight-coupling of strategic and leadership decisions and those which depict the theory-in-use employed by stakeholders in the institution. Official documents produced by the university represent the formal learning of the organisation as they have been produced by the academic and management decision-making structures within the university. The study also includes documents from a variety of staff and student sources and this provides a counterbalance to the top-down message of senior management. Feedback was gathered from newspaper articles, staff surveys and quality assurance exercises and this provides a narrative of the experience of staff and their attitudes towards the changes which occurred within the university.

The analysis of both organisational documentation and documented feedback is important. It is through the organisational communication to staff that their understanding of the university's vision and values is formed and they are able to

contextualise their own role in relation to the wider organisation. Often there is a conflict between the central message transmitted by an organisation through documentation and the experience of groups and individuals responsible for producing results. This discrepancy can be partly attributed to the way in which documents produced by organisations create the reality they represent (Atkinson and Coffey, 2004). It is only by exposing the contradictions between the espoused theory of the university and the theory-in-use employed by its stakeholders that a deeper understanding of the dynamics within the organisation can be reached. This underlines the close relationship between data and theory and the benefits to be gained from trying to understand emergent knowledge (Eisenhardt, 1989, p. 541). The documents which were selected were chosen because they provided evidence of events as they occurred and also revealed the tensions between the university's strategy and its operations.

The documents I selected for use do not only provide a source of historical data. They also help to develop an understanding of how organisational knowledge is transmitted across the university and the structures which support decision-making. Cortazzi (2002) asserts that documents do not only report events as they occurred, but go on to shape further events once they are in use as they inform future actions. Furthermore, while minutes of a meeting may be approved as an accurate record of events, they cannot reflect the entirety of the discussion and tend not to express all the views and disputes which took place during the course of the meeting, allowing the chair and minute-taker to influence how reality is reflected. Therefore any research which involves the study and analysis of documents must also be aware of the inherent bias of communications which are produced to support the efforts of the groups producing them. The documentary feedback must also be considered within certain constraints as it reflects a highly-generalised picture of a complex situation and does not allow for deeper understanding of the precise reasons for any dissatisfaction. Nonetheless documentary evidence remains an importance source of information about organisations and how they function, with the bias itself providing an important understanding of the social aspect to knowledge creation and dissemination.

The combination of documents includes both qualitative and quantitative data. Yin (2012, p. 19) argues that this flexibility demonstrates that case study methodology is not limited in its scope or method. The staff survey data used in this study is an important source of secondary, statistical results that can be used to identify discrepancies between the strategic focus and the experience of staff. However, while survey responses are a useful tool in identifying broad trends and patterns, their questions reflect the interests and priorities of those conducting the survey and deeper analysis is required to identify the core concerns of staff. Additionally, the staff survey results provide a picture of the situation across the university, but do not allow a view of how differences across the institution might lead to varied problems and priorities for different groups. This again can lead to further organisational problems as inappropriate responses may be employed to address concerns raised. If the source of a problem is not adequately understood, single-loop solutions are applied and a cycle of problem-solving and problem-creation is enacted (Argyris and Schön, 1978). Therefore it is not only advised that case study research employs a variety of methods, tools, data types and sources; it can be seen to be necessary when attempting to provide an academic analysis of phenomena as well as results which are of use to the organisation.

The documents used in this study were identified in several ways. Dey (2004, p. 16) argues that data is not collected but created by the researcher. It is through their experience as well as the theoretical and methodological approaches applied that topics for examination are selected and their meaning is communicated by the categories and structures used in the data analysis. In my professional role I was required to attend and participate in various committees and operational groups, including the committee charged with overseeing academic advising in the university. These meetings were comprised of representatives from across the university who held responsibility for the delivery of academic services and quality standards. The committee structure denotes the management hierarchy of the institution and the decision-making processes introduced to deliver strategic goals. The broad scope of the responsibilities of those involved in the various groups provided rich data in relation to the operation of the university and policy

decisions. My professional experience gave me an awareness of the various management groups and their relationships to one another and this knowledge allowed me to identify varied documentary sources including papers relating to university strategy, mission and leadership. These provided a useful source of contextual data in evidencing events as they occurred and the reasons for certain decisions and situations. My insider status on the system implementation also gave me an awareness of the various sources of feedback available for analysis, including staff surveys, quality assurance reports and newspaper articles. University reports were also gathered and analysed to identify areas where the institution itself had determined a conflict between their strategic policies and the experience of stakeholders. These documents included 'lessons learned' reports prepared following the implementation of the new SRS and the problems experienced as a result, a benefits realisation exercise and the output from a working group charged with reviewing and recommending changes to the undergraduate advising system.

As new data was identified through the collection and examination of documents, additional sources also became apparent, leading to a snowballing effect of gathering additional data. My membership of different committees gave me visibility of various working groups and their remits via the papers they produced and a search for certain terms, such as the name of the SRS, on either the university website or Google would produce further documentation related to the topic. Similarly, articles in the student newspaper would be flanked by other related articles, which would then provide additional avenues of enquiry and data. All of the documents selected for use were available to staff online, either via the internet or staff intranet and the combination of organisational documentation as well as feedback provides an illustration both of the message that the university wishes to communicate, as well as the message sent back to them by stakeholders.

Case study research involves the combination of observation, documentary sources and discussion (Yin, 2012, p. 10). While the documentary evidence provided an important seam of data, the reliance on a single source does not ensure valid results. Also, while care was taken when selecting the documents for

use to ensure they represented a range of perspectives and groups within the institution, they were nonetheless sourced using my own insider knowledge of the organisation. It was critical to ensure a wide range of documents were selected in order to reduce any personal bias and the documentary evidence was complemented, supplemented and validated by in-depth discussion with advising staff during the course of three focus groups. Dawson (1997, p.16) advises that a mixed methods approach allows the validation of data by providing a method by which conclusions and assumptions can be checked and cross-checked across multiple lines of investigation. In doing so the process of change is charted and described and the results produced may be held up for further scrutiny within the wider context of enquiry into organisational learning. The focus group feedback related to the process of advising within the context of the SRS and associated systems provides data which was both collaboratively produced and grounded in the experience and observations of those directly involved in academic advising. As such, data is produced which can be used to either confirm or disconfirm conclusions drawn from any biased appraisal of the documentation. Several alternative methods for gathering feedback about advising were considered, however the focus group method was determined to provide the best source of processual knowledge (Dawson, 1997). The reasons for this decision and the process involved in organising the focus groups is further described below.

Focus Groups

Within the university there are several broad disciplinary groupings, with each group taking responsibility for the academic advising of students pursuing the degree qualifications that they offer. Teams of advising staff, drawn from both the academic and administrative resources of the university, provide help and guidance to students on a vast range of problems and queries. These issues are often not only related to academic progression, but can involve complex personal, financial and medical issues. Each team is led by a head of advising, who is responsible for the undergraduate advising activity on their programme. While they do not have any line management authority over staff providing academic advising services, they are responsible for training and supporting advising staff

and for ensuring all students are allocated a suitable adviser. There are fourteen undergraduate advising heads in the university, all of whom are members of the university advising committee. There is currently no equivalent structure or committee for advising taught postgraduate students. Due to their involvement in the undergraduate academic advising process and their direct and indirect experience of the issues encountered in the provision of this service by both staff and students, the advising heads were identified as possessing expert knowledge on a range of issues important to this research, including the impact of system change on advising, the experience of advisers and the relationships between their role and other aspects of the organisation.

To allow deeper analysis of the experience of advising staff and to also enable the collaborative working required to build an understanding of how organisational knowledge is produced and managed, focus groups were used to gather feedback and data. The practical purpose of the groups was to discuss problems and concerns, agree actions and review the results. The focus groups were also employed as a method by which the organisational learning of the university could be better understood, as valuable qualitative data was provided and this proved to be important both in terms of helping to identify organisational learning issues and resolve practical challenges which were affecting both staff and students. By allowing participants with shared characteristics to engage in moderated discussion, without their views being unduly influenced by either an interviewer or leading questions, the shared identity of the focus group attendees becomes important in terms of the research focus (Krueger and Casey, 2000). The strength of focus groups is that they allow both group discussion about specific topics and an examination of the dynamics within the group and additional data in regard to the relationships between the participants (Litosseliti, 2003). Through in-depth discussion of how different advising groups performed tasks together and with others, the networks and relationships within the institution become clearer and the sources of problems are more easily identified.

Focus groups are a useful tool for researchers who wish to understand complex ideas and they offer the opportunity for thorough investigation into problems

which may be hard to achieve using methods such as structured interviews or questionnaires. The primary objective of a focus group is to gather data with the interactions between participants and the researcher's actions in defining the topics and generating discussion being critical to the process. This makes them the ideal tool for generating participatory action and collaboration (Morgan, 1996). Both surveys and interviews were considered in the formulation of my research design, however the data revealed through the interactions of focus group participants was considered key to developing a holistic view of the situation in order to understand the ways in which knowledge is processed and managed and identifying the reasons for differences across the university (Kitzinger, 1994). While a survey of adviser views and attitudes would have provided a wider sample of data, it would not have offered the same insight into the ways in which structures and culture impact upon organisational learning. The composition of the focus groups and the concerns expressed by different advising heads exposed significant differences in ways of working and supporting academic advising. Similarly, individual interviews with key staff would have also offered another rich source of data, however it would be more difficult to contextualise the views expressed consecutively by individuals within the knowledge and experience of others. Through discussion and the collaborative development of ideas, focus groups facilitate the collection of data related to participation and group action, rather than the mere transmission of information between individuals.

But while focus groups contribute valuable data related to complex subjects, the purpose and structure of the group is critical to ensure its value. Argyris (1994) wrote of the propensity for corporate leaders to use tools such as focus groups and questionnaires to gather feedback from employees and then act upon it, applying single-loop solutions to difficult issues. Arguing that this process absolves both management and employees from taking real responsibility, he concludes that commonly-used feedback methods such as focus groups inhibit organisational learning as they do not promote self-awareness and are aimed at building consensus rather than questioning inconsistencies and conflicts. As a result, innovation is stifled and organisations remain ill-equipped for change in a rapidly

evolving environment. However Argyris' criticism in this regard is focussed on top-down management exercises that are aimed at solving immediate problems, rather dealing with the fundamental concerns for the organisation. In contrast, this research is aimed at developing a deeper understanding of issues from a bottom-up perspective and building an enhanced comprehension of what tasks and processes at the micro-level can tell us about the strategic policy decisions being made on a wider scale. While the documents I retrieved and investigated provided a large quantity of data related to the research topic, it skims the surface of the events and changes observed over the course of the study. Documents alone are unable to reveal the level of detail required for a robust insight into the subject. Additionally, there were at that time no groups dedicated to looking at how best the student records system could be used and developed to meet the needs of advising staff, so the facilitation of dialogue dedicated to that purpose was important both in terms of building constructive communication across the university and also in developing a shared sense of responsibility for advising processes. The tasks required for academic advising and their dependencies can be challenging to communicate to those who are not involved in the process, as the knowledge underpinning them is often tacit and based on direct experience. Therefore managers may not fully understand the issues faced by advising staff or may attribute them to the complexity of the process or the system, rather than attempt to address the factors which inhibit knowledge-sharing and learning. By gathering together individuals who have shared a common experience and who can speak freely and openly, patterns and distinctions emerge from the discussion and the relationships which exist between different elements can be mapped. While the group was not empowered to apply double-loop solutions to try to solve organisational problems, the focus groups did provide a means for reflection and questioning of strategic decisions within the context of direct experience.

The planning and organising of the focus groups took several months and required several layers of approval. Permission to undertake the research was sought and received from senior management, the chair of the undergraduate advising committee and my own line-manager. The ethics committee concerned with my academic studies approved my ethics application which was requested and

submitted due to the research's involvement from human subjects. The advising heads who were in post at the time the focus group research was being conducted were invited to take part in the study by email. The list of advising heads was obtained from the university's website, along with their contact email addresses. Details of the ethics approval process are attached in Appendix E. Further discussion related to the ethical concerns associated with this research is provided later in this chapter.

The initial focus groups were split up based on the numbers who had agreed to take part and their availability and were held prior to the 2014-15 registration and enrolment period. Eight heads of undergraduate advising agreed to take part and two initial groups were planned according to their availability, with one of three and one of five. While these numbers may seem low in regard to the provision of a representative sample, the reason for their selection was their expert knowledge and their responsibility for advising provision and management within the university. Fern (1982) suggests that the size of the focus group is important when attempting to generate ideas and that a group size of four to eight is recommended for this purpose, however he writes that size might not be a critical factor when investigating participants' experience. In his 1983 article on the contradictions he has found between hypotheses on focus groups size and the evidence he has observed, Fern (1982) highlights the assumption that is made about ideal group size and writes that the size of the group does not influence the value of the discussion. Morgan (1996, p. 146) agrees that smaller groups provide more time for participants to discuss their own experiences within the context of the topic being discussed. Given my interest in developing a better understanding of issues than I had been able to achieve within the scope of my professional practice, as well as the increased access to the advising heads and their time made available via the focus group sessions, I determined that system and process improvements could be achieved through discussions with the participants who had agreed to take part and important research data could be gathered. This data was made available to all non-participant advising committee members and other operational groups throughout the process to ensure that any additional issues or

differences in opinion would also be captured and recorded according to standard university procedures.

A pilot study was considered when preparing the focus groups. Pilot studies provide a means by which researchers can check the meaning and effectiveness of their questions in relation to the quality of data and also assess their own performance as a facilitator (Breen, 2006, p.10). There are other benefits to conducting pilot studies as they allow researchers to test the design, approach and feasibility of the study as well as gather support from stakeholders (van Teijlingen and Hundley, 2001). However, given the focus of this study on the identification of issues within advising and the actions required to resolve them, it was not possible to have a 'dry-run' at gathering the focus group data. Data gathered during the course of the pilot would likely indicate practical problems being experienced by staff and my professional role would require me to act upon that information and attempt to address the problems prior to even undertaking the formal focus groups. Additionally, my access to the advising heads was very limited due to the multiplicity of roles and responsibilities they assume as academics and the time constraints this places upon them. Therefore I was not in a position to ask that they attend any more meetings than required to gather data related to their experiences of change. Breen (2006, p. 10) writes that in situations where the sample population is small or there are limits upon access, researchers may compensate for the lack of pilot study by ensuring that participants understand the questions being asked of them and have the opportunity to gain any clarification they need. As such, when inviting the advising heads to participate, I sent the questions in advance and scheduled three hours for each meeting to ensure that participants had ample time to ask any questions and explore each topic in detail. The third focus group was also used as a method for checking understanding as the actions from the previous two groups were reviewed and participants' views of the results of any changes were discussed.

Focus Group A took place with two participants and Focus Group B with four participants. Despite the low numbers involved in each focus group, the attendees provided important data in terms of the issues experienced both by themselves

and by advisers and students. The discussions also shed additional light as to why those experiences may differ across the university and the composition of the groups provided data with regard to how the different areas tend to communicate and share knowledge. While Focus Group A involved participants from more structured, professional degree areas where there is very little cross-disciplinary study permitted, Focus Group B involved advising staff from subjects where students can choose across a range of disciplines and departments and whose advising provision has direct and immediate dependency on the work carried out by groups other than their own. These dependencies lead to some distinctions in the problems being experienced and highlighted differences between departments in terms of working practices, system and process understanding and culture.

For the initial focus group meetings Focus Group A and Focus Group B, the following topics were explored:

- The main challenges facing advisers during the registration and enrolment period
- The impact on advisers
- Potential solutions and whether they involve changing:
 - Student Records System
 - Business processes
 - Knowledge Transfer (communications/training/expert users)
 - University policy
 - University structures (staffing/resources/etc)
- Immediate priorities and medium to long-term goals?

These questions were asked to help to answer the operational research questions listed earlier. They relate directly to the processual issues being faced by staff and the changes required to solve them effectively, generating knowledge which explains why the problems identified in the operationalisation of organisational strategic aims are occurring and helping to make sense of change (Dawson, 2014).

This is done by drawing out the reasons for the problems identified in the documentary evidence and placing those problems within the context of process and experience. The focus group topics also facilitate understanding of where problems are located within the organisation. The processes involved in enacting the actions discussed and agreed provide additional data in relation to the systems and structures supporting advising and their relationships to one another. The collective prioritisation of actions was informed both by the urgency and scale of the problem identified as well as by the degree of complexity involved in providing an effective solution.

The meetings were recorded and the notes were written up, with a summary of the issues discussed, actions taken and timescales agreed circulated to all attendees for comment. A report summarising the actions taken was also submitted to the undergraduate advising committee to give them visibility of the topics discussed and actions proposed. Members of these groups were also asked to provide any additional information or raise any further issues which might not have been covered to provide additional validation for the data generated by the focus groups. System changes which were required as the result of the focus group discussions - and approved by management - were designed and built by the team supporting the SRS and were tested at various stages throughout the process. Once system tests were completed the change would be migrated into the live system and made available for use, with advisers and other relevant staff being informed of the changes and feedback channels. The efficacy of the changes was discussed at Focus Group C, which was held in the following academic session, allowing time for changes to be introduced and assessed.

The themes identified during the initial focus groups helped to inform the content of Focus Group C, with a discussion of the main advising processes and a discussion relating to the relationships between each of these processes. The eight heads of advising who had originally agreed to take part in the research were invited to this follow-up meeting. The aim of this meeting was to move the discussion on from the shared experience of advisers to the development of a shared understanding of the overall system and the dependencies within it. It was hoped

that a wider contextual understanding of the SRS and its processes would improve the experience for users and help to combat the evident feelings of mistrust and doubt it instilled. Although only three advising heads attended Focus Group C, this meeting still provided the opportunity to discuss the actions taken as a result of the previous focus groups and to share understanding of the system dependencies with regard to the process of advising provision. The participants represented three of the four general degree areas and the areas where greatest cross-departmental working and collaboration was required.

Despite the limited size of the focus groups, a large amount of detailed data was gathered which had to be recorded, categorised and analysed. The data is provided in Appendix C. Process themes were identified and meaning was derived from the patterns and relationships that emerged. In the next section I will explain the ways in which the data gathered was interpreted using the Burke-Litwin model (Burke and Litwin, 1992) and the form in which the discussion and results are presented.

Data Analysis

In this section I intend to describe how the data gathered from the documentation and the focus groups was interpreted within the selected framework and the analysis upon which the conclusions of this thesis are based. The reasons for the selection of the Burke-Litwin Causal Model of Organizational Performance and Change (Burke and Litwin, 1992) as the tool for analysis have been detailed in the previous chapter.

The selection of the model involved consideration of various frameworks related to change and knowledge management, including those discussed previously. An additional model considered for use was the Knowledge Lifecycle (Firestone and McElroy, 2005), a model based on the Three-Tier Framework (Figure 1) referred to in Chapter Two. Although this model provides a tool by which processual data

can be gathered and analysed to develop an understanding of the ways in which investigation of business processes can help to enhance knowledge processing, it does not provide the same level of detail as the Burke-Litwin model in relation to different parts of the organisation and their relationships. As the research process continued, I realised that was a critical aspect of the study and therefore selected the Burke-Litwin model on the basis that it allows researchers to account for a comprehensive range of factors within an organisation and this is critical to processual research (Dawson, 2014).

Over 100 documents were identified and investigated with a final total of 41 being selected for analysis in this research. The documents were selected based on their representation of a narrative of the change events as they occurred in the university, the impact of those changes and the resulting mood of staff. The 'manifest content' of the documents was analysed and clear meaning was discerned from the text to provide an understanding of the aspects of the university which are visible to all staff (Graneheim and Lundman, 2004, p. 106). The explicit message being communicated to and by stakeholders represents the espoused vision of the organisation and the feedback provided in response provides insight into the organisation's theory-in-use (Argyris and Schön, 1978). Data contained within the documents which helped to answer my research questions was identified and this was summarised and numbered with a Document Reference (Doc Ref) along with information about the document; owner, title, year of publication and intended audience. The online links to the documents were also recorded to enable easier access to the documents at a later date and the date of last access was noted. This data was then analysed according to the factors within the Burke-Litwin model. This exercise helped to identify the relationships between the different factors by providing practical evidence of the dependencies which exist within the university and the challenges it faces in facilitating the effective working of all areas. Categorisation of data allows researchers to make sense of the evidence by allowing the identification key themes (Fitzgerald, 2007) and the use of the Burke-Litwin framework provides a basis upon which the patterns can be identified and relationships between the themes can be investigated.

The inter-related nature of organisational factors was further underscored by the fact that some of the data identified fell into more than one of the categories and this in itself provided additional validation for the model and its description of organisational relationships. The taxonomy of documentary data within the Burke-Litwin framework also demonstrates where organisational documentation is lacking or inaccessible, which flags up issues related to obscurity. It is the detection and correction of these gaps in knowledge, as well as enhancements made to the organisation's ability to identify where knowledge is lacking which results in organisational learning (Argyris and Schön, 1978). Therefore collaborative working with stakeholders was also required to allow further issues and data to be surfaced and to help ensure that the issues being addressed in the course of the practical project were of relevance to staff involved in advising undergraduate students.

The key points from the focus group discussions were categorised under advising process themes and summarised notes were provided to participants for follow-up communication and to other groups for further validation of the data. The themes were selected to help aid understanding and present the data in a way which was ordered and was of meaning to other staff, including those who were not directly involved in advising. This exercise was completed shortly after the focus groups to help ensure the discussions were still fresh in participants' memories and was carried out by listening to the recordings of the meetings to ensure all the issues and actions discussed were captured. In the same way as the data provided by the documentation could sometimes be interpreted to fall under a number of organisational factors, the problems and solutions offered for discussion by the advising heads could often be categorised within several process areas, demonstrating the complexity of the issues being addressed and also the intricate dependencies and complexities inherent in the system. Additionally the actions agreed by the groups could be seen in many cases to be an attempt to address various issues, therefore it was not always possible to draw a one-to-one connection between problems and actions. Once all the focus group data was gathered, it was placed within the system process areas depicted in Figure 1 to

help define patterns and relationships between processual data before being placed within the context of the wider university.

Focus group analysis should pay attention to the key themes, relevant comments and unforeseen findings (Breen, 2006, p. 472). The recordings of the focus groups were listened to several further times in order to identify the themes in relation to the organisational factors contained within the Burke-Litwin framework and to gather evidence to support key arguments. While the actions and outcomes from the groups were categorised according to advising process areas to facilitate an understanding of the processual knowledge generated by the groups, the broader aspects of the discussions and the sources of problems were analysed according to the wider organisational factors. By mapping the problems being faced by advisers and students and the agreed solutions within the Burke-Litwin framework, a more complete picture of organisational dependencies is created and the impact of transformational change can be better understood. This process of analysis demonstrated the consequences of the strategic decisions taken by leadership as evidenced in the documentation and the ways in which individuals and groups react and respond to major change.

While the manifest content of what was said was used to determine the problems being experienced, the identification of their source often relied on an interpretation of the latent content provided, a process common to *thematic content analysis* (Joffe and Yardley, 2003, p. 57). Braun and Clarke (2006, p. 5) highlight the flexibility of this technique as it can be applied across a range of research domains and provides an effective means of communicating complex ideas. The identification of process themes in the focus group feedback and their subsequent categorisation into the twelve Burke-Litwin elements followed a process of thematic content analysis. These themes were also tracked back to the documentary analysis in order to contextualise the issues discussed within the wider organisation. The analysis can be seen to be theoretical, rather than inductive, as the application of the Burke-Litwin framework places the data into pre-identified themes. The analysis and results produced are therefore focussed upon the data which is relevant to the explicit organisational factors and their

relationships, rather than on providing a detailed description of the full data set and emerging themes (Braun and Clarke, 2006, p. 12). While this is helpful in case study research, as it provides a means by which different situations can be compared by analysing different sets of data within the same framework, it can also limit the direction of enquiry and results in boundaries being set by the model's themes. Researchers must therefore be fully aware of this aspect of theoretical analysis and explicit about its limitations.

The following chapter, Chapter Five, presents the data analysis and discussion related to the documentary evidence gathered and placed within the twelve organisational factors highlighted by the Burke-Litwin model. The documents and their contents have also been mapped to the model itself to provide a visual representation of the ways in which the documents and the changes they reflect are connected. This in itself provides a picture of the university and its supporting structures. Chapter Six concerns the themes identified in the focus group data and is again laid out according to the organisational factors under examination. Topics discussed and actions taken are situated within the framework, again to demonstrate the inter-related nature of the processes involved in advising and the wider university. Quotes from the documentation and the focus groups are provided within the discussion to underline or illustrate key points. References to source documents are represented in the text with a 'Doc Ref' indicator and in the case of the focus group data, references to specific issues or actions are highlighted with a 'FG Ref'; in both cases the reference codes refer to the data presented in Appendices A and C.

While the intent of this study is to build a deeper understanding of how knowledge is created and how it can be better managed to help those within the university deal with constant and dynamic change, the research is limited in its scope in order to be able to set clear boundaries and help ensure valid data. However some of the limitations related to this research resulted from factors outside of my own control and these are described below in the following section. The politics and constraints placed upon the study are described, along with the ethical considerations taken into account by the research design.

Ethics, Politics, Constraints and Limitations

As an employee of the university and a member of the team responsible for delivering the student records system (SRS) there were various issues related to bias which had to be addressed in the course of the study. This involved careful consideration of my research focus and the potential challenges inherent in participant research. As mentioned above, data sources were triangulated in order to ensure the validity of any conclusions drawn and the limitations of the research and the reasons for those constraints were identified in order to place the analysis, discussion and results within a defined boundary, as is required by the case study methodology (Nelson, 2003). Additionally, the ethical factors related to the research had to be considered and the political issues resulting from my role within the organisation had to be managed.

The issue of ethics is one with which all researchers must contend. Yin (2013, p. 76) describes the minimum ethical standards expected of scholarship and these include honesty, integrity and a clarity with regard to the scope and design of any research. Additionally, research which involves the participation of human subjects requires informed consent, the assurance of confidentiality and equitable treatment and the prevention of harm (Yin, 2013, p.78). Bassey (1999, p. 73) describes the three guiding principles of ethics in research to be a 'respect for democracy, respect for truth and respect for persons'. These qualities were assured during the course of this research by the ethics approval process I followed when designing my research methods. Ethics approval was granted following confirmation that the purpose and composition of the focus groups had been considered, along with the demands being placed on staff time and resources. Invitees were provided with a plain language statement which outlined the purpose of the study and the reasons for their selection. The content of this form is provided in Appendix E. This was accompanied by a consent form which informed invitees that their participation was completely voluntary and that the focus group attendees would not be named in the research output. Additionally they were informed that the data provided by them would be stored securely and

not made available to others and this was carried out using password-protected electronic storage. As previously mentioned, they were sent the focus group topics in advance in order to provide them with a full understanding of the purpose of the discussion and adequate time to withdraw from the focus groups if they wished.

Issues related to bias were addressed through the research design with data cross-checked and validated across a number of sources and university groups. Any bias resulting from my role within the organisation or within the documents analysed was validated against the discussions with the advising heads in the focus groups. Concerns raised and actions proposed in the focus groups were communicated to the undergraduate advising committee and other operational groups who were involved in the delivery of advising and related services to students. These groups were also asked to feed back any additional data or provide any disconfirming information which could be reviewed and analysed within the context of the research. By describing the experiences of others and seeking the validation of those experiences by the wider university, this case study can be seen to have been undertaken from a perspective which seeks to minimise personal bias and provides a narrative of events as they were experienced collectively.

However, despite attempts to eliminate any degree of partiality from the collection and analysis of data, there are limitations on how effectively this can be achieved. Brannick and Coghlan (2007) refer to the challenges faced by researchers in carrying out research into their own organisation, both in terms of the role and value conflict they face and the organisational politics, especially if they intend to continue working within the organisation (Coghlan, 2001). By studying a process in which I am involved as part of my day-to-day role, there is also a vested interest in achieving outcomes which enhance those activities as well as provide data for the purpose of the research. However my immersion in the research as a result of both my professional and academic roles results in a risk that my own perceptions and views of the situation might be subject to bias and pre-conceptions. This exposes the tensions inherent in attempting to assume dual roles and the challenges posed by being both researcher and researched

(Eden and Huxham, 1996). Therefore I was also involved in a personal process of reflection to understand whether the direction of the research resulted from my own assumptions about the problems being experienced and their causes. As a result of this reflection, the planning process for each cycle of action incorporated techniques aimed at facilitating the reframing of ideas in order to build understanding and reduce contradictions (Brannick and Coghlan, 2007). This is reflected in the third focus group, which was aimed primarily at confirming understanding of the discussions from the previous focus groups and building shared knowledge of the advising processes involved in the annual academic cycle.

The research element of this study required ongoing consultation and collaboration with my supervisors and each of the stages in the practical project required collaboration with colleagues to achieve the aims of the exercise and obtain useful data. However, while the role of observer as participant can provide researchers with access to richer data, it also places certain limitations upon the outcomes that can be achieved. Reflecting on the dynamics of insider research Brannick and Coghlan (2007) explain that insiders may already have access to the organisation as existing members, but they may not have access to the groups that are relevant to the research. This is less of a problem the higher the status the individual holds within the organisation, but increased access to different levels of the organisation as the result of management responsibility can also lead to exclusion from the informal learning (Argyris and Schön, 1978) which takes place through collaboration and the acquisition of tacit knowledge. For the purposes of this study, consideration was given to the hierarchical structures of the university and therefore the level of access available to carry out research within the organisation (Coghlan, 2001). While the advising heads provided access to tacit knowledge which would not normally be available to me, organisational politics and limited resources constrained the topics which could be explored and the way in which the research was carried out. Argyris and Schön (1989) argue that double-loop learning can only be achieved through the surfacing of conflicts and behaviours which inhibit learning, however insider researchers must be careful in their communication of conflict as they are required to work within the organisation which has permitted the research and with the colleagues they are

researching. It was therefore not possible to expose or critique all the factors which may have created bad dialectic, such as behaviour, culture or management practices and this, according to the argument proposed by Argyris and Schön (1978), prevents the organisation from learning effectively. However, while insiders may have to be cognizant of political issues which are of no consequence to the external consultant, the position of outsider prevents the researcher from having access to the informal networks which help to inform the insider's view of the organisation and their identification of the real issues impacting the organisation. This research is therefore placed within a case study approach which is influenced by AR, with an explicit understanding that such an approach can only provide one perspective on an issue. A variety of approaches are required to enable organisations to build up a more complete picture of how they produce knowledge and how they deal with change. By placing the role of this research within a framework of multiple perspectives and approaches, its value in relation to complexity theory is made explicit and a deeper understanding of complexity is enabled as it is not constrained by a single approach (Phelps and Hase, 2002).

The focus group data was also limited in that it was restricted to the views and perceptions of a sub-section of advising staff. However, the participants tended to be drawn from the subject areas most involved in inter-departmental working and were therefore more likely to be able to assist in identifying the process dependencies within the system and organisation as a whole. Their role within the organisation also resulted in them having visibility of the concerns of both advisers and students and they were therefore considered to have specific knowledge which was of value to this research.

A common criticism of both case study research and action research is the specific nature of their focus. Darke et al (1998, p. 276) delineate between case studies undertaken from a positivist approach and those with a more interpretivist perspective. While the former seeks testability and general principles, the latter is more concerned with the social contexts in which phenomena occur. The purpose of this project is not to provide results which can themselves be replicated exactly as the circumstances and relationships involved are unique to

the university studied. The research project focus is therefore on how business processes create knowledge about knowledge creation, rather than centred on the specific outputs resulting from the practical actions. However the outcomes which result from the agreed change actions remain an important aspect of both the practical and research projects, as their validity impacts upon the ability of individuals and groups to carry out business processing and produce knowledge. Incorrect or invalid data results in inappropriate actions being taken to correct errors and this can result in participants feeling their time has been wasted and no improvements or enhancements have been achieved. This may lead to resistance and reluctance to participate either during later cycles of the project or in any further interventions undertaken by the organisation. Nonetheless, Darke et al (1998, p. 280) highlight the suitability of case study research in the study of IT systems, particularly when there is little understanding of a situation or theory and the phenomena being investigated are of relevance and interest to other settings and people. Given the impact of the changes which occurred within the subject institution and the ubiquity of technological projects within organisations, value can be derived from this study and its description of one university's experience within the context of a transformational environment.

Summary

A case study methodology has been selected for use in this research due to its suitability for in-depth investigation of complex phenomena. By studying the experience of an organisation, further knowledge and understanding of the social nature of change can be developed and added to the existing body of scholarship. However, as a participant, I am also a subject of the research and cannot play a passive observer role, therefore my position is explicitly one of participant and requires a great deal of reflection on my own actions and decisions within the context of the study. As my practice progressed through several academic cycles, I considered the outcomes of the focus groups and worked with the focus group participants to make changes to the processes concerned in light of the new organisational knowledge gained. The case study method therefore has been influenced by action research in order to truly understand the ways in which

processes and routines impact organisational knowledge and to account for the role of my own tacit knowledge within the organisation.

The methodology selected reflects the thesis' grounding in complexity theory and the attempt to make sense of unpredictable change and instability. It is this sense-making which is at the very core of an organisation; just as organisations seek to achieve order and define relationships, so too does the process of sense-making (Weick, 1995, p. 82). By building our understanding through experience, knowledge can be gained which informs the management and direction of further change both for the institution and also our own ways of learning. A processual approach to planning, acting, reflecting and changing (Dawson, 1997) was executed in the course of this study in order to gather the data required to answer the research questions identified. The evidence collected has provided a means to identify themes and map the interactions between the different groups involved and within the context of the Burke-Litwin Change Model (Burke and Litwin, 1992). This was completed using a mixed methods approach, combining documentary evidence and focus groups to support my own practical experience and provide additional perspectives and tacit knowledge to the study. Through collaborative discussion, problems were identified and solutions were proposed and agreed and the data demonstrated a high degree of dependency between different organisational factors in relation to knowledge and performance.

The categorisation of the data within the Burke-Litwin framework provides an ordered method of analysis which identifies weaknesses in the system and helps to develop strategies to strengthen knowledge creation within the university. Contextualising data in this way and mapping the relationships enables further reflection on the theories employed in the course of the study and helps to identify any additional factors which should be taken into consideration when planning future change. The employment of the key knowledge management techniques - collaboration, categorisation and mapping - within the case study design ensures the relevance of the study within the scope of organisational learning research.

By employing a variety of data-gathering techniques, extra validity is provided to the study. While participant-observer research carries inherent risks associated with bias and political constraints, these have been addressed through triangulation of the data with various organisational groups and against other sources throughout the data gathering process. The cross-referencing of data across the organisation also helped to mitigate some of the issues related to the focus group sample size. However, given the practical concern of this study is to gain a deeper understanding of the problems being experienced by advisers and students, the discussions with a selection of advising heads provided critical insight into their experiences as well as a better understanding of why the problems were occurring. It was this expert knowledge which was of greatest relevance to the practical project in terms of providing useful system enhancements. Furthermore, the organisational processes followed to carry out the actions agreed were the same no matter the sample size and this helped to develop knowledge in relation to the decision-making structures and organisational learning occurring within the university, thereby helping to better inform the theoretical aspect of the study.

In the following chapter I will describe the documentary data collected and analysed for this study. Key changes and events which occurred in the university are identified and mapped to the Burke-Litwin framework. Their relationships are examined and discussed and the conflicts between strategic policies and the views and experiences of stakeholders are described. The tensions between the tight and loose-couplings within the university and the discrepancies between the espoused theory and theory-in-use will be surfaced and discussed in greater detail. This will be followed by the analysis and discussion of the focus group data, which will be addressed in Chapter Six.

Chapter Five - Documentary Analysis using the Burke-Litwin Causal Model of Organizational Performance and Change

Introduction

This chapter charts the changes which occurred at the university over a period of six years through an investigation of documents and key themes. Their analysis within the Burke-Litwin Causal Model of Organizational Performance and Change (Burke and Litwin, 1992) facilitates examination of organisational dependencies and the changes experienced as a result of those interactions.

The documentation studied provides an understanding of the issues which have impacted upon the operations of the institution, their relationships to one another and their background. The documents used to inform this chapter are described in Appendix A, with documents cited in the text using the Document Reference (Doc Ref) number assigned. The chapter is organised according to the Burke-Litwin framework, with a description of events as represented in the documentation studied and categorised according to each change factor within the model. This allows the dependencies between factors to be examined. The main changes and themes evidenced by the analysis are also summarised in tables at the end of each section and, in the final section, the data is placed within the model to provide a visual representation of the situation across the university. Following analysis of the data, the relationships between the factors were found to reveal tensions in relation to the strategies and processes of the university and this demonstrates the impact of the tightening of organisational structures, systems and management practices in recent years.

The transformational factors are first described, followed by an examination of the transactional elements, with each factor placed within the context of the other elements of the Burke-Litwin model. The data demonstrates the ways in which different factors relate to one another and provides support for the use of the model as a diagnostic framework for identifying problems related to change.

In this chapter I also discuss the limitations of organisational documentation as a sole source of data and the factors which require deeper investigation using the focus group discussions are identified. These topics will be addressed and discussed in Chapter Six.

Transformational Factors within the Organisation

The transformational factors defined by the Burke-Litwin Model are provided in the diagram below. Each factor is examined and the relationships between them are drawn out in the descriptions of the changes to the university and the problems which have occurred as a result.

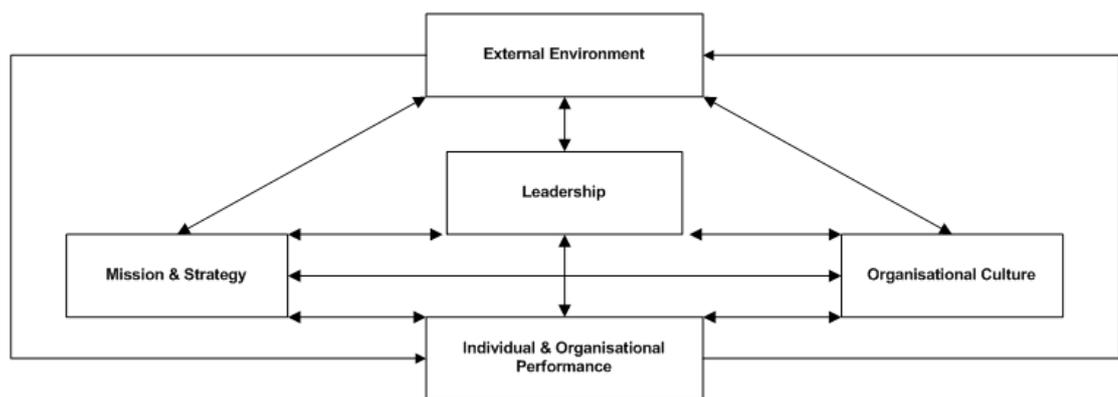


Figure 5 Transformational Factors of the Burke-Litwin Causal Model of Organizational Performance and Change (adapted from Burke and Litwin, 1992. Permission to reproduce this figure has been granted by SAGE Publications)

External Environment

In 2010 the university published a new strategy document, which starkly laid out the higher education environment in which they were operating:

We are now facing the demands of an uncertain and challenging public sector funding environment. This will place significant constraints on our income as, along with the rest of the UK higher education sector, we are subject to real-term reductions in Government funding and increased competition for resources. (Doc Ref 006)

The external environment and the changes taking place outside the university played a critical part in the events described in this chapter. Changes to government funding over the past couple of decades, as described in the quote above, and the increased influence of the market in higher education have reduced the university's reliance on the traditional undergraduate market as it set out strategies aimed at encouraging more postgraduate and international students (Doc Ref 006). This led to changes in the demography of student cohorts and developments in alternative forms of academic provision, such as interdisciplinarity, distance education and transnational education. The reduction in public funding for students and the increase in fees has also changed the student experience with many now required to take on high levels of debt in order to fund their education, which has led to a shift in applicant and student expectations with a greater focus on 'value for money'. The university has responded to these expectations by investing in specialised student support services and technology in order to better compete for and retain students as well as by reviewing its provision of academic advising. These developments arose in response to student feedback and both internal and external benchmarking exercises, as evidenced by the comment below from the working group tasked with the advising review:

The NSS (National Student Survey) results for the last three years suggest that some 1 in 4 students are dissatisfied with the level of academic support and advice at (the university).... The satisfaction level for (advising) has been below the institutional KPI of 80% for three successive years, although it has shown gradual improvement. (Doc Ref 007)

Changes to services in response to these results have been reflected in both strategy and policy, although feedback from staff and students discussed in relation to the transactional elements below suggests that difficulties have been experienced when attempting to carry out the business processes associated with supporting these changes.

In addition to the changes taking place within the student population and the impact upon universities of their changing needs, there is also now a greater focus on the research outputs of universities, with research funding providing a large amount of income for many institutions. The importance of research to the institution is demonstrated in the university's research strategy:

Partnering with both public and private organisations to realise the impact of (new) innovations for society and the economy is core to our mission.
(Doc Ref 008)

This has led to the creation of partnerships between higher education and industry to pursue research interests. However the increased expectation upon academic staff to acquire funding and undertake research in areas which will financially benefit the organisation has created tensions between the priorities for research and teaching. This represents one aspect of the multiplicity of roles which now exist within the post of the academic as a result of external pressures. Another change is represented by the increased role of technology in the provision of education and the greater reliance on staff knowledge and understanding of data management both in terms of academic output and student support. This growing focus is summed up by the following explanation issued by the office responsible for information and records management:

A record is a physical or electronic document that provides evidence of business activity. Every University staff member manages records to some extent.... The appropriate management of information is essential for

efficient administration, effective corporate governance, and compliance with external and legal requirements. (Doc Ref 009)

The employment of university rankings to indicate quality and of surveys both to acquire feedback and to use as a marketing tool demonstrates the increasing trend of assessing the performance of universities and educational outcomes in quantitative forms. The influence of these exercises can be seen in the university's response to the National Student Survey (NSS) results:

According to figures published today, 90 per cent of final year students at the University are satisfied with their course... The result is a four per cent increase on last year and sees the University buck a national trend, which saw satisfaction falling slightly. The national average score was 81 per cent... The results were welcomed by (the principal of the university). He said: "These results show that our institution is providing a first class education for students and they recognise the part our staff play in that. (Doc Ref 010)

The use of such results by the university to indicate success and establish its reputation shows the paradox underpinning this position; while higher education has a duty to express its value in terms other than those that can be assessed in numerical form, universities continue to perpetuate the situation by supporting and celebrating the results achieved and by formulating strategy in the pursuit of even higher results. This underlines the scale of the challenge faced by the university in attempting to communicate with stakeholders in a language other than that of the corporate world and in providing students with the skills and knowledge they require to think critically and pursue the elements of an education which cannot be easily expressed through spreadsheets, percentages or rankings. While the mission of the university is clear in its intentions to benefit culture and society as well as the economy (Doc Ref 006), it is unclear how those benefits to culture and society are currently measured, assessed or fed back into the external environment in a way that effectively articulates the advantages gained through

investment in education. There is a danger that, as the situation continues, the elements of the university which make such debates and discussions possible will be further eroded as a target-driven culture takes even stronger hold. It is therefore important that greater attention is paid to the differences between the factors which can be controlled by the university - such as the deployment of resources in the attempt to achieve certain targets - and those which they can only influence. It is also vital that steps are taken to define the latter so that they can be better understood and used. This underlines the challenge of trying to express new knowledge using old models and methods (Nonaka, 2000; Firestone and McElroy, 2003); as the external environment experiences rapid change, organisations struggle to adapt their ways of working and measuring performance. The impacts of these environmental influences are further detailed in subsequent sections, along with an analysis of their effect upon various stakeholders within the university and the organisational learning produced as a result. The table below provides a summary of the external factors discussed in this section.

External Environment
<ul style="list-style-type: none"> • Changes in student demographic • Changes in academic provision • Changes to funding models • Greater focus on research • Increased role of technology • Higher education rankings/targets

Table 1 Summary of Change Factors - External Environment (Documentary Evidence)

Mission and Strategy

The university's five year strategic plan was published a year into this study (Doc Ref 006). Produced in consultation with university staff, it sets out the strategic

direction of the institution, with the three main themes being focus, global reach and multi-disciplinarity (Doc Ref 006). This is a critical document for gaining an understanding of how the university views itself, with mission and strategy as serving two purposes; the articulation of priorities for senior management and communication of the organisation's core purpose to employees (Burke and Litwin, 1992). This represents the espoused theory of the organisation (Argyris and Schön, 1978).

The mission statement places strong focus on the university's place as a global leader in research and the benefits it brings through learning. The mission of the university is described as demonstrative of its commitment to 'undertake world leading research and to provide an intellectually stimulating learning environment that benefits culture, society and the economy' (Doc Ref 011). The institution's strategy, as demonstrated in the previous section, is also explicitly placed within the context of difficulties in relation to funding, recognising that the university is required to innovate in response to the external shift from public to private funding of education.

In addition to the overarching strategy of the university, there are also strategy statements produced in relation to the core services provided. The university's learning and teaching strategy was published the following year and sets out its aims in regards to transparency and equity in admissions policies, the enhancement of quality and academic standards and the further development of postgraduate programmes. The creation of a well-supported learning environment which prepares students for both international employment and citizenship is also a key strategic focus along with the development of links between research and teaching and learning:

The Learning and Teaching Strategy is central to the maintenance and enhancement of an intellectually stimulating learning environment that delivers a truly excellent student experience... In particular, we will explicitly recognize (sic) the importance of our strong tradition of research-

led teaching and growing culture of research interdisciplinarity in fostering investigative learning amongst our students. (Doc Ref 012)

The university's internationalisation strategy aims to develop staff diversity, stakeholder engagement and a strong performance in university rankings. It too places strong focus on research activities:

In order to compete successfully we must attract the most talented researchers and associated funding from a range of sources to continue to grow our capacity and capability to undertake world class research. (Doc Ref 013)

These aims are echoed in the research strategy (Doc Ref 008), which also lays out intentions in relation to international research performance and the ability to attract top researchers:

... our commitment to delivering a high standard student experience for Graduate Researchers... runs throughout the four strategic themes of: Research Environment; International Excellence; Interdisciplinary Research; and Knowledge Exchange. (Doc Ref 011)

These strategic documents demonstrate the influence of external factors. The requirement to prepare students to be able to function effectively within the sphere of both local and global societies provides an example of the paradox at the heart of the globalised society and the challenge it creates for education. The focus on international partnerships as well as local engagement demonstrates the importance of a vast range of stakeholders and the balance which needs to be made between becoming an internationally respected institution while still serving the needs of the domestic market and local community. The aim to become a leading postgraduate university and the increased focus on research and inter-disciplinarity provides an example of the shift away from the traditional

dependency on an undergraduate student population, while the commitments made in relation to student support and transparency is an acknowledgement of the student as a consumer who has an expectation of value for money. Additionally, such strategic claims are also aimed at responding to wider societal criticism of higher education and aim to demonstrate the role of the university in providing a worthwhile service while in receipt of public and private funding.

These strategies have a direct impact upon the transactional factors in the model. The provision of enhanced student services and more effective administration has required the adoption of new systems and policies. The structure of the university has been re-shaped to reflect the differing requirements of teaching and research; domestic and international; undergraduate and postgraduate. The shift in the student demographic has necessitated the provision of different sorts of services and levels of ongoing support, leading to changes in the tasks and skills required to support students and also in the practices required to manage these changes. As a result there has been significant diversification from the traditional culture of the university as it has transformed itself from an institution primarily serving the needs of the local area to one which is competing on a global scale. Not only has that led to changes in the types of students attending the institution, but also changes in the types of staff required to support their needs, with greater numbers of specialist services provided. The rationale for the establishment of centralised student services is provided below:

(The creation of the) Student Services Division... has facilitated a more strategic and holistic approach to the delivery of student support, with an increased understanding of, and focus on, the benefits of increased cross-service working, including ease of access for students. (Doc Ref 011).

A summary of the key themes related to mission and strategy is provided in the table below. The changes brought about as a result will be further detailed in subsequent sections to demonstrate precisely how organisational factors have

been influenced by the external environment via the development of the university's mission and strategy.

Mission and Strategy
<ul style="list-style-type: none"> • Research • Global leadership • Commitment to learning • Social, cultural and economic benefits

Table 2 Summary of Change Factors - Mission and Strategy (Documentary Evidence)

Leadership

Burke and Litwin (1992) write that leadership not only provides overall direction to an organisation, but also plays a significant role in influencing the behaviour of employees, both by example and also by shaping their perceptions of the style of leadership. The appointment of a new Principal/Vice-Chancellor a year into this study resulted in various significant changes. The chair of the university's selection committee underlined the impact of the external environment and the importance of the university's leadership and strategy in order to achieve the aim of enhancing its position in global reach and reputation, announcing that the new appointment brought 'exceptional strategic leadership and understanding of the issues facing universities at this time' (Doc Ref 014).

In the university strategy document cited previously, the espoused vision of the university focuses on enhancing the university's 'position as one of the world's great, broad based, research intensive universities' (Doc Ref 006). Burke (2014) is careful to differentiate between the mission and vision of an organisation, with the former being related to the purpose of the organisation and the latter being

more concerned with the organisation's aspiration for the future. While the university's vision represents the institution's ambitions for the future, it also sends a message that the university already views itself to be in a strong position with regard to global reputation.

Further leadership is provided through a council structure which is enshrined in law by the Universities (Scotland) Act 1966 and split into Court and Senate. Court is comprised of staff and students, as well as external 'lay members' and is responsible for strategy, resource allocation, staff welfare and oversight of the university's performance. The remit is provided below:

The Court has ultimate responsibility for the deployment of resources in the University and for the strategic plans of the institution. It also has a monitoring role in relation to the overall performance of the University, and it holds the Principal accountable for the effective and efficient management of the University. It is responsible for the well-being of staff. With the Senate, it is responsible for the well-being of students and for the reputation of the University. (Doc Ref 015).

Senate is a body comprised of senior academics, student representatives and various ex-officio members from across the university and provides oversight to the various academic committees involved in supporting teaching, research and student services. Its role is described as follows:

Legally and constitutionally it is responsible for the academic activity of the University - i.e., teaching and research. Senate is also responsible for student conduct. (Doc Ref 016)

The student members of Senate are elected each year, along with various other student representative posts.

A council of graduates and academic staff is represented by a committee that 'acts on behalf of (the council) in matters within its powers, including those delegated by the University Court or Senate' (Doc Ref 017). There is also a Senior Management Group (SMG) whose membership includes the Principal, Vice-Principals and senior staff, providing input into the strategic decisions made by both Court and Senate. SMG also has responsibility for the ongoing implementation of policy:

The Senior Management Group advises the Principal as chief executive officer of the University on matters of policy. It also advises Court and Senate on matters of strategic policy (academic and resource), and acts on a day-to-day basis to implement the policies of Court and Senate. (Doc Ref 018)

Academic activity within the university is carried out by academic sub-units that are split by broad discipline and are have the following responsibility:

...(responsibility) for establishing and delivering the strategic direction for their academic 'territory' within the University's stated ambition as defined in the University strategy and its supporting Research and Knowledge Transfer, Learning and Teaching, and Internationalisation strategies (Doc Ref 019).

The central services unit is composed of various services which are not directly involved in teaching and learning or research, including student support services such as registry, IT services, library and admissions. They also provide administrative support to both Court and Senate, overseeing the policy and academic standards agreed by various academic and non-academic committees across the university.

The management group and academic structure described above was introduced in response to the Principal's decision to restructure the university. The rationale provided was that the revised structure would better facilitate cross-disciplinary initiatives and help promote internationalisation, both key strategic aims (Doc Ref 026). Overseen by SMG and involving consultation with staff from throughout the university, the decision to restructure led to a change in leadership throughout the university as the members of various management groups and committees changed to represent the leadership within the new reporting structure. However decisions relating to strategy, resources, policies and systems remained under the direction of Court and Senate. The restructuring also came at the same time as a round of voluntary redundancies and departmental closures in response to budgetary issues in several areas. Court minutes report criticisms of the redundancy process, with members complaining:

... that there had been a loss of morale; that Court had not had enough information provided to it; and that the threat of industrial action should not have happened. (Doc Ref 020)

These changes to both leadership and structures inevitably impacted upon the entire university and the other organisational factors within the Burke-Litwin model (Burke and Litwin, 1992). The leadership of the university and the changes which took place are presented in the table below. The following section will look at the ways in which the culture of the university has been affected by the strategic decisions and actions taken by leadership during the course of the study.

Leadership
<ul style="list-style-type: none"> • New Principal/Vice-Chancellor • Vision to be global leader in research • Court/Senate/Council/SMG leadership structure • Student representatives • Academic committees • Changes to academic faculty and administration structures - changes to leadership

Table 3 Summary of Change Factors - Leadership (Documentary Evidence)

Organisational Culture

Burke (2014) writes that the history of an organisation is integral to its culture and can be understood by examining what Schein (2004, cited in Burke, 2014) refers to as *artefacts, espoused beliefs and values* and *basic underlying assumptions*. Artefacts are visible markers of the organisation's culture but do not provide the whole picture. The espoused beliefs and values refer to the 'espoused theory' described by Argyris and Schön (1978) and provide an understanding of what the university says it does, while actual behaviours reveal the unconscious nature of culture and allow identification of behaviours which facilitate change.

The culture of the university has been very much defined by the artefacts of its history and academic traditions. These artefacts can be seen in its buildings and the traditions of the university are visible in its operations and philosophy. However as geographical dispersal has increased between various academic units and academic knowledge has progressed, many of these historic markers have started to reflect the past priorities of the institution, rather than its future direction. The culture of tradition is also enshrined within the legal framework which defines the structure of leadership and representation of stakeholders. These groups and the committees that report to them are responsible for the overt

rules by which the university as a whole functions and their decisions are communicated through minutes of their meetings and the adoption of policies and systems in response to their actions.

The espoused theory of the university is visible in its stated values, as expressed in the staff handbook. These are defined to promote collegiality, academic expertise and diversity:

Our mission informs everything we do. But we also share a set of values - integrity, credibility, openness and success. These define the way we work. (Doc Ref 021)

In order to fulfil these values, the university made explicit commitments to internationalisation, equality and the environment. The dynamic nature of the external environment and its impact upon the other transformational factors has led to a change in the organisational culture as more specialised services have been developed to support the needs of increased student numbers and a changing staff and student demographic. This has resulted in an increase in administration and administrators which has led to a change in how both the explicit and implicit norms of the organisation are developed and followed. One such example of this is the development of centrally-supported advice on a wide range of non-academic or academic-related matters such as finance, disability support and career development. The university introduced 'shared' student services and located them centrally on campus, providing a vast range of services (Doc Ref 022).

Whereas previously these matters would often have been addressed by academic staff, the growing demand for and complexity of the services required has resulted in an increasing involvement of administrators in the decision-making processes as well as changes to the ways in which services are deployed. This has changed

the way things are done and how actions are taken, resulting in significant changes to the traditional culture of the organisation.

Another cultural adjustment has resulted from the changes in the student population. Due to the strategic focus on internationalisation and the introduction of higher fees for many students, the traditional student demographic has transformed from one which was mainly undergraduate and from the local area to a more diverse population of students from over 140 countries, studying at all academic levels (Doc Ref 023). Attempts to recruit greater numbers of students with disabilities or from more deprived backgrounds are made in the full understanding of the fact that these sectors of society have been traditionally under-represented in higher education and the university makes clear a commitment to change previous practice. These cultural changes have combined to impact upon the tasks and skills required by staff and the structures, systems and management practices required to support them.

Difficulties faced by staff in delivering institutional commitments can be seen in quality assurance exercises. During the annual quality review processes, concerns were raised, citing various difficulties, including the language proficiency of international students, space management problems, systems issues and:

...concerns that the effort involved in providing support to (taught postgraduate) students was not accurately reflected in workload models and that administrative support was stretched to the point of breaking. (Doc Ref 024)

These issues have arisen as the consequence of changes in the external environment, the resulting impact on the university's strategic aims and the increased numbers of students. Existing custom and practice is put under pressure to adapt and this in turn places pressure upon individuals within the organisation

as they are required to acquire new skills and knowledge to be able to carry out new or unfamiliar tasks. However, while quality assurance exercises provide feedback into the university's processes by reflecting on the student experience, engagement is varied and there are challenges faced in trying to encourage wider participation by staff in quality assurance processes. One way in which this is encouraged is through the provision of guidance which recognises the need for local flexibility while also suggesting ways in which better data might be gathered:

...an alternative approach, which has been found to work well is meeting based whereby staff responsible for Units of Learning meet in groupings appropriate to the local structures (school, subject, discipline etc) to collectively review provision, including collaborative provision where applicable. This method should foster greater discussion and engagement with the process and increase flexibility for Schools in how they run annual monitoring locally. (Doc Ref 025)

Attempts to improve the annual feedback process underline the difficulties in attempting to unearth hidden information and exposes the separation between what is espoused by the organisation and what is experienced by both staff and students at the transactional level. By its nature, theory-in-use (Argyris and Schön, 1978) is composed of both tacit knowledge and knowledge which is difficult to share, such as that which is stored in filing cabinets, individually stored computer files or locally-designed specialist systems. This type of knowledge is often produced by individuals and groups for their own specific purposes and processes. The university's strategic focus on streamlining systems and reducing bureaucracy resulted in changes to corporate systems and was aimed at standardising much of its business processing. This, combined with the changes to the organisational structure, impacted upon the culture within each sub-division as well as across the university as policies and processes were examined and adapted to meet the needs of the wider organisation. As the university laid out revised roles and responsibilities, they sought to 'improve administrative efficiency and support in

conjunction with implementation of the new student information system' (Doc Ref 019) and this led to challenges for groups and individuals across the university.

The history and academic tradition of the university has resulted in a loosely-coupled system with academic departments taking responsibility for defining their own systems. However recent structural and systems changes have created a more tightly-coupled organisation at the centre as well as establishing a further layer of tightness at the sub-divisional level with the mergers of multiple departments. As the process of system standardisation progressed, some of the tensions which result from loosely and tightly-coupled systems operating within the same organisation were exposed. These conflicts had a marked impact upon the transactional factors which operationalise the strategic aims and objectives of the university and its leadership. As a result, the culture of the university was severely challenged as staff found themselves making significant adjustments to the ways in which they carried out their work. Additionally the move towards the implementation of a delivered, 'off-the-shelf' software resulted in challenges in attempting to capture student data and provide centralised student services while still reflecting the culture of the institution and accommodating the differences in practices across the university. Different cultures within the institution have arisen as a result of the previous structures, systems and traditions with individual areas developing their own ways of completing tasks and their own structures to support business processing. Following restructuring and the associated centralisation and standardisation of certain processes, differences continued between academic advising, curriculum and administrative support models employed and this created difficulties for the institution in attempting to provide a single system solution which met the needs and wants of all users. This highlighted areas of divergence in practice as reflected in the university's self-evaluation for the most recent Enhancement-Led Institutional Review (ELIR):

(The process to build progression rules) highlighted in a small number of cases where practice was inconsistent with the generic regulations but, in a much higher number of cases, different administrative processes (e.g. timing of applying credits from prior learning or study abroad credits,

management of ‘equivalent courses’) with little justification. In the small number of cases, the inconsistencies were either removed or explicit exemption was granted for them. (Doc Ref 011)

The implementation of a system to meet students’ technological expectations and enhance data quality added further complexity to processes. Previously discrete tasks carried out in local systems were standardised with greater dependencies built in. This changed the ways in which people completed their tasks, leading to an increased need for support and ‘problems (which) also caused confusion and, in some cases, distress amongst the student community’ (Doc Ref 005).

The key themes identified in relation to the university’s culture are summarised in Table 4. The next section will look at the transactional elements of the model to build an understanding of the ways in which the processes and policies enacted in the pursuit of strategic aims were impacted and the effect of this had on organisational performance and learning.

Organisational Culture
<ul style="list-style-type: none"> • Historic buildings and artefacts • Educational traditions • Legal framework and committee structures • Commitments to internationalisation, equality, environment • Increased specialist services - changing staff and student demographic • Loose coupling of academic units vs more centralised management

Table 4 Summary of Change Factors - Organisational Culture (Documentary Evidence)

Transactional Factors within the Organisation

The transformational factors, as defined by the Burke-Litwin Model (Burke and Litwin, 1992) are detailed above. This section will look at the transactional factors

which influence organisational change and performance. These transactional elements are shown in the diagram below.

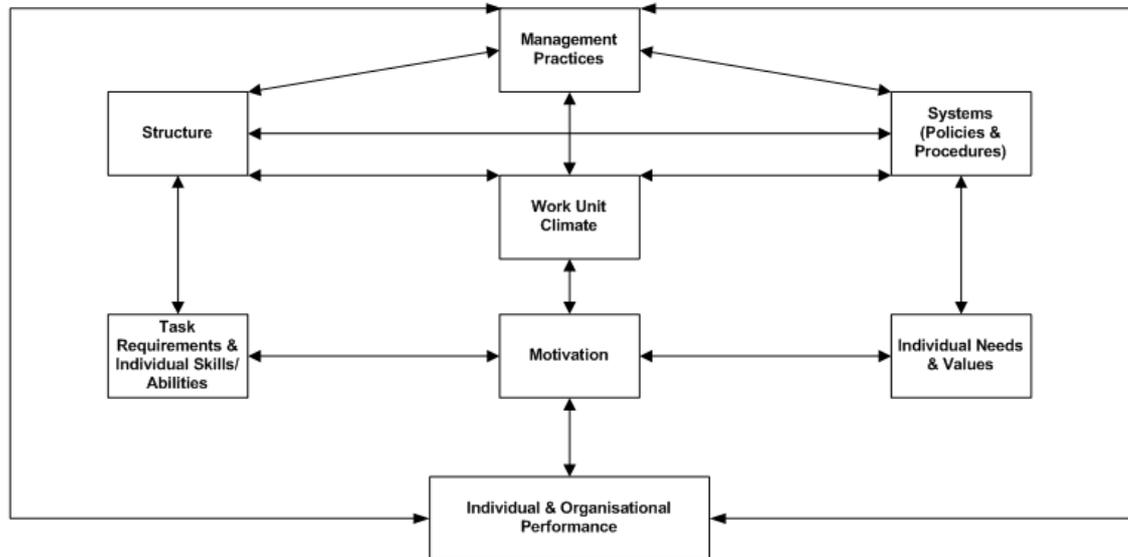


Figure 6 Transactional Factors of the Burke-Litwin Causal Model of Organizational Performance and Change (adapted from Burke and Litwin, 1992. Permission to reproduce this figure has been granted by SAGE Publications)

Structure

The first transactional component to be examined is related to the structure of the university. Organisational structures represent the different levels of authority within an organisation and are designed to assure the achievement of strategic goals and organisational mission (Burke and Litwin, 1992). A restructuring exercise was announced a year into this study, leading to major organisational changes with the aim of delivering strategic objectives, enhanced support and performance-related benefits:

It was recognised that restructuring in itself would not deliver a step change in the targeted key performance areas. However, it was a critical step which would enable a range of developments to be delivered in the context of a new strategic plan, improved systems and service support, improved support for staff throughout their careers and more effective recognition and reward procedures. (Doc Ref 26)

The number of administrative sub-divisions was reduced with each being made responsible for delivery of their own strategic management. Each area's strategy was aligned with the university's research, teaching and internationalisation goals. Teaching departments and research institutes were given responsibility for a subject or a cross-disciplinary area and for the management of the associated resources, subject to regular review to ensure their disciplinary relevance and financial sustainability. The aim of this exercise was to encourage and develop greater cross-disciplinary working and fiscal responsibility, as evidenced by the following quote from the document outlining the revised roles and responsibilities within the institution:

In order to meet the challenges, exploit the opportunities identified, and deliver the benefits, we must develop structures that are enabling, nimble, facilitate the creation of cross-disciplinary teams, and have the financial flexibility to allocate resources in-year and drive strategic development. (Doc Ref 019)

The success criteria for the reorganisation were aligned with the university's strategy. Short, medium and long-term goals of restructuring were identified and a review was carried out after two years to assess the outcomes of the exercise. The review acknowledged the amount of change staff had had to contend with during the year and concluded that the success criteria had been broadly achieved as research and teaching had not experienced any major problems. Similarly, high levels of student satisfaction indicated organisational performance was not

considered to have been adversely impacted. However there were several areas where staff and management feedback suggested there had been problems, such as in areas related to the decision-making process and administrative support, as demonstrated by the comments when reporting the outcome of the review to Court:

(The success) criteria had to a large extent been achieved: no major problems had arisen in research and teaching, with student satisfaction good and students being well supported. However, a more fine-grained study of the outcomes of the review, which had included a staff survey, input from managers, and a review of support structures ... had revealed that there were a number of areas where feedback has not been positive and where further action was needed. (Doc Ref 027)

Staff reported that they did not feel they had been consulted or engaged with the process and, as a result, felt that decision-making had become the sole preserve of senior management. The negative feedback demonstrates problems relating to how individual needs and values were met, as well as raising issues concerned with staff motivation, management practices and work unit climate. The review also recommended the implementation of a leadership development programme to help staff manage change; the development of an internal communications strategy; and a review of support staff structures and resource requirements. These proposed initiatives clearly demonstrate the influence of structure over factors within the framework such as leadership, management practices, systems and skill/task requirements.

The structural changes implemented are listed in the table below. The restructuring exercise and the move to more standardised systems of managing student records and advising marked a significant shift in the university by creating more tightly-coupled systems and more central control and oversight of tasks which had previously been locally devolved, while still providing areas with the autonomy to decide their own staffing structures to support the tasks. This

reflects Burke's (2014, p352) assertion that organisations find they are increasingly operating both centralised and decentralised functions. It is perhaps in the factor described below, systems, where some of the greatest problems relating to this centralised/decentralised dichotomy manifest themselves.

Structure
<ul style="list-style-type: none"> • University restructured to achieve strategic objectives, enhance support and improve performance • Reduction in number of budgetary units • Changes to academic departmental structure • Increased interdisciplinarity • Variation in academic support structures

Table 5 Summary of Change Factors - Structure (Documentary Evidence)

Systems

The systems element of the Burke-Litwin model is a wide-reaching factor, representing the policies and tasks which underpin business processing (Burke and Litwin, 1992). As the focus of this study is on undergraduate academic advising at the university, this section is concerned primarily with the main systems used to support this specific activity.

Each undergraduate student is allocated an adviser of studies when they start at the university, however the tasks and skills involved in being an adviser differ with various degree programmes supporting the process in a variety of ways. In some areas such as those which lead to a profession such as medicine, law or education there are restrictions on students transferring into another area of specialisation and there tends to be less curriculum choice, so the role of the academic adviser has a more pastoral focus. Indeed, in some cases, the students are enrolled onto

classes by staff so have very little interaction with the SRS and therefore experience fewer problems with the system (FG Ref 007). In the 'general degree' areas, students have far more choice in relation to choosing their degree and their curriculum because of the flexibility in the design of the qualifications.

In the year prior to the start of this study, the university published a report which undertook a review of advising and considered the views of various working groups and projects in an attempt to understand the interface between academic advising and other student services, such as finance and accommodation. The report concluded with twenty-one recommendations which refer to a wide range of different services, processes and systems that students need to access in the course of their studies. The key recommendations included:

- Adoption of clear, guiding principles for advising
- Advising systems to be built around programmes of study and for students to be advised by staff from their intended areas of study
- Decrease the adviser:advisee ratio to 1:25
- Acknowledge the role of Adviser of Studies as an integral part of a member of staff's workload, not as an additional role
- Enhanced role for training and support for Advisers of Studies

(Doc Ref 028)

The bringing together of previously geographically-scattered student services into a central building had already necessitated changes to policies relating to how information for students and staff should be communicated, with the communication of more information to students via web-based services, rather than hard-copy handbooks produced by advisers. While many of the recommendations related to enhancing methods of information-sharing, the working group did recommend the creation of a role overseeing the provision of student services and a head adviser role and both were adopted by the university.

An advising committee was also established to provide institutional oversight of the undergraduate advising system with a formal structure and an agreed set of responsibilities being drawn up to help monitor the effectiveness of the advising service and advising training as well as inform discussions and decisions related to student support (Doc Ref 007).

In terms of support and in addition to increased recording of graduate attributes, the university also uses data to identify students who are 'at risk' of dropping out of university. Various checks are in place to try to help students who are thinking of leaving to find alternative solutions to their problems in order to help them complete their degree and many schools have adopted systems which help them to identify students who are not attending classes or not adhering to the terms of their study visa, as outlined in the following quotation from the policy on student attendance:

Academic disciplines within the University maintain arrangements for monitoring student attendance and these should remain in force for all students, including those with (international) Tier 4 visas. These arrangements typically involve extensive use of the Early Warning System for First Years and monitoring attendance at seminars and labs.

(Doc Ref 029)

Advisers are also considered to play a key role in developing a personal relationship which helps ensure that students who are thinking of dropping out are aware of the potential consequences and assisting them in finding ways to keep them in education, such as by pointing them towards crisis loan, accommodation or counselling services or advising them about alternative academic choices available to them. As an additional incentive for the organisation to retain students, statutory reporting requirements stipulate that all withdrawals from the university must be reported on an annual basis. High withdrawal rates can prove detrimental to the university's government funding, institutional rankings and

overall reputation, therefore there is a desire at the organisational level to try to ensure as many students as possible complete their degree. Student statistics are increasingly driving governmental policy on education and one way in which this manifests is through the creation of Outcome Agreements as a means to deliver improved educational outcomes:

Outcome Agreements contain targets that will allow the (Scottish Funding Council) and the sector to detail improvements in the areas identified by the Cabinet Secretary for Education and Lifelong Learning. Universities will be expected to meet the targets contained in their Outcome Agreement. They will drive efficiencies, improve performance, match capacity to need as appropriate, and further enhance quality within the university sector.

...

The university has set ambitious targets of 94% first year continuation rates and 88% overall six-year completion rates. Our approach so far has been to apply generic cross-institutional approaches to improving retention.

(Doc Ref 030)

This demonstrates the influence of factors such as statutory reporting and immigration policy over university systems as universities find themselves increasingly monitoring students to comply with the demands of external bodies.

The advising review also recommended that personal development planning be built into advising meetings to assist with employability. This, combined with the requirement for increased numbers of academic staff to adopt the role of adviser, has led to large numbers of staff being newly-appointed to the role and requiring training and information about the various academic structures, processes and policies in order to carry out these new tasks. Furthermore, in order to be able to carry out their advising role, they require an understanding of the non-academic issues students may be facing and information about how to refer students to the services they may require. This has led to a significant change in the skills and

knowledge required by many academic staff who were previously concerned with teaching and research and had little input into student advising support.

Another major change involving the systems supporting the university and the advising role that occurred at a similar time to the review of advising provision was the implementation of a new student records system (SRS). The advising report (Doc Ref 028) highlighted that the system would 'radically' change how student records were managed and concluded that the functions most relevant to advisers would be assessment, attendance monitoring, course selection and student-adviser communication. The paper concluded that these features 'may' reduce advisers' workloads, however it also stated that discussions with advisers suggested that they were not inclined to believe the new system would bring the staff or student benefits that were being proposed.

There were concerns that the move to such a method of managing advising would adversely impact the student's learning experience and there was doubt that, given the complexity of choices available, the system would be capable of detecting problematic curriculum choices or advising students of the consequences of such choices, such as restricted options when picking an honours specialism in later years. Because of this scepticism, and in response to student feedback confirming that they preferred to have the option to meet with an assigned adviser from their own subject area, the working group suggested that advisers meet with first-year students at least once in each of the two semesters and that they then continue to meet with students at least once a year thereafter. This recommendation reflects the suggestion that a blended approach be taken to advising:

Staff Student Ratio: There is no University standard for this ratio. However, it is the view of the Working Group that a University wide acceptable ratio should be agreed. We accept that the function of the adviser might be different across the faculties but we believe that if the role is to be meaningful to students and manageable for staff that an agreed ratio

should be enforced. A ratio of 1:25 appears to us a sensible ratio although it should be reviewed in the next few years as the Student Information System is rolled out. Advisers need to have time to allocate to the advising function but they require a caseload that allows them to develop their expertise. (Doc Ref 007)

By engaging with the students in this way, the working group were of the opinion that the student experience would be enhanced, however it is unclear from the proposals how they envisaged this working across different local areas and support structures, nor how they intended to motivate more academic staff into the role. Indeed, they recommended removing the honorarium payment previously made to advisers and suggested the additional tasks should be built into the academic workload models. This inevitably had an impact on the management practices of different areas as managers attempted to convince staff to take on the role and also impacted upon the work unit climates as academic staff were faced with significant change to their existing practices. This issue is explored in more detail in the next chapter in the discussion of the focus group data.

In implementing the new SRS, the university's Senior Management Group cited anticipated benefits in student recruitment, retention and satisfaction as the driving reasons for the change:

(The SRS) will help us realise some of our key strategic objectives, will deliver a marked improvement in the quality of service we offer students and staff, and will achieve efficiencies in our operations, allowing savings to be secured and staff time to be used more productively. (Doc Ref 001)

These ambitions included increased numbers and enhanced quality of students across all cohorts with the new web-based system providing better market data, improved access to information and communications, quicker turnaround times for applications and an enhanced reputation. The university also aimed to increase

progression and completion rates by enabling earlier detection and intervention for 'at risk' students. The programme rules built into the system were intended to facilitate online course guidance and enrolment as well as providing the underlying rules for automated progression. It was hoped that these services would increase student satisfaction and performance in the National Student Survey with the provision of better and more integrated services as well as more consistency across the organisation and greater transparency of both processes and academic regulations. Several qualitative benefits were also cited which were aimed at the provision of better Management Information (MI), reduced manual processing, improved enquiry management and enhanced student services (Doc Ref 001).

When the university introduced the new SRS to staff and students, many encountered problems when they tried to register on their programme of study or to enrol into the courses they wanted to take. There was a great deal of confusion about what students were expected to do and how staff could help them when they had problems and this led to a huge influx of requests for support from both students and staff. Reports of the issues went beyond social and student media to the press, with the prevailing view portrayed being one of chaos, the following comments providing examples of the sort of feedback submitted:

- One poorly set up system is not a valid replacement for several useful ones. It just doesn't deliver. How has this been allowed to happen?
- Not user friendly; in fact, user-unfriendly. This is a retrograde step.
- A really dreadful system that has caused me and my students so much grief, wasted hours of time and still seems unfit for use.

(Doc Ref 002)

The university Senate discussed a report prepared by the project board responsible for the SRS implementation which defined the main reasons for the

problems as being attributable to a lack of familiarity with the system, some software errors resulting from poor configuration of the system and missing, incomplete or inaccurate data:

While implementation was always going to be a demanding task, and at a busy period of the year, we could have managed aspects of the Implementation better. Some of the shortcomings this year related to migrated data, and that is a problem that will not recur. However, there have been deficiencies associated with training, software configuration, data input, and the set-up of programme and course information that we must address in order to avoid a repeat of this year's difficulties.

(Doc Ref 031)

The problems experienced resulted in a higher degree of manual intervention than anticipated and involved a great deal of advisers' and other staff time. While the report acknowledged that the implementation had not gone well, it promised to ensure that the highlighted problems would be resolved by the start of the next academic year. However a paper submitted by academic staff disputed that the issues could be fixed due to inherent problems with the software which had increased the amount of work required to carry out tasks. The paper concluded that the problems were inevitable due to the system implementation having ignored the needs of and warnings by advisers and academics:

How much is this project costing the University in terms of wasted academic time, wasted administrator time, paying a team of (people) to provide support and fix errors in the software, lost research funding opportunities, lost publications due to academics being engaged in administrative tasks? Finally, what is the University's reputation worth? Are we going to press on with this ill-advised and damaging project, or start behaving intelligently and take bold and courageous action? (Doc Ref 004).

These views were also fed into a lessons learned review which assured staff that its recommendations would be applied to all future projects undertaken by the university, whether IT-related or otherwise (Doc Ref 005). They acknowledged the anxiety that had been caused to staff and students by the system introduction and the complaints from across the institution about the functionality within the SRS. The review advised that the university should learn from the experience and act to address their recommendations as a matter of priority. They highlighted concerns raised about the usability and performance of the system; their ability to access and manage data; the communications, training and support provided to them; and the problems experienced by students in relation to finances and enrolment. The review also concluded that the implementation of the SRS had not succeeded in involving the input of the whole university, as recommended by Phillips (2013), which inevitably had affected staff's understanding of the need for and the impact of the change, leading to difficulties in its introduction and ongoing use:

In going forward, it is important to recognise that mistakes were made during the implementation and that these have alienated and angered large sections of the user base. It is imperative now that (the SRS) is improved and future developments are properly implemented. (Doc Ref 005)

In addition to the feedback received about the SRS itself, it was reported that the lessons learned panel was concerned about the comments made in relation to the new advising system and the issues affecting advisers and students using SRS, however they stated that their remit did not include suggesting changes to the advising system. They did highlight that the enrolment processes across the university differed, which meant that students had different needs of their advisers based on the enrolment process in use locally, and they concluded that the flexibility of student choice in the general degrees requires some interaction between the student and the adviser. It was therefore again recommended that advisers have some contact with students and this should be done in time for any changes to be made if required. The report also highlighted that the role of the

adviser had changed in other respects and recommended that this factor should be taken into account when reviewing the advising role:

It is clear, however, that different parts of the University have different types of interaction between the adviser and the student during the enrolment process. In the general degrees, the flexibility of student choice necessitates an interaction between the student and the adviser to either validate the choices the student has made or advise the student on appropriate choices. While no specific recommendation is made in respect of policy here, we note that it is the expectation of the advising system that, in all but a limited number of the professional degrees, advisers should have contact with students as part of the process of ensuring that students have selected an appropriate curriculum. We feel this is sensible. (Doc Ref 005)

Further problems were experienced in the following two years, the first as a result of server issues, which prevented many students from accessing the system, “due to the malfunction of software designed to distribute workload among servers” (Doc Ref 032). Once again this resulted in negative feedback and further consolidated the view that the system was unable to meet the needs of the university, a perception again reinforced the following year when the university developed an interface between the room-booking/timetabling system and the SRS and problems were experienced with the initial transfer of data (Doc Ref 033). However, despite these issues reported, a benefits realisation exercise carried out two years after the introduction of the SRS concluded that progress had been achieved and that benefits of the system were being seen in terms of increased functionality available and the provision of a central source of data, allowing more robust reporting. Acknowledging the difficulties of the first two years, the report stated that:

... areas of the University were beginning to realise the benefits provided by a single unified source of data with increased functionality. The project

was found to have made significant progress against all aims while recognising additional work was still required to fully realise a number of the benefits. The paper particularly highlighted the importance of implementing revised processes in order to fully realise the benefits. An ongoing challenge in relation to (the SRS) is to overcome the negative perceptions of the system that developed during its testing implementation. (Doc Ref 011)

The challenge related to the negative feedback was underlined by the annual feedback relating to the SRS provided by the academic departments and complaints about the resources involved and the pressures placed upon staff. The minutes of the meeting where these issues were discussed contain the following response from the Vice-Principal (VP) for Learning and Teaching:

...there were some indications that the system was working well for the University. In addressing the negative comments, (the VP) considered that it was important for the University to determine what the actual problems were as some could be addressed by the provision of further training and by the improved dissemination of information about the benefits of the system to local areas. (Doc Ref 024)

The implementation of a new SRS had a wide reaching impact upon the university in regards to the task requirements and individual skills and abilities needed to carry out the core student support operations of the university. This combined with changes to both the structure of the university and associated systems, such as the undergraduate advising model or the timetabling interface, created problems for staff and students in trying to navigate the complexity of the university and its academic provision. Many of these changes were driven by the strategic direction taken by the university in response to external pressures such as technological developments, revised funding models, higher education key performance indicators and rankings and competition for students.

The changes to the organisational structure and the adoption of a new advising model during the implementation of the SRS offered opportunities to streamline and standardise processes, but also faced significant challenges. Rather than rebuilding existing processes in a new system, it was necessary to create new and unfamiliar taxonomies and data values within a new and unfamiliar system to represent structural changes and support new policies. Taxonomies were required to be flexible enough to support a variety of local structures and systems as well as interface with associated corporate systems in areas such as finance, HR and research. Where there was a failure to adequately meet the needs and values of users or where the tasks involved in business processing changed significantly, the associated workload issues and the impact on individual and group performance then went on to affect the motivation of users and the work unit climate.

The view of the new SRS as overly complex compared to the previous student records system demonstrates that many staff were also unclear about the reason for many of the changes. This leads to questions about the effectiveness of the consultation methods employed by the university when managing organisational change. While there were various engagement strategies planned and deployed to communicate with staff about the changes being implemented, there was no clear understanding of how that information and knowledge was then being further dispersed throughout the organisation and no clear measurement of its success in relation to the aims of the engagement. These communication issues were recognised and highlighted, but the lessons learned review demonstrates that the university did not fully understand the combined impact and scale of the organisational changes being introduced when they were approved and when they were being implemented.

The communication lines used in support of the (SRS) implementation were fractured during the restructuring of the University and not enough effort was put into re-establishing these as the project moved forward.

(Doc Ref 005)

While it is important that this was recognised after the fact, it demonstrates that a better analysis of the potential impacts was required and mitigating strategies were required to avoid the vague task specifications and ambiguous role definitions which create the ‘conditions of error’ referred to by Argyris and Schön (1978, p.45).

The changes which occurred to systems in the university are highlighted in Table 6. Issues which arose as a result of so many changes occurring within a short period of time are investigated in detail under the remaining change factor headings.

Systems
<ul style="list-style-type: none"> • Changes to advising model - blended approach recommended • New student records system • Shared student services • Interfaces between corporate systems • Greater standardisation of data and processes • Greater complexity

Table 6 Summary of Change Factors - Systems (Documentary Evidence)

Management Practices

Burke and Litwin (1992) describe management practices as the ways in which managers use available resources to achieve the strategic aims of the organisation, including aspects such as communication, planning, management behaviour and control. In recent years there have been a number of concerns raised in relation to the management practices within the university, following the combined impacts of the staffing cuts, restructuring and major system changes. Comments made following the introduction of the SRS, such as the one highlighted below, suggest that there was a perception among many staff that

new methods of managerial control were being imposed without consideration of their needs or those of the students:

This changes at a very fundamental level the relationship between the students and their tutors, the students and the university, and between the university and its management. It immediately twists and devalues our relationship with our students. (Doc Refs 002)

The feedback demonstrated there was a great deal of anger about the situation and a belief that concerns went unheeded. This mirrors the review of restructuring where staff also complained they had been excluded from the decision making process by management. Both reviews found that the methods of communication had been inadequate and, as a result, the effectiveness of any changes to structures or processes had been limited as communication of responsibilities had been ineffective. The restructuring review panel reported to Court that:

The decision making process was not well regarded, with criticisms about the contact points for decision making being unclear, a low percentage of staff feeling they were consulted or engaged in decision making, and such processes appearing to have become more complex and remote, with a perception that decision making was now higher up in the University management structure. (Doc Ref 027)

As highlighted in the previous section, the SRS lessons learned review concluded that the restructuring exercise had disrupted lines of communication between the implementation project and the rest of the university and this clearly demonstrates the relationship between the structures, systems and management practices of the organisation. As significant changes occurred within the first two factors, the management practices supporting the changes became more centralised and remote. As a consequence, communication channels became

unclear and many staff did not receive the knowledge they required to understand the reasons for change and how to carry out their daily tasks.

These concerns about communication were also reflected in the 2012 staff survey results (Doc Ref 034) published after the restructuring and system implementation projects. They showed that, while 90% of staff were satisfied with internal team communications, only 68% reported that they found university-wide communication to be effective, a reduction of 11% from the previous survey from three years before. By 2014 the staff survey (Doc Ref 035) reported that 54% of staff felt communication in the organisation to be effective - a reduction of 14% on the previous survey - with almost half responding that they felt there was a lack of co-operation between different academic departments. These issues with communication and co-operation have impacted upon individuals' ability to gain knowledge about wider organisational processes and the reasons for decisions made which has affected their ability to carry out the tasks required of them or know who to turn to for help when they have detected a problem or to acquire the skills they need to solve it. While issues with communication were highlighted in the SRS lessons learned report, the review of restructuring and the 2012 staff survey, the 2014 staff survey results demonstrate that the university had not succeeded in addressing those issues adequately and that staff were still facing problems relating to communication and understanding of university strategic aims and their operationalisation.

The 2012 staff survey results also indicated that staff felt that they required greater management and administrative support with over a third feeling that they did not often receive praise for their work. By 2014 the percentage of staff reporting that they did not receive management recognition for their work was reduced to 22%, however the university acknowledged it needed to continue working to improve issues relating to management and peer support. With regard to the personal support provided by managers, their availability and their approachability, over 80% of 2014 respondents replied favourably. Management also scored highly in areas relating to the provision of feedback and information as well as participation in decision-making in 2014, so while many of the

complaints made about management practices in the feedback relating to restructuring and the SRS implementation cited a lack of inclusion in decision-making processes, the staff survey results suggest that a majority of staff still felt engaged in making decisions about things that affected them and by their local managers. What is unclear from the survey results is whether the staff who reported feeling excluded from decision-making tended to come from certain parts of the university, mainly represented staff in particular job categories or whether they were spread across the organisation. Nonetheless, while it is encouraging that high numbers of staff feel engaged by their managers, between a quarter and a third of staff were unsatisfied with management decision-making and the provision of appropriate information and feedback. The 2014 staff survey results related to communications also demonstrate a greater effort was required to encourage effective working relationships, both within individual work units and also across the organisation.

These concerns are listed in the table below. The following section looks at the ways in which the practices, systems and structures affected groups and individuals working within the university and the changes that occurred as a result.

Management Practices
<ul style="list-style-type: none"> • Communication problems • Staff concerns unaddressed • Lack of co-operation across different areas • Lack of management and administrative support • Differences in perceptions between central and local management

Table 7 Summary of Change Factors - Management Practices (Documentary Evidence)

Work Unit Climate

Following on from the issues related to management practices, the work unit climate represents the shared experiences and expectations of staff in different operational areas, which impact upon relationships with both management and other departments (Burke and Litwin, 1992). Changes to the organisational structure of the university resulted in the creation of new work units from previously distinct departments and disciplines. This required some adjustment for staff as they found themselves following different working practices and reporting to different managers. However these changes also created obscurity and ambiguity as staff were faced with trying to understand what was required by them within the new structure and by the new roles created as a result of system changes. The restructuring review in 2011 recognised these difficulties and made several recommendations in attempting to address them:

Recommendations arising from the review were focused on promoting the improvements delivered already, implementing a leadership development programme, training and support for staff leading and managing change, developing and implementing an internal communications strategy, and reviewing support staff structure/resource requirements...

Court also acknowledged that there were areas that still needed to be addressed. A particular concern was raised about the staff survey feedback on improvements to the decision making process and on communication above local level, both of which areas had been rated poorly. (Doc Ref 027)

By 2014 almost 90% of staff in the staff survey (Doc Ref 035) agreed that they understood their role within the university and what they were expected to achieve in their job and in standards of performance. In addition to this positive result, two thirds reported that they felt there was an effective split of responsibilities within their work area and 78% were of the opinion that staff willingly supported them, even if it meant doing something outside of their own remit. With almost 90% agreeing that they were satisfied with the level of support

they received from colleagues and only 28% agreeing that their work relationships were strained, it would appear that there was general satisfaction with the relationships staff have with other individuals.

However a majority of respondents to the survey also reported that they felt that they struggled to meet the demands of their workload and worried about their work during their free time. A significant minority reported that they were unclear about what was expected of them, with many respondents indicating that they felt priorities were changed regularly which had a detrimental impact on their performance. Of the 1,021 staff who reported work-related stress, the main reason given was insufficient staff resources. These issues impact upon the tasks and skills staff are expected to have to carry out their role and also their levels of motivation as they attempt to undertake the work required of them either without a clear understanding of their priorities or within a work unit which has not adequately understood or managed the resources required to undertake tasks. While the appropriate resourcing of individual areas is the responsibility of local management, it is unclear from the survey results whether the reported lack of resources is the result of inappropriate management of resources or results from other issues, such as budget constraints.

The 2014 staff survey also showed that 60% of staff indicated that they still did not feel different parts of the university communicated effectively with each other and this trend is also seen when asked about their views on co-operation within their own teams and across the university; while a significant majority felt that they worked well within their own teams, only half felt that there was good collaboration between different areas. Again, this reflects the challenge the university faces in managing an organisation which is both tightly and loosely-coupled (Burke, 2014). While staff may feel communication and co-operation in their own work unit is broadly effective, the university evidently faces a serious challenge in trying to improve those factors at the organisational level. The problems encountered by staff in working with other areas will continue to adversely impact upon the operationalisation of the institution's strategic aims, such as cross-disciplinary teaching and research or the implementation of

standardised systems. A lack of cross-institutional understanding and collaboration leads to silo-working with individual units that do not communicate or co-operate well with those in other areas, leading to a lack of understanding of the priorities and practices of others. This can result in confusion and resentment when it appears that inappropriate processes are being imposed without clear reasons provided or consultation permitted, as was evidenced by the feedback on both restructuring and the SRS. Many staff were unclear as to what consultation had been undertaken and why certain decisions were made or they felt that their views had been disregarded. This resulted in resistance to the changes introduced and the university struggled to manage the response and identify appropriate solutions to the variety of resultant problems in ways which would suit the diverse opinions and practices of the work units involved. While technical changes were made to the SRS in an attempt to try to bridge the gap between the task and skill requirements of staff, the differences between different areas in how they managed their business processes and communicated with one another were not factors which could be addressed via a technical 'fix'. In order for these issues to be resolved, there was a requirement to adjust management practices in some areas to try to encourage understanding of processes and changes to ways of working.

The issues described above are summarised and presented in the table below. In the next section, the changes to tasks which arose as a result of the factors already described and the tensions this placed upon existing skillsets are discussed.

Work Unit Climate
<ul style="list-style-type: none"> • Changes to work unit structures and roles • General satisfaction with colleagues • Workload problems and anxiety • Differences in working locally vs cross-institutionally • Lack of consultation • Changes to systems and processes

Table 8 Summary of Change Factors - Work Unit Climate (Documentary Evidence)

Task Requirements and Individual Skills/Abilities

Burke and Litwin (1992) refer to this factor within the model as the ‘job-person match’. The changes outlined above all contributed to significant changes in the tasks staff are required to carry out in order to meet their roles and responsibilities, however it is unclear what effort was made to ensure that staff responsible for the new tasks had the skills required to complete them effectively. It is not only that the new SRS required existing tasks to be carried out in different ways from previously; many staff were also required to take on new tasks as the changes to the advising system resulted in more staff becoming involved in the advising process. Additionally the restructuring process had led to the merger of different departments who had varying ways of managing their tasks and, as a result, were required to review their processes and internal support structures to be able to make full use of the centrally-implemented corporate systems and comply with policy. The newly created academic units were tasked with formalising their processes across their areas and were also given the following responsibilities:

- Ensure that procedures are in place, consistent with University-wide policies and procedures.

- Interface with University Services to ensure the development of a fit for purpose support service to both students and staff.

(Doc Ref 019)

Many of these changes required some skills and knowledge beyond that required previously. For example the 'rules' required for tracking students' progress and guiding them to appropriate curriculum choices were input into the SRS by staff who had knowledge of their own local degree structures. Similarly, knowledge of local timetabling was required for the room booking information needed to create personalised timetables. While the business processes involved in these tasks was work that was undertaken by staff every year, previously it had been done in local systems using non-standardised methods which could not be easily shared or networked with other users. One of the key decisions cited by the Senior Management Group in relation to the introduction of the SRS related to timetabling and room allocation and this significantly changed the way in which this information was processed and managed:

The new system will enable students to access their individual timetable of all lectures, classes, labs. This will require relevant data to be recorded and maintained in the system and for agreement to be reached to allow the allocation of students to classes and labs to be automated wherever possible. (The timetabling system) will be used for scheduling and the functionality of (the timetabling system) and the processes supporting it will be reviewed in the light of the new requirements. As a minimum all teaching space needs to be recorded and allocated through (the timetabling system). (Doc Ref 001)

The move to the new system required staff who had developed their own methods of carrying out tasks to conform to the input of data in a standardised form, which meant that while the core tasks involved in managing students were largely

unchanged, the methods used to carry them out had changed substantially. An additional challenge staff faced involved the requirement to express knowledge which was often tacit or not clearly documented and do so in a codified form which would not only allow the system to function correctly, but would also be understandable to both staff and students who required the knowledge held in the system in order to choose an appropriate curriculum and obtain a personal timetable.

As well as the changes made to the tasks involved in existing processes, the new SRS also facilitated the recording of data which had not previously been captured, such as extra-curricular activities and the conversion of grades from partner universities for students who had undertaken some form of international study. The requirement to capture this additional information in order to enhance the student experience and help meet strategic aims relating to graduate attributes and internationalisation meant that staff were also required to take on new tasks within an unfamiliar system and they experienced issues in obtaining the process or policy knowledge required to ensure the data was recorded correctly.

These changes to tasks and processes required not only some adjustment to more standardised methods of recording data, but also a greater understanding of how the individual tasks fitted into the overall process of managing students and their data. Academic staff involved in advising on the general degrees are required to have a knowledge of the broader degree structure and course choices available to students which goes beyond their own disciplinary focus as well as an awareness of the services available to students and how they access them. As a result of the breadth of choice available to students, staff found they were unable to identify the source of issues within the systems used to support business processing and were therefore unsure of how to resolve problems or who to contact. Both staff and students struggled to understand what they were required to do to complete tasks that they had previously carried out in a wide variety of systems using different methods. In response to a Freedom of Information request (Doc Ref 036) the university reported receiving 10,009 support calls between the start of the academic year and December and while they stated that not all the calls related

specifically to the SRS and also included general queries normally received at the start of term which had previously been made by phone or email, it did represent a significant issue for the university in terms of trying to provide support to those who required it.

The university acknowledged that the introduction of the SRS and the additional functions supported within the system had led to increased administrative workloads in relation to advising and that this additional data-processing had become the responsibility of advisers in some areas. However it was reported that increased exposure to and use of the system suggested that the departments who were demonstrating best practice were those who had administrative support dedicated to advising and use of the SRS. In an institutional review, the university recognised that more parts of the university were providing this form of support and this was being introduced:

... to allow a more effective use of Advisers of Studies' time in delivering academic or pastoral advice to students and to allow a more effective use of (the SRS) and the increased functionality it provides to support the learning experience and administrative efficiency. (Doc Ref 011)

It is unclear how this success was measured, however dedicated advising administrators were introduced in more areas with the required data-input tasks carried out by administrative staff. These changes reflect an attempt to bring the task requirements and skills and abilities of the staff involved more closely into alignment to improve individual and organisational performance. They also demonstrate the evolutionary nature of transactional change, with structures and systems being amended as enhanced understanding of the new tasks and the knowledge required to complete them becomes more evident. However this move to increased administrative support in some areas can also be seen as an acknowledgement that the data entry tasks required by the SRS do not constitute an appropriate use of academic time. The requirement for large numbers of

academic staff to undertake these sorts of activities had a serious impact upon their motivation, for reasons which are further explored below.

The main factors and challenges highlighted by the examination of task requirements and skills are listed below. The next section will investigate the ways in which staff and students perceived their needs and values were being met in relation to the wider strategic aims and actions of the university.

Task Requirements and Individual Skills/Abilities
<ul style="list-style-type: none"> • Changes to tasks as a result of new systems and policies • Increased numbers of new staff involved • Greater standardisation of processes and tasks • New technology • Tacit > explicit, codified knowledge • New data gathering requirements • Increased dependencies between tasks • Different support needs • Increased workloads • More specialised administrative support

Table 9 Summary of Change Factors - Task Requirements and Individual Skills/Abilities (Documentary Evidence)

Individual Needs and Values

Burke (2014) writes that the congruence between the needs and values of individuals within an organisation and those of the organisation as a whole can have a significant impact on motivation and play a major part in defining the culture of the organisation. There is evidence that many staff felt that their own needs and values were no longer being met following the changes that occurred

in the university and this was reflected in many of the comments submitted to the SRS lessons learned review

It is clearly not fit for purpose in so many areas and was not properly adapted to the needs of (the university).

Our reputation must have taken quite a hit during this time alone. The system is just not set up in a way that is useful for staff or students, the very people it was supposedly bought to help.

(Doc Ref 002)

These comments demonstrate the concern felt by staff that both their own and the reputation of the university had been compromised and that little had been done either to avoid that situation or address the problems created. Also apparent was concern that the move to a new system represented an increase in organisational adherence to corporate values which was further demonstrated in criticisms of the software itself and much of the terminology used within the system.

Students cannot be classed as “debtors” just because we have changed systems. Makes us appear like a dodgy catalogue company who have set the debt collectors on folk. Not fair to our students and possibly a legal issue; this needs resolving immediately and must not be repeated next year/ever.

(Doc Ref 002)

Feedback of this sort provides clear evidence that there was a perception that the purpose and value of the university had fundamentally changed and that, as a result, staff and students were being treated badly as their needs and values ceased to be a concern. This was reflected in the 2012 staff survey results (Doc Ref 034) which reported that staff were less likely to enjoy their job or feel loyal

to the university than they had in 2009. However, while the system was seen to represent the influence of corporatism on the university, the system processes being criticised - such as the charging and payment of fees or the chasing of debt - were tasks and processes which had been carried out by the university previously and had not been introduced as a result of the new SRS. The pulling together of these processes into one system made previously discrete and disparate services and tasks more visible to staff and student users of the system and starkly highlighted the external forces impacting upon higher education, such as student finance, technological change and target-driven results. As a result there was a perception among some staff that the system was driving the changes within the university, as opposed to the changes within the university or in the external environment driving the system.

Academic staff also felt that the impact of the SRS on their workload had adversely affected the amount of time that they had available for teaching and research, activities which are core to the university's strategy and mission and also to the identity of the academic. As structures and systems changed, so too did the methods of carrying out tasks and the staff involved in supporting in business processing. As students encountered problems with processes such as enrolment and timetabling, they turned to their advisers for help and those staff found themselves having to try to identify and resolve unfamiliar issues. This problem was further compounded both by difficulties in identifying who was responsible for the data in the system, with the differences in practices across the university causing further problems in regard to data and communications. The result was a lack of motivation to use the SRS as there was little confidence in its functions or data and a belief it was unfit for purpose, unable to meet individual needs and the needs of different work-units, as represented by the comment below submitted on behalf of academic staff:

The failure of (the SRS) is due primarily due to the fact that, throughout the implementation of (the SRS), the contributions and warnings of advisers and academics have been ignored and scorned. There has been no consideration given to the way we operate, the kinds of activities we need

support for, and the needs of the students. The entire project appears to have been driven by the SMG's need to control and command us more effectively. (Doc Ref 004)

These issues are summarised in the table below and their impact upon the motivation of staff is discussed in greater detail in the following section.

Individual Needs and Values
<ul style="list-style-type: none"> • Perceptions of reputational damage to university • Lack of participation in major decisions • Staff and student needs not met • Increased corporatism • Less time for teaching and research - changes to academic identity • Unfamiliar tasks • Communication and data problems • Issues identifying ownership of problems • Lack of confidence in SRS

***Table 10 Summary of Change Factors - Individual Needs and Values
(Documentary Evidence)***

Motivation

Workplace motivation is described by Burke (2014) as emotions which are focussed on the achievement of certain goals in order to satisfy needs such as recognition and autonomy. It is motivation which provides meaning to the work being carried out and provides a sense of achievement. Motivation is heavily influenced by the congruence between the needs and values of the individual and those of the organisation as a whole.

In 2012 the university's staff survey (Doc Ref 034) reported a decrease in overall satisfaction from 2009 with 11% fewer staff reporting that they enjoyed working at the university. The results also recorded an 11% decrease in staff responding that they enjoyed their work along with a similar percentage reporting a decrease in feelings of loyalty to the institution. By 2014, the results had improved with 90% reporting that they enjoyed their work (a 1% increase on the 2009 results and 12% increase from 2012), 80% agreed that the university was a good place to work and more staff enjoyed their work (Doc Refs 034/035). Furthermore, the 2014 results also recorded 85% of staff as feeling a sense of achievement in their role and over three quarters feeling inspired to do their best. Less than a tenth responded that they saw their role as 'just a job' with no interest in the institution's performance. The dip in results relating to job satisfaction in 2012 suggests that the major changes to systems and structures outlined above had an impact upon staff motivation. However, if that is the case, it does not appear that this had a long lasting effect, as the 2014 results demonstrate an improved picture over even the results produced in 2009, prior to the various changes discussed.

Despite these improved results, in 2014 almost a third of staff reported feeling unduly stressed at work, citing heavy workloads and demands, a lack of staff resources and organisational change as major contributors to their stress. Change was also a concern for over half of overall respondents who believed that recent changes had not been well planned and only 41% agreeing that the reasons for change had been explained adequately. The process of change itself was reported to worry almost half of staff, with respondents reporting that change was better managed within their local area compared to the university as a whole. Three quarters of staff felt that more could be done to prepare for and help staff deal with change, however most reported seeing some positive changes in the preceding 12 months with a slightly fewer anticipating that things would improve over the subsequent year. These figures demonstrate the challenges faced by staff in adapting to organisational change in terms of the emotional impact faced by individuals experiencing change as well as the difficulties posed to the university in attempting to facilitate major change in line with strategic aims across a complex organisation. However, despite the strength of feeling expressed

following the implementation of the SRS and the changes made to the structure, the university was found to do more to help staff plan for and cope with change than the Higher Education Industry norm of 75%, against which the survey results were benchmarked (Doc Ref 034).

These results demonstrate that while a majority of staff at the university appear motivated by their jobs and their place within the university, a significant number have been adversely impacted by the various changes that have occurred in the past few years in the pursuit of organisational goals. Consequently, many staff perceive that management have not managed change well, are unreceptive to new ideas and fail to provide meaningful recognition. A lack of motivation presents the university with challenges in terms of trying to enhance individual and organisational performance in pursuit of strategic aims and continued relevance in the current higher education sector.

The concerns raised in the relation to motivation and job satisfaction are presented in the table below. The effect of all the factors described above in regards to individual and organisational performance are considered in the next and final section of this chapter.

Motivation
<ul style="list-style-type: none"> • Decreased staff satisfaction • Decreased loyalty to institution • Workload related stress • Concerns about change management • Majority of staff motivated • Lack of recognition

Table 11 Summary of Change Factors - Motivation (Documentary Evidence)

Individual and Organisational Performance

The purpose of the university's staff performance review process is to understand individual performance in line with their objectives, to provide an opportunity for reflection on their performance in the previous year with their line manager and to agree on their development needs.

(The performance review process) is a joint process, with the line manager/reviewer supporting and guiding staff to define and achieve their objectives and progress towards professional development ambitions.

(Doc Ref 037)

While the overall results of the performance review process are not made available to assess the level of achievement across the institution, the 2014 staff survey contained a section specifically related to performance review which helps to provide an understanding of its effectiveness (Doc Ref 035). In the survey 85% of respondents indicated that they had received a performance review in the previous 12 months and, of those, only 56% felt that it was useful. Despite this low result a clear majority did respond that they had been set clear objectives and almost two thirds replied that they had agreed a personal development plan. The low levels of satisfaction with the effectiveness of the performance review process itself and the fact that 15% of respondents had not been involved in a review with their manager indicates the variety in management practices across the organisation in relation to the assessment of individual performance and staff development.

At an organisational level performance is monitored in a variety of ways. The university, like any other business, is required to produce financial statements and its ongoing operation is dependent on a positive financial performance. Financial statements show that the university's operating surplus increased significantly in the four years since 2009 (Doc Ref 038). The total income in that same year was

also reported as having increased 9% from the previous year with an increase in teaching and research funding and contracts combining with higher tuition fee income from international students, endowments and profit from other services being cited as the contributory factors.

The performance of the university is also measured in various other means which, although not directly related to finance, have a significant impact on the university's standing and reputation and therefore its ongoing financial performance. These methods include the use of student feedback from various surveys to better understand the levels of 'customer satisfaction' achieved as a result of focussing strategically on aims relating to teaching and learning and internationalisation. One such survey is the National Students' Survey which is carried out annually across all publically-funded UK universities. Results for the university have shown a slight improvement in five years, with 2014 recording the most successful result (Doc Refs 010/039).

These survey results feed into the various higher education rankings which are used by students to gauge the reputation and value for money offered by universities and also by the universities themselves to inform their policy and strategy in relation to their competition within the sector. The main rankings that the university focuses on are those compiled by Times Higher Education and QS global rankings. Performance in these rankings has been mixed, with the university rising in some and dropping in others. However these placings represent the position of the university relative to others' performance and, as a result, a drop in rankings does not necessarily equate to a reduction in institutional performance. This is demonstrated by one ranking, which saw the university's overall score improve by 57 points and drop by nine places (Doc Refs 010/039).

Universities are also involved in scoring and ranking exercises related to their other strategic focus - research. The Research Excellence Framework (REF) is carried out to assess UK research output; the most recent exercise demonstrated an improvement in performance on the previous result for the university.

However, within these rankings related to the various aspects of higher education, there are also breakdowns provided to demonstrate the performance of individual subject areas in relation to others within the sector. The varying levels of performance of university subjects suggests that organisational performance is impacted by the differences there are between different areas. (Doc Ref 040)

While the use of rankings and feedback exercises continue to play an important role in how an institution perceives itself and presents itself to stakeholders, what these methods fail to capture are the elements of education which cannot be easily counted and measured, such as ethics and morality. The Destination of Leavers from Higher Education (DHLE) (Doc Ref 041) survey asks recent graduates how they have fared in the job market, but there is no enquiry into whether the roles entered into are of benefit to society overall and little understanding of how this would be assessed. Therefore, while the strategic plan is explicit in its aim to develop its students to be prepared for work, it is difficult to understand whether the services it provides have been successful in achieving the university's strategic aim of benefitting culture and society as well as the economy.

The performance indicators discussed are presented in the table below and a summary of the twelve change factors described in this chapter and their relationships is provided in the following, final section.

Individual and Organisational Performance
<ul style="list-style-type: none"> • Performance review process - just over half find useful • Improved financial performance • Improved NSS scores • Mixed results in HE rankings • Improved REF results

Table 12 Summary of Change Factors - Individual and Organisational Performance (Documentary Evidence)

Summary

The placement of organisational data related to change and its outputs within the Burke-Litwin model (Burke and Litwin, 1992) provides a method for better understanding the causes and effects of change within an organisation and the impacts upon performance at all levels. The data above demonstrates the rate and scale of change experienced by the university over several years and the effect of those changes on staff working in the university and places them within the context of one another, rather than providing an individual analysis of each change. This helps to inform not only our understanding of the complexity of the organisation and the dependencies within it, but also the impact of the external environment on all factors. The model also provides a picture of the situation at all levels, with the transformational factors representing the conditions at the organisational level and the transactional factors providing an understanding of how individual and group experiences impact upon organisational elements and the outputs achieved by the institution.

The data discussed in each section has been placed within the model below to provide a visual representation of the organisational relationships described. Appendix B also contains this version of the model, along with a recap of the summary tables provided at the end of each section.

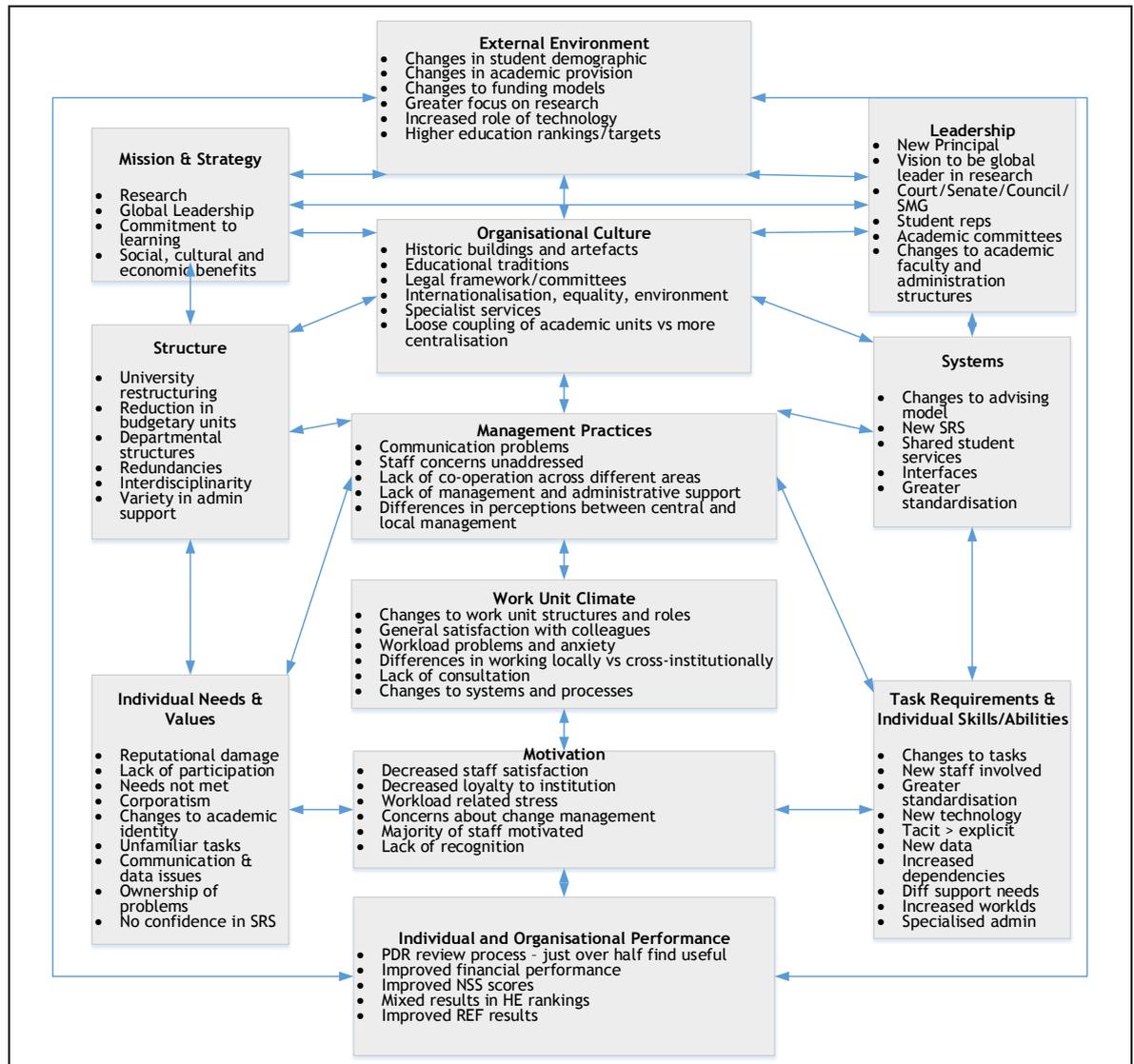


Figure 7 Revised Burke-Litwin Causal Model of Organizational Performance and Change (adapted from Burke and Litwin, 1992. Permission to reproduce this figure has been granted by SAGE Publications)

The analysis provided by the categorisation of data against Burke-Litwin's organisational taxonomy is useful in building an overall understanding of the phenomena experienced within the university. As changes were implemented and the impacts became apparent, staff reacted with anger and mistrust, not only in response to the systems themselves but also in reaction to many of the decisions which were responsible for introducing the changes. According to Burke (2014) such reactions are to be expected when major revolutionary changes are introduced from the top-down. However these results do also come into some conflict with Burke and Litwin's (1992) assessment of factors such as structures and systems as being purely transactional and evolutionary, as the changes to both within the university can be viewed as transformational in the way they impacted upon staff and working practices, as well as leadership and strategic focus.

The introduction of the new student records system and advising model can be seen to be both revolutionary and evolutionary as their immediate impact resulted in an extreme reaction which eventually progressed to a deeper understanding of how business processing was carried out across the institution and how that processing could be better supported within the systems. The restructuring of the university also made a significant impact and created further problems by obscuring reporting lines and disrupting previous channels of communication, which created difficulties for staff or students in need of assistance, and increased levels of anxiety. This provides validation for Argyris and Schön's (1978) assertion that attempts to restructure in order to encourage more effective organisational learning can result in high levels of mistrust of management and leadership which have the counter-productive result of inhibiting learning. Staff not only felt that their work had changed significantly both in terms of the tasks they were required to undertake and the amount of work that this had created, but they also felt that they were not adequately supported in carrying out tasks and that they did not have the appropriate knowledge to be able to do them. While many tasks had not changed, the methods used to complete them had altered significantly and some staff experienced problems in understanding the purpose of the new processes and tasks within the context of what they had done before. In order to address

these issues the university was required 'loop back' (Burke, 2014) to address issues created by the unexpected outcomes of change.

The improved staff survey results in 2014 over those achieved in 2012, as well as the organisational performance data, suggest that organisational learning occurred as issues and conflicts were surfaced and addressed, providing support for Wang and Ellinger's (2011) assertion that a greater understanding of the systems and structures in place and the attitudes towards them play a role in the ability of organisations to adapt to change. However, while staff survey data from 2014 and the institutional performance at that time suggests that some of the problems created by the changes had been resolved, feedback provided via quality assurance exercises makes clear a belief that many issues remain un-addressed, although there was not enough detail provided to identify precisely what the problems were (Doc Ref 024). The feedback also demonstrated the discrepancies between the theory espoused at the institutional level and the theory-in-use at the group level. This supports the view of Argyris and Schön (1978) that changes introduced to enable an organisation to adapt to its environment lead to further problems as unintended consequences and the gap between expected and actual outcomes are exposed. This reinforces the theory that organisations must enhance their ability to learn in the face of the complex process of change if they wish to successfully adapt.

The documentary analysis provides one element of this case study research. In order to gain a deeper understanding of the problems being experienced by staff and the detail required to develop processual knowledge, this analysis is augmented with data generated by focus group discussions with advising heads. The purpose of the focus group study was therefore to use expert knowledge and validated data to identify the issues affecting advisers and, by extension, the ongoing problems referred to by the university community in quality assurance and staff survey feedback exercises. The following chapter describes the themes covered by the focus group exchanges and helps to further contextualise some of the organisational problems identified in the documentary analysis above.

Chapter Six - Focus Group Analysis using the Burke-Litwin Causal Model of Organizational Performance and Change

Introduction

The exploration of organisational data and its analysis using the Burke-Litwin Causal Model of Organizational Performance and Change (Burke and Litwin, 1992) in the previous chapter provides an overall picture of the institution, describing the background and context for the changes that occurred in the university over a period of several years and categorising the data according to the model's twelve factors in order to help make sense of a complex situation. This analysis demonstrated the discrepancy between the espoused theory and the theory-in-use of the university and the conflicts and contradictions which have led to this situation (Argyris and Schön, 1978). However investigation of factors at the organisational level does not provide the detail required to fully understand the ways in which the changes which occurred impacted upon individuals and groups within the institution. In this chapter, the tasks and business processes associated with advising are investigated within the framework of the factors defined by Burke and Litwin (1992) and their relationships with the other factors are analysed and discussed. The reasons for the dissatisfaction and anxiety evidenced by the documentary analysis are explored within the focus group discussions and the data gathered provides greater detail about the problems being experienced by individuals and groups which are impacting upon the operation of the university.

As previously outlined in Chapter Two, hidden knowledge is produced by examining business processes and narrative accounts of change (Dawson, 1997). Such a form of investigation provides insight into the knowledge processing underlying the tasks and systems involved and helps to identify the wider problems which are responsible for the errors within processes. This in turn allows the identification of weaknesses within the learning of the organisation, contributing further direction as to how organisational learning and knowledge management can be enhanced and change can be better managed in future. By examining

business processing and outcomes, information related to motivation, individual needs and values and work unit climate is revealed. This information provides a deeper understanding of divergences between tasks and the skills required to complete them and the reasons why, providing knowledge that is critical for understanding how best to design systems and structures, as well as refine management practices. Finally, the examination of processual knowledge (Dawson, 1997) allows identification of weaknesses in factors related to mission and strategy, leadership and organisational culture providing an account of all facets of the organisation (Dawson, 2014).

In this chapter I will begin by examining the business processing data obtained from the focus groups with the advising heads. In the initial two focus group meetings the discussion related to the following topics:

- The main challenges facing advisers during the registration and enrolment period
- The impact on advisers
- Potential solutions and whether they involve changing:
 - Student Records System
 - Business processes
 - Knowledge Transfer (communications/training/expert users)
 - University policy
 - University structures (staffing/resources/etc)
- Immediate priorities and medium to long-term goals?

These topics were identified following analysis of the documentary data and the concerns raised by staff in relation to use of the SRS and were aimed at prompting discussion in relation to processual knowledge and organisational dynamics. The third focus group meeting reviewed the actions from the previous groups and their progress and also involved a discussion of the process relationships within the student records system (SRS) and advising and the tensions and conflicts arising from system dependencies. Following each meeting a summary paper was

produced and sent to the focus group attendees for approval, with the discussion categorised into broad themes related to the process involved and the impact of the problem described. The proposed next steps or solution and a timeframe for completion were also documented. These papers were also sent to the advising committee and operations group responsible for registration planning to provide further validation for the topics discussed and the data gathered and to take action on some of the points raised during the focus group research. Following this validation process, the data gathered was categorised into the system process themes defined in Figure 1 - for example, programme registration, class enrolment, and assessment, progression and award. However it became apparent that a significant number of issues raised did not fall neatly into a system process and instead related more generally to the overall process of academic advising, demonstrating the interrelated nature of processes and tasks. This data is presented in Appendix C. The topics discussed and actions agreed were then analysed according to the Burke-Litwin framework (Burke and Litwin, 1992) and placed into the change factor taxonomy prescribed by the model. Quotes from the focus group discussions provide evidence of the sorts of concerns held by advising heads and their teams and these are provided in the discussion of the data below. References to the issues raised by the focus groups are denoted by the focus group reference (FG Ref) and the number attributed in the appended data.

The chapter structure is the reverse of Chapter Five; first I will describe the focus group discussions within the context of the transactional factors contained within the Burke-Litwin framework (Burke and Litwin, 1992), reflecting both the nature of the feedback produced and the position of processual knowledge within the model. The university's transformational factors are then reanalysed within the context of the processual knowledge produced and reasons for the previously identified tensions between the theory espoused by the institution and the theory employed by its staff and students are proposed. The data produced by the focus groups is again summarised at the end of each section and placed within the framework itself to provide an enhanced map of changes and outcomes at an institutional level and a more detailed picture of the way in which knowledge production at the group and individual level affects the organisation's ability to

learn effectively and to the benefit of all stakeholders. This data analysis is also summarised in Appendix D.

Transactional Factors in Academic Advising

The transactional factors, as defined by the Burke-Litwin Model (Burke and Litwin, 1992) are shown in the diagram below. As mentioned in the introduction, these factors provide the initial focus of this chapter and a better understanding of the knowledge revealed through the examination of process and change.

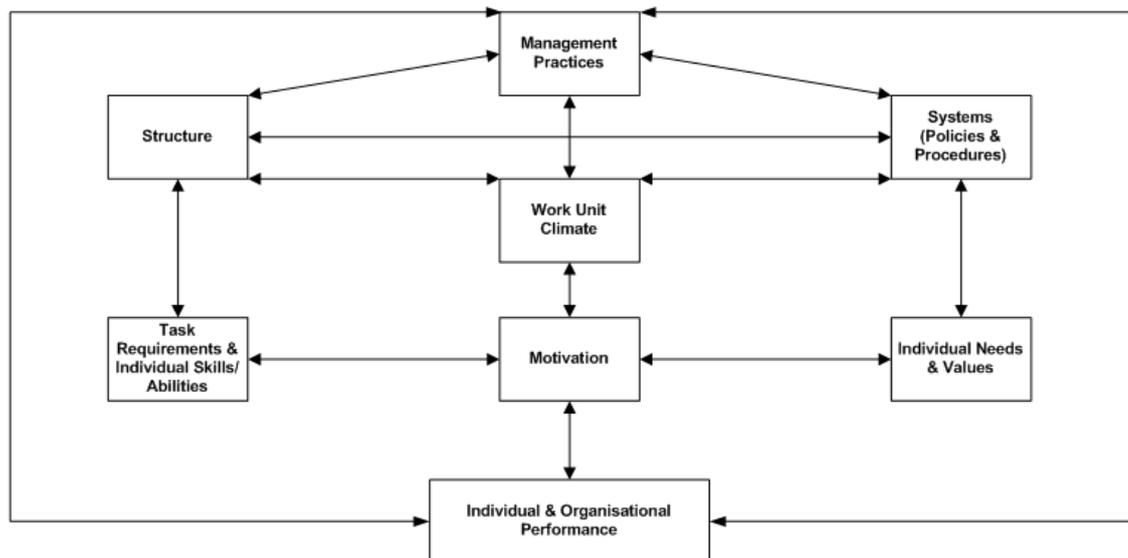


Figure 8 Transactional Factors of the Burke-Litwin Causal Model of Organizational Performance and Change (adapted from Burke and Litwin, 1992. Permission to reproduce this figure has been granted by SAGE Publications)

Structure

The structure of the university and its academic provision is reflected in the membership of the advising committee. Each undergraduate degree is

represented by a head of advising and, as described in the previous chapter, they have responsibility for the provision of appropriate student support and training for advisers. The advising heads who attended the focus group meetings came from a range of academic backgrounds, including science, arts, business, education and veterinary medicine.

The differences in disciplines and the methods employed to provide teaching in diverse subjects is also reflected in the various ways advising is provided and supported across the university. Over many years subject areas have developed their own systems and management practices and this has resulted in diverse cultures and work unit climates. This became apparent during the focus group discussions; while there was general agreement across a number of areas as regards the sorts of problems experienced by staff and students, other concerns expressed by advising heads related more specifically to their own area within the university and the ways in which teaching is managed. In Focus Group A which involved advisers from areas where students have little curriculum choice, the advisers' discussion related more to the problems involved in meeting with students and managing notes from the meetings, rather than the challenges of cross-departmental working which accounted for most of the discussion in Focus Group B. Inevitably this variation in practice leads to differences in advising support models applied across the university and challenges in terms of providing systemised and standardised solutions which are able to meet the priorities of all areas and methods of advising support. The differences between groups are summed by the following quote from the final focus group:

I think that there is clearly a sort of divide, a difference here in the things which concern your students and advisers and the things which concern our students and advisers... (Adviser 7)

The focus groups also demonstrated that, while the restructuring of the university had not changed the academic structures of the undergraduate degrees offered,

it had led to significant changes in the ways in which teaching was administered (Doc Ref 019). This had resulted in communication problems and ambiguity, leading to stress and frustration for staff and students. In the previous chapter, the 2012 staff survey results (Doc Ref 034) demonstrated a high level of dissatisfaction with communication across the university and a lack of understanding as to the reasons for the various changes being introduced and this was further reflected in the discussions with advising heads. The focus groups reported that there was confusion over tasks required for registration and enrolment each year and this related not only to the new systems, policies and methods being used to carry out processes, but also to identifying the owners of data, knowing who to contact in the event of a problem and understanding the dependencies that exist between different processes and departments (FG Ref 014). Inevitably this had an impact on the use of the new SRS, as many staff and students found themselves experiencing problems and unsure of who to contact for help. The structural factors highlighted by the focus groups are summarised in the table below. While some of these problems were resolved as new structures and systems became embedded, problems remained for advisers and these are outlined further in the following sections, along with discussion of the solutions proposed and implemented as a result of the discussions.

Structure
<ul style="list-style-type: none"> • Various teaching models • Various advising support models • Different priorities • Changes to academic departmental structures • Increased interdisciplinarity • Various administrative support structures

Table 13 Summary of Change Factors - Structure (Focus Group Evidence)

Systems

Unsurprisingly, given the questions asked of the advising heads, a significant amount of the data generated by the focus groups related to the systems aspect of the model either in relation to the SRS or, less directly, in respect of the revised advising model. The main problems highlighted related to timetabling and enrolment, student progression through their degree, the quality of data within the system, the impact of various policy decisions and the overall student experience.

Prior to the introduction of the new SRS students were enrolled into classes via a variety of local practices, using scattered, local databases and spreadsheets. The institution's strategic focus on the streamlining administration and improving resource allocation led to greater standardisation of processes and the networked management of timetabling and enrolment. Class times and capacities were entered into the SRS and students were given the ability to choose their own classes, subject to eligibility and availability. This change to enrolment and timetabling processes was introduced in response to student feedback calling for flexibility and greater choice, however it marked a significant change for departments and led to confusion, as evidenced by the lessons learned report cited in Chapter Five (Doc Ref 005).

The focus group discussions relayed a sense of confusion in relation to the selection of an appropriate timetable and this affected both students and advisers. The problem was described in the following quote, which prompted agreement from the other attendees:

I certainly found a lot of students have problems. I mean it's a kind of, sort of a multi-dimensional puzzle to juggle your three subjects with its set

lectures and so on to actually get them all to mesh together and they have huge problems in visualising it and resolving the timetable clashes and a huge reluctance to, for example, fix a timetable clash by changing the timetable of another subject. And that was compounded by the fact the courses were filling up left, right and centre and so they were in absolute petrification...and advisers were as well...petrified about, sort of, dropping it to change it. (Adviser 6)

This demonstrates one of the challenges inherent in introducing new systems to support existing practices. The requirement for students to select three subjects within a workable timetable was not new to the university, however the timeframes involved and the method used to complete the process had been significantly altered and this resulted in stress and anxiety for those involved, illustrating the emotional impact of change. This anxiety about losing out on places may also account for an issue raised in Focus Group B, where it was reported that some students were enrolling into too many classes and were exceeding the normal requirement to study 120 credits per year (FG Ref 019). It was agreed that the upper credit limit for students should be reviewed and adjusted and that advisers should be checking their students to ensure they were enrolled on the required number of credits.

The differences between disciplinary areas highlighted previously in the structures section are again evidenced within the systems element. Most students select their classes online, although a different model is used in some of the professional degrees where students are allocated to groups in advance or are enrolled into classes by staff. However during the focus groups, advisers in the general degree areas referred to instances where students were able to enrol into a course online only to find they had been dropped from the course at a later date and were therefore not satisfying their progression requirements for the year. This highlighted concerns that parts of the university were not explicit in informing students of any pre-requisites and were not inputting the required data into the system to manage their class enrolments (FG Ref 018). This apprehension was expressed in the following comment:

It just worries me that in fact what we do is, as it were, unofficially, subjects will be applying priorities but that's not transparent at all. (Adviser 6)

The issue of missing data not only related to class pre-requisites (FG 028), but also to timetabling information (FG Refs 006/021) and progression rules (FG Refs 015/027). The advising heads described instances where classes were not timetabled by the time enrolment was opened, resulting in timetable clashes once the scheduling data was entered. In many cases this led to anxious calls from students to advisers about how to resolve the issue and anxious advisers who were unable to assist (FG Ref 020). Consequently various departments found themselves having to adjust class numbers or room bookings to accommodate students with clashing timetables due to late or changed class scheduling data, causing difficulties for others, as evidenced in the following comments:

Do you mean that you don't have the timetable available for the labs when they're signing up? ... Some didn't and that's what caused huge problems in retrospect. (Adviser 3)

I think slowly that slowly each year individual courses are realising that it might not make much difference to their staff if they don't timetable their tutorials until the third week, but it's got an enormous effect on students potentially. (Adviser 3)

With regard to the progression rules, the issue of outdated data was raised, with one adviser commenting:

It's things like course lists not updated, (progression rules) actually incorrect. I mean they've not been substantially updated since they were first produced. (Adviser 6)

Missing and out of date data was not only found to cause problems for staff and students during enrolment; it also severely impacted the functionality of the system in relation to the automated prediction of progression built into the SRS. Without the required regulations it was not possible to have confidence in the results produced by the system and required the additional checking and manual progression of individual students. This was a particular concern for one area, again demonstrating the differences between academic programmes, however the problems experienced by some advisers in regard to this had had an influence on the perception of the system's performance across the entire institution and the focus group discussion verified that there were high levels of anxiety experienced where there was a lack of understanding. In attempting to explain the reasons why some students with missing grades or awaiting resit results had their manually-applied progression status over-ridden by the automated, rules-based process in the system, one advising head commented:

It is still accurate if it says you are a (fail) but we've allowed you to go on to the next year... The only issue we had was with the students who looked at it, read it and panicked and then staff looked at it read it and panicked.

...

It was not understanding why it had reverted. Now that we do understand it, it's just a matter of telling people (Adviser 4)

The focus group discussions also revealed a lack of awareness in regard to various policy decisions and directives, indicating a need to give greater consideration as to ways in which the policies developed to support strategic aims are communicated to stakeholders. For instance, system 'holds' resulting from debt were highlighted as a concern within the SRS. These holds prevent students from

being able to carry out certain tasks, such as registration, enrolment or graduation until debts to the university are cleared and this can cause delays (FG Ref 009). This was raised by one of the advising heads in the focus group discussions:

I just flagged up there had been financial issues. There's other things that you can't... there's things on (the SRS) that I probably don't understand, like (the students) haven't paid library dues and things like that, so you find although you send things out saying, 'look, you need to do this before you can do that' they just don't respond. (Adviser 1)

This again reinforced the negative perception of the SRS, however it also provided another indication of the challenges staff and students faced in carrying out familiar tasks in unfamiliar ways. The finance policies relating to debt were not new and had been in place in the previous SRS, however the increased process dependencies within the new system meant that the debt penalties were more visible and simpler to apply and this gave the perception that the processes within the new system had introduced a change, rather than applied existing policies.

Another issue which often emerged as a theme within the focus group discussion was the revised advising policy, with comments made in relation to the difficulties involved in recruiting sufficient numbers of subject-specific advisers as recommended (Doc Ref 028).

Getting more people on board is increasingly hard.... Advisers used to want to do it. (Adviser 4)

This presented a challenge in and of itself, but was compounded by the introduction of the SRS and the negative perceptions of it, with one adviser from the general degrees stating:

There is a fear from some of my advisers about...They don't want to touch something in case they get it wrong. They have an apprehension about (the SRS). (Adviser 6)

This view was shared with the other advising heads from the general degrees, with one commenting:

The big problem is getting people to engage with (the SRS) and realise it's perfectly useable because all the horror stories are past. (Adviser 4)

An associated problem related to the issues with recruitment also meant that advising heads experienced difficulties when trying to cover leave for advisers, such as when they went on sabbatical and it was agreed that flexibility should be built into programme advising models to cover such eventualities (FG Ref 005).

Despite the problems with recruitment there was also agreement among some attendees that this was becoming less of a problem as staff unfamiliar with either the previous SRS or the controversy of the implementation took on the role of adviser:

I think new staff coming in... it's much easier because they come in and it's all they know. (Adviser 3)

The input of enhanced curriculum data to the SRS should have helped advisers in their role, by codifying knowledge and information which was often tacit and known only to experienced advisers. However the problems experienced, the inaccuracy or absence of key data and the fear of making a mistake appeared to negate many of the potential advantages provided by the new system. It was agreed that enhanced training would assist in resolving some of the issues documented above, however it was also evident that the areas where advisers had the greatest apprehension about using the SRS were those where academic staff were expected to carry out more processes in the system and did not have an administrative team tasked with supporting advising and the data-entry tasks related to timetabling, enrolment and progression. Commenting on the level of

interaction between academic staff and the SRS in their own academic area, one advising head commented:

We've got everyone as advisers, but they don't touch (the SRS) and that seems to work. If you can get the administrative support... I don't see (the SRS) as an academic... I don't see why an academic should have to get to grips with (the SRS).... I don't see why (the SRS) should be an issue.

(Adviser 5)

This again demonstrates the impact of structures on the use of systems, as well as the influence of management practices and the ways in which resources are allocated.

The development of more tailored training was a solution that could be agreed and implemented by the advising heads and the SRS support team and such an initiative fell firmly within the professional remit of those involved in the focus group (FG Refs 001/011). However it was more challenging to identify effective ways in which departments could learn the importance of timely data quality in relation to better system use and performance. The sense within the focus groups was that the experience of advisers could be improved if there was more consistent use of the SRS across the university as fewer problems were experienced by advisers in departments where curriculum data was maintained in line with annual timelines. An action was therefore agreed to investigate issues related to missing or incorrect data (FG Ref 008); this was to take issues relating to data quality and the deadlines for the completion of tasks back to the advising committee and the operational management group responsible for registration planning and ask that they identify solutions and responsibility for their implementation (FG Ref 017). Reports were also run to identify areas where data had not been entered and had therefore not been updated correctly, with staff asked to go into the system and add the required data (FG Ref 029). While these recommendations could be made, a key factor in their implementation was the management practices in different areas and their impact upon dependent processes and resource allocation. Although university committees may influence decisions and actions, they do not necessarily have any managerial authority and,

as a result, the introduction of new policy and practice can be challenging to oversee and assess. This illustrates one of the key issues facing loosely-coupled organisations attempting to introduce tightly-coupled systems and processes.

The issues raised by the advisers in relation to systems are listed in the table below; their impact in relation to management practices will be further examined in the following section.

Systems
<ul style="list-style-type: none"> • Standardisation of processes, e.g. timetabling, enrolment, student progression • Major changes to local practices • Data quality issues - inconsistent, missing or inaccurate • Lack of knowledge in relation to policy decisions • Lack of clarity establishing ownership of data and processes

Table 14 Summary of Change Factors - Systems (Focus Group Evidence)

Management Practices

The previous chapter outlined the ways in which management practices direct resources to meet the needs of strategic aims and as can be seen from the earlier sections on structures and systems, a variety of different staffing and resourcing models are employed across the institution, leading to differences between areas and challenges in implementing standardised processes for managing student data. The restructuring exercise sought to enhance inter-disciplinarity and the efficiency of practice across the university (Doc Ref 027) and the introduction of the new SRS limited the number of ways staff were able to manage curriculum data compared to the previous system. As a result of these changes, there continued to be a mix of support needs and priorities across different areas.

In many cases differences in staffing models continued to persist for valid academic reasons. For instance, in the professional degree areas there was little or no requirement to interact with other academic areas on teaching matters. As a result, problems with inaccurate data could be better contained and managed. However the advisers responsible for the general degrees and greater cross-departmental working tended to experience more problems as a result of their reliance on other departments' data and the lack of consistency in support models across the organisation. This meant they were often unsure where responsibility lay for fixing data errors and the advising heads reported that this led to delays in resolving issues and a poor experience for the students affected, as demonstrated in the following quotes:

The ideal world would actually be a situation where it was easier to get hold, for the student to get hold of the class head. (Adviser 4)

It is difficult sometimes to know who course co-ordinators are. (Adviser 3)

The focus group attendees agreed an action to provide more bespoke system and advising training. The purpose of this was to help to mitigate some of the issues faced by advisers as they found it difficult to place the existing, generic system training within the context of the specific advising model employed by their subject area (FG Ref 001). This marked a change in the management of training for advisers and administrative staff involved in the process and provided an acknowledgement that the current training methods were not achieving the desired results.

The focus group attendees also described the way in which the role of the adviser had changed in regard to the sort of support expected by students. The changes to the student population resulting from the changes to the higher education sector, along with the provision of more specialised support services had increased the requirement for advising staff to have knowledge of the range of non-

academic services available and the ways in which those services could be accessed. This pointed to a problem with the way in which student services were being communicated to staff and suggested that students were not always referred to the appropriate service in a timely manner. There was a concern that this placed additional pressure on advisers, especially at the start of the academic year and this was evidenced in the following comment:

As soon as enrolment starts, the number of things... 'I've got a problem with finance', 'Oh go and speak to your adviser'... No don't go speak to your adviser about finance, we haven't got a Scooby. (Adviser 3)

While the provision of non-academic services to students was centralised and standardised, the role of the adviser and the relationship developed through face-to-face meetings encouraged students to ask about advice on a range of matters, not all of which were in the adviser's realm of expertise. Information about student services was provided to students in a range of formats, however there was evidently still widespread confusion about the appropriate ownership of tasks and a clear steer as to what should be expected of an adviser of studies. In recognition of this and after having observed examples of different administrative advising support models across the university, the advising head from one of the larger programmes of study reported that they were planning to implement a dedicated support model to provide assistance to students in areas such as enrolment and timetabling in an attempt to remove the data entry tasks from academic staff and allow them to concentrate on the academic guidance aspect of their role (FG Ref 013). This demonstrates an evolution in management practices following the introduction of the SRS and the new advising model; having attempted to process student data using the existing support models it became apparent there was a divergence between the tasks involved and the skills of the staff being asked to carry them out. The creation of dedicated administrative resource was a recognition of the range of processes involved in advising and resulted from learning through individual experience and the experience of other work units. To assist the other advising heads with this problem, another action

agreed by the focus group was to request further information about matters relating to fees in order to assist advisers with any queries received from students (FG Ref 026).

The concerns of the focus groups in relation to the confusion experienced by staff and students during the registration and enrolment period were highlighted to the operational management group responsible for oversight of the process (FG Ref 014). An enhanced checklist of activities which included information relating to timelines, task dependencies and ownership of processes was also created (FG Ref 014). This was introduced in an attempt to mitigate some of the issues raised within the focus group discussions in regards to missing or inaccurate data within the SRS, however it is unclear whether staff were encouraged to make use of the checklist within their local area or how widespread its use was, once more illustrating the challenges of managing loosely-coupled, autonomous units.

The key points raised in relation to management practices are summarised in the table below and their relationship to the work unit climates across the institution will be examined in the next section.

Management Practices
<ul style="list-style-type: none"> • Various resourcing models • Changes to training • Confusion over activities and task dependencies • Communication problems • Centralised specialist services vs adviser contact

Table 15 Summary of Change Factors - Management Practices (Focus Group Evidence)

Work Unit Climate

The variation in structures and system use was also shown in the focus group data to have an effect on the work unit climates across the university. In the professional degrees, where there was less reliance on working across disciplines, there tended to be fewer issues with cross-departmental relationships and data ownership. Problems with communication and inter-disciplinary working were experienced more often when advising degrees which involve teaching across multiple departments. Therefore students studying joint programmes across multiple departments could experience a range of issues in relation to enrolment and timetabling, which could have the effect of negating any positive experience gained by departments who had ensured their data was complete and accurate prior to the opening of class enrolment.

During the focus groups it became apparent there was a belief that some areas of the university were less inclined to see data input as a priority. For instance, in one discussion the following comment was made:

Course catalogue content is pretty ropey, because, and people deliberately made it ropey because you may have to put it in through (the course approval process) if you want to improve it, so nobody wants to do that because then if you change the content of the course, it then has to go through (the course approval process) again. (Adviser 4)

Another issue highlighted related to certain areas regularly returning late grades, which had the impact of delaying progression or qualification for the students involved (FG Ref 017). This was of concern to advisers in the focus group, especially in regard to the provision of joint awards and the effect of late grades on the ability of their own area to deliver timely and accurate results. Another impact of late progression is a delay to registration and enrolment for students, leading to additional pressure on advisers as students find many classes are

already full or are quickly reaching capacity. There was some discussion around the reasons for this difference in practice across the university; one adviser proposed it was related to the increased numbers of students being taught and assessed, however this was disputed by another who advised that there were areas with comparable numbers of students who successfully managed to return their grades well within the deadlines for publication and progression.

Some schools regard it as a matter of pride to return their results late. You always know which ones you'll be waiting for, let's put it that way. (Adviser 3)

The issue of the late return of grades by certain areas appears to relate to a cultural aspect within work units and it was evident that this was frustrating for some working in areas where this practice was not common. The impact of long-standing traditions and customs was also articulated in the quote below, with one adviser describing the pressures placed upon staff at a critical point in the academic year as they attempt to manage the resit results for the previous year at the same time as they deal with the start of the new academic session:

One of the things that really does put the pressure on the September running of progress is the fact that these deadlines are just so late and it's such a tight turnaround for us.... Because everything else has kind of crept back except the resits and we get about ten days to mark forty-five honours scripts for a course - have to be double marked in ten days - but we seem to have to allow three weeks to mark ten students doing a Second Year course, just in case somebody's on holiday. I'm sure they could tighten it up. (Adviser 3)

This issue was referred to the advising committee to take forward (FG Ref 017) and it provides evidence of conflict between different work units in relation to

the execution of their business processes and the impact on students. Concerns related to the availability of advisers and the timely provision of advising sessions were also raised within the focus group, with one advising head noting:

I think that, you know, the choice of the other subjects worries them a great deal more and therefore potentially at open days, applicants visit days and so on, when you get these worries the way to meet the worries is to say 'don't worry, you know, you will have an Adviser of Studies, you can talk to' and so on, but then of course if they wait until they come and see the Adviser of Studies all these classes have filled up and then you've got other problems. (Adviser 6)

The restructuring of the university also impacted upon the provision of advising services as individuals found themselves working within different groups from previously, thereby changing the relationships and forms of communication from those which had gone before. This demonstrates the inter-relatedness of the various roles and priorities within higher education; while the academic structure of the degrees offered remained unchanged by the restructuring of the university, the organisation of units supporting their provision was significantly altered and this necessitated the creation of new relationships and dependencies in all areas related to advising, teaching and research. This led to a period of adjustment while the revised structure bedded in and an understanding of relationships evolved, however it also led to conflict and mistrust as staff and students experienced a period of anxiety and uncertainty and it was difficult for the university to effectively address the problems this created and the negative perceptions of the SRS which arose when it was introduced. This is evidenced by the continued, widely-reported belief in the SRS as unworkable despite university reports of it having provided various benefits (Doc Ref 011). This perception was described by one adviser in the comment below:

The one thing I've definitely found is that you do get a lot less complaints and queries from people, apart from at enrolment. That's the only aspect that now causes a lot of problems, but because that all happens at one time it knee-jerks everyone back to 'argh, this system doesn't work'. It works fine; the next fortnight is going to be a bit painful. (Adviser 4)

The change in management practices to provide administrative support to advisers was hoped to provide some mitigation to the situation described above. By employing staff who are required to use the SRS throughout the year, rather than for a limited period at the start of each academic year it was anticipated that issues related to system use and poor data quality would be addressed to some extent by bringing the tasks involved and skills required into closer alignment and assist with cross-departmental communication (FG Ref 013). However this represented yet another change to the work units supporting advising as new roles were created and administrative staff appointed to carry out academic processes.

The work unit climate issues raised in the focus groups are listed in Table 16 below and reflect the themes emerging from the previous sections in relation to change, variety, cross-departmental working and consultation. In the following section I will look more closely at the ways in which these factors have impacted upon processes and tasks and changed the skills required to carry them out.

Work Unit Climate
<ul style="list-style-type: none"> • Changes to work unit structures and roles • Workload problems and anxiety • Differences in working locally vs cross-institutionally • Lack of consultation • Changes to systems and processes

Table 16 Summary of Change Factors - Work Unit Climate (Focus Group Evidence)

Task Requirements and Individual Skills/Abilities

The focus group discussions provided clear evidence that advisers did not feel their skills were aligned to the tasks required by the SRS in the provision of advising, either because they reasonably felt that it should not be their responsibility to manage student data - as demonstrated by the earlier quote from Adviser 5 who could not see the point of advisers 'getting to grips' with the SRS - or because they felt they had not been provided with sufficient training or knowledge. This resulted in stress for students and staff and posed a significant challenge for the university in building confidence in systems and data accuracy.

The SRS also represented a significant change to the way in which advisers carried out their role, removing the requirement to carry out certain tasks, such as curriculum approval prior to enrolment, while also introducing new ones. This resulted in confusion as advisers who were used to the previous system attempted to understand their role within the context of the changes introduced. One reason cited for the confusion experienced by advisers was that they did not understand some of the data values within the system and their meaning (FG Ref 024) and clarification was sought as to what they meant and how they were used (FG Refs 024/025). Another reason was because they were unfamiliar with the screens students used to carry out tasks (FG Ref 011). While advisers could view the student's curriculum and enrol them onto classes, they did so using different screens and pages from the student's 'self-service' view. This meant that they felt they were unable to assist students experiencing problems and they reported they were unclear where the students should be referred in these instances, as demonstrated by the comment below:

It does just look like (progression) rules, but I didn't know that. I know these words appear for them, that's why we put the words in, but it's just not knowing quite... as (Adviser 3) says it's, you sort of go, 'it's probably

called this and it probably looks a bit like that' which is the last thing you want when you've got an irate parent or a distraught student ... if there's a wee, just printed off screen grabs, that you know, that would make it a little easier. (Adviser 4)

Guides containing screenshots of the student self-service pages were made available to students via the web to help them with enrolment, however it became evident that advising heads - and therefore advisers - were not aware that this resource was available and could be accessed to provide them with additional information. The action agreed by the focus group (FG Refs 003/011) was to ensure that these guides were provided to staff, however this highlighted a wider concern related to the dissemination of existing information and processual knowledge across the university. Screenshots of the student's view of the SRS had been available since its introduction and had been shared widely with staff, however over three years later there seemed to be a lack of awareness either that this knowledge could be easily accessed or that staff were unaware it existed. This signifies a critical weakness in the methods being used to communicate information to and from staff. While the information already existed to help provide staff with the skills they required to assist students, it took a several years for this straightforward issue to be identified and addressed. It is perhaps then inevitable that those same weaknesses also led to more challenging conflicts between tasks and skills, requiring a more complex understanding of the underlying issues and the potential solutions.

One of the strengths of the SRS is also its key weakness: its complexity. Tasks such as curriculum-building, timetabling and progression require specific knowledge related to both the data and processes involved. The focus groups revealed some concerns in relation to the quality of the data contained within the system as a result of the knowledge required for its input and maintenance. While actions were taken following the focus groups to remind staff of the requirement for accurate and timely data (FG Ref 021), there was also a feeling that some staff were being asked to carry out complex system tasks and they did not have the

technical skills required to ensure data accuracy. Although the tasks remained largely unchanged it was agreed that the introduction of the system had marked a significant change for users:

All the same tasks are still there... It's just that instead of it being done in a small department, everybody's being asked to do things the same way and there's formal protocols of doing it. Everybody sees it as changes, but there's relatively little that's brand new. (Adviser 3)

The increased adoption of administrative advising support models and clearer delineation of tasks between academic advisers, administrators and specialist support services came in recognition of the need to align staff skills and competencies with the range of tasks required of their roles. However this delegation of tasks across roles was not uniform in its implementation and this resulted in continued discrepancies between student experiences based on their area of study.

The variance of advising and teaching support models employed across the university, combined with the complexity of academic processes and the tasks involved in their execution led to some of the problems with the quality of data which impacted upon students. However the focus group discussions also confirmed that much of the poor quality data in the SRS was legacy data from the previous system, with one adviser remarking:

As the errors which came in from (the previous SRS) get wiped out and we're starting to put in more accurate information, it is getting better with each year. (Adviser 3)

The increased inter-dependency of accurate data in the new SRS to ensure students are enrolled on an appropriate curriculum also means that data problems which existed and were unresolved in the previous system are now identified and addressed earlier, helping to ensure better data quality:

One thing I would say over the last couple of years it's, there are fewer records that we have problems with because the duff information that was brought over from (the legacy SRS)... I've lost track of the number of times I've had to say to advisers, 'no, (the legacy SRS) was full of mistakes because you never bothered to do the things you were asked to do then'. It was just it didn't get picked up on (the legacy SRS). (Adviser 3)

Therefore, while there are evident problems related to its input and maintenance, it also suggests that the greater complexity and dependencies within the system also provide safeguards to ensure better data quality. A significant challenge for the university is to identify and understand the reasons for any differences in results or experience in terms of system use and provide targeted responses to areas to help develop knowledge of the organisation and the skills required to operate the tools used to support the student lifecycle. The organisational learning required to enable a better student experience and data quality requires even more changes to structures, management practices and systems, involving greater investment and resource planning than the simple provision of screenshots or additional training. A comprehensive review of the tasks involved in the successful completion of a process and an assessment of the existing skills and roles in order to better meet the needs of both students and staff across the organisation is necessary. However unless there is leadership in taking these actions, the real benefits of changes to structures and systems will not be realised.

Additionally, and equally daunting a task, is the need to ensure future skills needs are met and this can only be achieved through detailed understanding of processes. Inevitably staff will move on to other roles and it is vital that important

knowledge is not lost, coming to the detriment of future students and staff. There is currently no strategic focus on knowledge transfer within the organisation and this is a significant problem for the university as a whole. One adviser summarised the situation with the following comment:

It's frightening when we think about it, the amount of understanding of what's actually in there that, you know, since the whole system started how far, you know, if there are some of us who weren't intimately connected with the building of things and lots of people have retired or left roles or whatever and just the amount of not knowing that's around within a fairly short period since the system was underway is rather alarming. (Adviser 7)

It is not only the operation of the university and the skills required to carry out processes at the moment which is of concern to staff; there is also anxiety that any knowledge which does exist can be easily lost and not so easily regained. While this is not a problem related only to advising or use of the SRS - indeed it can be argued that it is a greater problem for universities where no attempt has been made to codify tacit knowledge - it does underline a broader problem facing the university in relation to organisational learning, staff turnover and contingency planning.

The focus group themes related to this factor within the model are listed in the table below and their influence on the remaining transactional elements are examined in further detail in subsequent sections.

Task Requirements and Individual Skills/Abilities
<ul style="list-style-type: none"> • Inappropriate tasks for academic staff • Changes to tasks from legacy system • Lack of visibility of student processes • Greater complexity and more dependencies between tasks • Skills not matched to tasks • Lack of succession planning - loss of critical knowledge

Table 17 Summary of Change Factors - Task Requirements and Individual Skills/Abilities (Focus Group Evidence)

Individual Needs and Values

Burke (2014) concludes that the culture of the organisation is influenced by the alignment between the needs and values of individuals and the organisation itself. The SRS lessons learned review (Doc Ref 005) provided evidence that many staff felt that their own needs and those of their students were neglected in the university's drive for change. This view was reinforced by the focus group discussions.

The documentary evidence in the previous chapter demonstrates that there was a feeling among many staff that the SRS and the advising policy introduced had resulted in a detrimental effect on their teaching and research activities. Staff and student confusion, the length of time taken to identify and resolve issues and the need for greater data accuracy to enable business processes meant that many staff spent more time dealing with errors and complaints than previously which took time away from academic endeavours (Doc Ref 024). However what is unclear is whether more problems were being reported than previously or whether more staff were involved in data processing and therefore had greater visibility of issues than before. Nonetheless, this perception led to a reduction in staff motivation and a belief that the university was not responding appropriately to their needs.

One common complaint in the focus groups was that the SRS did not meet the needs of advising staff in relation to tracking and monitoring advising meetings (FG Refs 002/010). While the codification of curriculum rules was intended to remove the need for advisers to approve students' curricula prior to their enrolment into classes, there was still a need for staff to check students had selected the required number of courses and credits and for advisers to meet with students periodically to check their progress. These checks were enabled using flags within the system; one was removed following the advising appointment and the other removed once the student's curriculum had been checked. However, despite the provision of these flags their use was inconsistent across the institution and even within programmes, which resulted in inaccurate data when attempting to monitor curriculum checking and engagement with students. As one advising head related in the focus group:

(The appointment flag) is the 'go see your adviser', which I really like... (It) is very good if advisers will take it off. (Adviser 4)

This revealed a problem with staff engagement as the feedback from the advising heads suggested that the flags met their needs in this regard, therefore there were other reasons for staff being unwilling to make use of the functionality.

An additional complication related to the fact that variety of different models for meeting with advisees are employed across the university, with some areas holding group advising sessions and others arranging individual meetings. This resulted in different areas having different methods for arranging appointments which meant that it was not possible to apply a one-size-fits-all system solution to attempt to resolve the issue. However it also became clear that the problems related to meeting with advisees was not a new issue resulting from the introduction of the new SRS. Raising the issue of advisers' time being wasted when

students fail to turn up at individual meetings (FG Ref 004), the following comment was made in Focus Group A:

Staff had set aside time and so staff get very annoyed when they've set aside time....I moved office this year and I found all my old advising notes from when we were on (the previous SRS) and I was looking at all my appointments and I could see all the, you know, X's for the ones who hadn't turned up so the problem's always existed.' (Adviser 2)

The systematisation of certain policies related to curriculum choice also had a negative impact on academic staff in relation to their other roles and responsibilities. The university allowed students to change their minds and swap onto other classes up until the second week of teaching in each semester, which meant not only that students were able to change their class choices after they has been checked by their adviser (FG Ref 022) but also that class enrolments for the second semester were not finalised until mid-January, despite enrolment for those classes opening in August (FG Ref 023). One advising head who was also responsible for co-ordinating teaching in his area remarked:

At the start of 3rd Year you want to get to the end of week 3, week 2 and you go, right, these are the students that are going to be taking these compulsory, these elective modules and the second semester ones they can keep adding and dropping which basically means that class heads who want to plan ahead and think what do I need to do, can't. (Adviser 4)

Again, the academic policy which provided students with the freedom to change their minds about a class after having attended it for a period was not new to the university, however it had not previously been codified into any system and it was therefore easier for departments to apply their own local policies in relation to this. While the new SRS provided various means by which different areas could continue to close classes and prevent further students enrolling at a time of their

choosing, the application of these methods could be seen to run contrary to the spirit of the university's policy on this matter, demonstrating the divergence between the needs and values of the students in relation to choice and flexibility and the needs and values of academics with regard to planning and teaching.

Although the focus group provided few examples of technical problems related to the SRS, it remained evident that the system's introduction and the requirement for data accuracy and process knowledge had a notable impact upon staff perceptions of the system, with many of the opinion that it was unintuitive and unsuitable for use (Doc Ref 002). Advisers were confused about navigation within the system and the advising heads were often unsure how to assist them as different staff had differing permissions within the system and therefore had more or fewer menu items available, depending on their other roles in the university (FG Ref 012). Inevitably the difficulties experienced in using the system had a detrimental effect on the motivation of staff, both in terms of system use and also leading to feelings of disillusion and disengagement with the university as a whole, as revealed by the 2012 staff survey results (Doc Ref 034). The issues discussed above are recapped in the table below and the following section examines the ways in which demotivation has manifested at the individual and group level and its impact on the organisation as a whole.

Individual Needs and Values
<ul style="list-style-type: none"> • Staff reporting they had not been consulted • SRS time-consuming - less time for academic activities • Advising functionality provided but not always used • Conflicting priorities with others (e.g. students) • Conflicting priorities with other academic roles (e.g. advisers/class co-ordinators) • Perception of SRS as unusable

Table 18 Summary of Change Factors - Individual Needs and Values (Focus Group Evidence)

Motivation

The 2012 staff survey results cited in the previous chapter (Doc Ref 034) demonstrated that many staff felt they were not adequately recognised for their work and they did not feel empowered in their roles. While this result had improved by 2014 (Doc Ref 035), the focus group data indicates that there was still a high level of dissatisfaction with the university and the SRS. The most notable way in which this was evidenced was by the concerns raised by advising heads in relation to recruiting new advisers, with one commenting:

The head of school's got no, I mean he's arm-twisting, to get people to become advisers and the reason they won't do it is (the SRS). They're worried about having to become all powerful gods. Now we've explained to them they don't, but there is so much bad feeling from those who have not used it since it came in that they still think it is this completely unusable thing, that getting more people on board is increasingly hard. (Adviser 4)

The challenges faced in recruiting advisers relates to the perception of the system and both its usability and the expectations placed upon users. What was not clear from the data is whether there was a difference in views across the university or whether this problem was more closely related to certain groups or demographics, however the quote above does indicate that there was a significant degree of trepidation in relation to staff using the system and this was because they did not feel that they had the skills to undertake the tasks required of them or the knowledge required to do so confidently. Despite assurances that they would not be responsible for errors in the SRS, there was still a reluctance to engage with the system and therefore engage with students in an advising capacity. This again underlines the need for clear structures and methods of communication as well as clarity around ownership of tasks and data; without this transparency there is little motivation for staff to take on tasks with which they are unfamiliar and

which will reduce the amount of time available for other roles and academic activities.

By the time the focus group discussions occurred it was clear that understanding of the SRS and its use had progressed from its initial introduction and several areas had restructured their advising support to better align tasks and skills to provide an enhanced student experience, as outlined in the previous chapter (Doc Ref 011). This demonstrates the motivation of advising heads to meet the needs of both their students and staff and reflects the organisational learning which occurred as experience and knowledge of the system and processes grew over several academic cycles. However, while the focus group data confirms that there were no major technical problems remaining within the SRS, the perceptions related to its usability and accuracy remained a significant demotivating factor for advisers and this continued to be a concern for those involved in its provision. The ability of advising heads to make any changes to the structures supporting advising was dependent on the management practices of their own area and the willingness to direct dedicated administrative support to system tasks, a model which was not employed by all areas of the university. Additionally, while enhancements to advising support did go some way to helping staff and students with curriculum processes and data entry tasks, they did not address the problems being experienced when departments failed to enter timetabling or progression data correctly or on time, which was an area where the advising heads had less influence. Without a clear reporting line for these issues, such as a committee focussed on curriculum issues similar to the advising committee, there was no adequate means by which the problems could be discussed and resolved by those responsible. This ambiguity resulted in problems each year in relation to timetabling and enrolment and, although the reasons for the problems had been identified, they continued to occur and there was no clear or direct strategy aimed at improving the situation across the university.

These concerns were raised to the operations group responsible for pre-registration planning, involving staff from across the university (FG Ref 014),

however it is unclear how information related to the plan for the start of each academic year was disseminated out to the various teaching areas. The persistent demotivation resulting from the experience of staff and students across the institution in relation to timetabling, enrolment and progression is a significant concern for the university and requires recognition of the specific problems relating to these processes. A clear strategy and leadership is required to ensure enhanced student data processing across the entire university, as increased inter-disciplinarity increases the dependencies between departments, services and even other universities and errors created by one area can lead to significant related problems for others.

The factors affecting motivation are presented in the table below. In the following section the impact of the transactional factors on the performance of individuals and the university as a whole is discussed.

Motivation
<ul style="list-style-type: none"> • Reluctance to use SRS • Provision of administrative resources to support advising • Annual problems related to identified issues in timetabling, enrolment and progression • Lack of clear structures for communicating and resolving curriculum data problems • Increased inter-disciplinarity and dependencies

Table 19 Summary of Change Factors - Motivation (Focus Group Evidence)

Individual and Organisational Performance

Both the documentary evidence cited in the previous chapter and the concerns discussed by the advising staff in the focus groups demonstrates that the

introduction of a new student records system (SRS) led to significant changes in the ways staff and students carried out their tasks and fulfilled their organisational roles. This resulted in a high degree of stress and anxiety for many, a situation reflected in both the staff survey results of the time (Doc Ref 034) and the focus group feedback from advising heads who described the challenges they faced in recruiting new academic advisers due to apprehensions about the usability of the system. The issues raised by the focus group attendees indicated that many of the issues experienced were the result of use of the system, rather than a problem with the software or configuration of the system itself. There were also some indications that some of the advising heads were starting to see benefits, such as in relation to better data and also in terms of the student experience, with one commenting:

The visiting students are terribly helpful when (the SRS) appears to be problematic because they tell all our students, 'hey you don't know how good you've got it'. (Adviser 3)

Where data was missed or input incorrectly there was not only an impact on the performance of the department concerned, but also on the perception of the performance of other related departments and the SRS itself and this informed the university's theory-in-use as regards the student experience. However, by concentrating focus on the problems experienced by users, there was comparatively little consideration of the system and policy aspects which performed well when appropriate data was entered, such as early online enrolment, personalised timetables and automated progression.

Some minor technical changes to the SRS were implemented as a result of the focus group discussions, including amendments to progression codes and calculation of end of study dates (FG Ref 016/025). The actions agreed for a number of the reported system problems involved the enhanced sharing of existing knowledge or the use of existing technology and system functionality, rather than

a change to code or the redevelopment of an existing process. However the problems encountered by staff and students as a result of a lack of knowledge about how to use the SRS was felt by the advising heads to have an impact on the university as a whole in regards to the key processes of enrolment, timetabling and progression. The referral of these issues to the committees and management groups involved in their oversight demonstrates the focus group attendees' concerns in relation to the student experience and the organisation's responsibility to understand the challenges being faced in order to develop appropriate responses.

Both the documentary analysis and the focus group data shows that by undertaking a process of 'looping back' (Burke, 2014), the university reviewed its operation in relation to feedback provided and adapted its practices in light of experience and shared knowledge. Two such examples of organisational learning which occurred following the implementation of the SRS include the development of dedicated advising support teams in different areas and the development of the pre-registration checklist (FG Refs 013/014). Both initiatives came about in response to the experiences of staff and were only made possible through the collaboration of individuals from across the university and the sharing of knowledge through both formal networks such as committees and informal, experiential learning. They were also introduced with the intention of developing a deeper understanding of processes, task dependencies and ownership in an attempt to reduce the ambiguity referred to by Argyris and Schön (1978) and to increase transparency and explicit knowledge. As knowledge of new systems and policies has grown, related structures and practices have evolved. The focus group feedback indicated that individual and group performance in advising has improved as system understanding has been developed and confidence in its use has grown, however the data also indicates there are problems related to key business processes which remain unresolved. One example is the late return of grades and the reticence to adhere to university deadlines (FG Ref 017). The appropriate method to tackle these issues is a key challenge for the university in delivering its strategic aims.

In the next section I will discuss the transformational factors once more, this time with reference to the focus group data described above and in relation to the wider organisational and environmental factors affecting advisers and higher education. The individual and organisational performance issues discussed in this section are presented in the table below.

Individual and Organisational Performance
<ul style="list-style-type: none"> • Problems with key processes (e.g. timetabling, enrolment and progression) • Poor experience for some students • Impacts upon university performance • Improvements reported since SRS introduction • Perception of persistent, unresolved system errors

Table 20 Summary of Change Factors - Individual and Organisational Performance (Focus Group Evidence)

Transformational Factors in Academic Advising

Above, the key themes raised by the focus group discussions are placed within the context of the transactional factors of Burke and Litwin's (1992) change model. The focus of the discussions with the advising heads was on the problems and concerns facing them in their roles as advisers and the tasks and processes they are required to carry out. In this section I will explore the focus group data within the framework of the model's transformational factors, discussing the influence of group and individual experience on organisational factors and learning at an institutional level. The transformational factors defined by the Burke-Litwin model are provided in the diagram below.

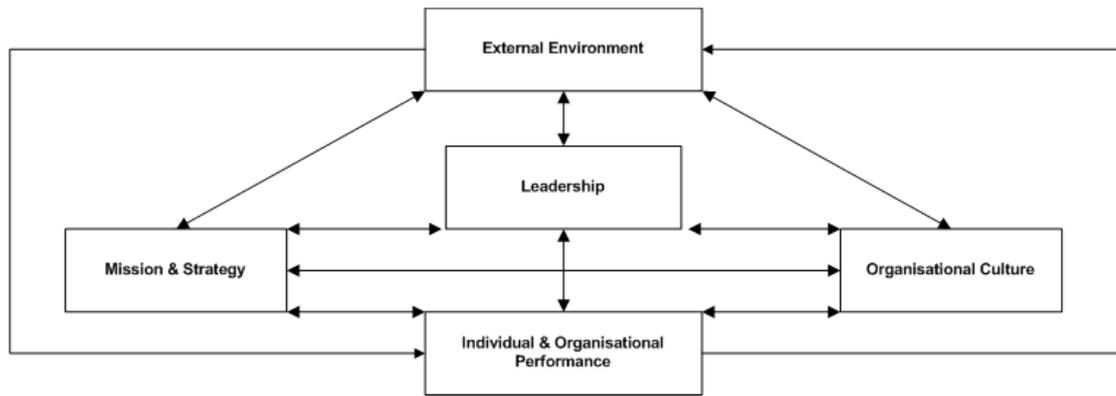


Figure 9 Transformational Factors of the Burke-Litwin Causal Model of Organizational Performance and Change (adapted from Burke and Litwin, 1992. Permission to reproduce this figure has been granted by SAGE Publications)

Mission and Strategy

A continuing theme in the focus group discussions related to the changes which had occurred in the university in the previous few years and the impacts they had had in changing people's roles and ways of working. The mission and strategy of the university, outlined in Chapter Five, describes its commitment to academic excellence, research and internationalisation (Doc Ref 006), however the focus group feedback suggests that staff encounter difficulties in operationalising these strategic aims and juggling the conflicting priorities and deadlines involved in the various activities. The advising heads that took part in this research were involved in teaching and research as well as advising and reported that many academic staff felt that advising took time away from their other activities and was therefore not seen to be a priority. This resulted in problems for the advising heads as they were unable to always provide subject-specific academic advisers or meet the 25:1 advisee/adviser ration recommended by the advising review panel (Doc Ref 007).

As previously described, a reticence to use the new SRS also led to problems in relation to the delivery of strategic aims, even as it was introduced to help meet

the needs and expectations of today's students. The focus group feedback provides evidence that inconsistent use of the system led to varied results and experiences across the institution and that the variety of structures and roles involved in student support contributed to errors and delays in identifying the sources of problems within the system. However the feedback from advising heads also indicated that most students had no problems using the system, as demonstrated by the following comment:

We get a lot of complaints, but hundreds of students go through the system with no complaints. (Adviser 4)

The data presented according to the transactional factors above suggests that for many students with complaints, the problem they face relates more to the data within the system rather than the operation of the SRS itself. It may be that some of the challenges being faced by the university may be the result of the 'digital divide' cited earlier in Chapter Two (Leonard, 2011, p. 292). The strategy and mission of the university has increasingly relied on technology to deliver its aims, be it in terms of its teaching, research or administration and most students adapt to these changes as they have often known nothing else. However the university has also increasingly relied on the ability of its staff to adapt and learn new methods for carrying out their existing tasks. For some this has proven challenging and the advising focus groups provided evidence of the anxiety felt by some staff at the prospect of using the university's corporate systems:

Some of the things are probably, you know, just down to..., the solutions are already there, we just don't know about them. It varies, I suspect, from adviser to adviser and how predisposed they are to (the SRS), but some of them still view it as if it's this big mysterious black box, out of which... which you poke with a stick and things come out of it. And a bit like a vending machine, sometimes it's what you asked for and sometimes it's not. And you don't really know why. I don't think it's fair criticism, but it's one I've heard. (Adviser 4)

The implementation of complex changes and systems has fed into a perception that the university is not listening to the needs and wants of staff in its pursuit of its strategic aims. This view is reflected the staff survey results (Doc Refs 034/035) and reinforced by the perspectives offered by advising heads as to the reasons for problems in recruiting new advisers cited earlier.

While the strategy of the university is very much focused on the ideas of knowledge sharing with regards to academic endeavour, there is less attention paid to strategically sharing operational or processual knowledge within the institution. This shows a conflict between the espoused theory of the university in relation to its academic philosophy and the theory-in-use by its staff who report problems with communication across the organisation and between disciplines. By understanding the challenges faced by staff and students in relation to processes and tasks, the organisation as a whole is better equipped to respond to changes in the institution and in the external environment. A strategic focus on sharing and creating knowledge about processes and process enhancement can provide greater support for university aims and influence better communication between academic and administrative areas.

The concerns related to mission and strategy which were raised by the focus group discussions are provided in the table below and the implications for the other transformational elements will be discussed in the following sections.

Mission and Strategy
<ul style="list-style-type: none"> • Difficulty in operationalising strategic aims • ‘Digital divide’ between staff and students • Multiple roles = conflicts in strategic priorities • No university strategy on organisational knowledge-sharing

Table 21 Summary of Change Factors - Mission and Strategy (Focus Group Evidence)

Leadership

The recommendations made in light of the advising review led to the creation of an undergraduate advising committee and the formalisation of the role of advising head (Doc Ref 007). This change was introduced to provide advising leadership within each programme of study, aiming to ensure the other recommendations of the review were met. While the creation of such a role proved to be useful in helping to identify owners of advising processes and the point of contact for the resolution of problems and errors, the focus group discussions revealed a mixed experience across the institution, with some advising heads experiencing some problems to a greater extent than others. For instance, while the advisers from across the undergraduate degree areas were all familiar with the problems caused by inaccurate curriculum data, those with dedicated administrative support and more tightly-coupled teaching units tended to have fewer problems in resolving the errors. Where advising heads were reliant on academic resource to resolve errors or were working across a large number of different departments, they raised more issues in relation to timetabling, enrolment and progression.

While the advising heads played a key role in the leadership of academic advisers, they had no line management authority over them and therefore their ability to manage and influence the wide-ranging changes which took place in the service was limited. They were tasked with appointing, training and reviewing advising staff, but were required to do so in consultation with the heads of the teaching units, demonstrating the challenges faced by staff in organisations who are required to assume multiple roles. Academic staff are faced with the conflicts of their differing priorities and timescales for their teaching and research and advising is one more activity which has to be managed within the workload allocated to them (Doc Ref 007). Staff report to different leads, depending on the activity and this can lead to confusion when understanding where responsibility for tasks and processes lie. The focus group attendees raised problems related to deadlines being missed and the related impact on progression and enrolment, however within their individual roles in their academic areas they did not feel that

they had the influence or ability to encourage greater adherence to process timelines. Those issues were therefore raised to the advising committee and the pre-registration operations group to take forward with the appropriate leadership groups (FG Refs 017/021). While the issue emerged from a bottom-up process, with advising heads becoming aware of the concerns of staff and students and reporting these concerns, the structure of the university is such that the actions required to make any significant changes involve some form of top-down management or instruction initiated by the formal committee process.

However the structure of the university also plays a role in the effectiveness of such policies; non-standardised structures result in problems when standardised processes are introduced by management. While the issues around deadlines and the related problems were raised to the appropriate management groups and committees, it is unclear how the message was communicated to the various teaching areas and the ways in which planning for enrolment and timetabling was managed locally. One of the actions arising from the focus groups was to send the advising heads links to all the SRS user guides (FG Refs 003/011), information which had been agreed and previously distributed via the registration and enrolment operations group; the fact that advising heads seemed to be unaware of this existing guidance suggests that there were problems in communicating the information to the various academic areas and that the people who needed it were unsure where it could be accessed. Again this reflects the difficulties faced by organisations attempting to implement system and process change in a loosely-coupled environment and the ways in which the impact and benefits of change can be influenced through clearer leadership and ownership of tasks, structured reporting lines and communication, helping to build greater knowledge and understanding of the relationships between processes and different parts of the organisation. Without those elements in place, problems will continue for advising heads attempting to lead teams of academic advisers in providing an enhanced student experience.

Another action which followed on from this research was the creation of an expert user group to support advising. The membership of the user group was widened to

include non-academic staff involved in advising processes and the members were all provided with the notes from the focus groups with the advising heads so that they had an awareness of the topics discussed, actions taken and priorities going forward. The initial agenda was based on the discussions in Focus Group C, where the participants prioritised the issues they wanted addressed. They included the testing of progression rules, the dissemination of better information to staff and students about enrolment and reminders to staff about the way in which a default adviser can be attached to a student, thereby reducing the amount of manual processing required by advisers (FG Refs 027/028/029). The focus group discussions exposed a significant gap in knowledge about advising and the SRS across the university and the user group was created in an attempt to fill that gap on an ongoing basis. Furthermore it was hoped that cross-departmental discussions would encourage better relationships and communications between users from across different academic areas and enhance the level of service provided to students.

The factors related to leadership which were raised within the focus group analysis are provided in the table below. The evident variety which exists within the university and the impact of those differences on the culture of the institution are examined in the next section.

Leadership
<ul style="list-style-type: none"> • Advising heads - no line management authority over advising staff • Various leaders depending on activity • Committee process • Diverse departmental structures and ownership of tasks • Expert user groups

Table 22 Summary of Change Factors - Leadership (Focus Group Evidence)

Organisational Culture

The culture of the university is strongly identified with the artefacts and traditions of the institution, however the focus group research confirmed that within different parts of the university - and even groups within those areas - different cultures exist. One way in which this was evidenced was the difference in priorities for advising heads depending on the type of degree being offered. Advisers in the professional degree areas were keen to develop a personal relationship with their students and this is perhaps reflective of their role in preparing students for work within specialised sectors, such as medicine, law, finance and education, as demonstrated by the comment below:

What I'm capturing on paper is whenever they come in in first year I meet them and I get to know where they come from and why they've decided to do this... I just try to get a picture of that student generally so that whenever they come in the next time I can say, well you know, 'how's your rabbit?' and you know, just seem as if I have some idea of who the hell they are rather than just a number. (Adviser 1)

Advisers in the general degree areas were more concerned with topics related to cross-disciplinary working and ensuring advisees were provided with accurate and appropriate information, as evidenced by the quote below:

It's not necessarily so much personal information, it's more about the nature of discussions you've had with them. At the moment they... if you had that discussion or you gave them a warning about a particular route they were taking, you've got a date against it, you've got a paper trail. (Adviser 6)

This is illustrative of the variation in the role of adviser across different areas and is related to the flexibility - and therefore complexity - of the degree structure involved. Where students have more choice and study across different departments and disciplines, better tracking of discussions and advice is required (FG Ref 010). In the programmes where there are few optional courses and which often lead to a professional qualification, there is a greater focus on pastoral care and the development of a personal relationship (FG Ref 002).

However, even within subject areas, differences existed in the ways in which advisers engaged with the processes and systems involved. The changes to the ways in which student services were offered marked a cultural shift towards greater specialisation with advisers unclear as to either the reasons for the changes and confused as to where they should refer students or respond to queries related to issues with finance or registration. The diversity in the student population was also shown to have impacted upon advisers; additional pressures were placed on staff to ensure timely progression in order to assist students on international student visas or with work commitments (FG Ref 017). The strategic focus on increasing postgraduate students (Doc Ref 006) placed additional limits on the availability of staff for undergraduate advising as well as increased pressures on timetabling and room allocation processes, all of which added to staff and student anxiety at the start of the year.

A clear cultural issue raised in the focus group discussion related to the various deadlines involved in tasks and the impact of groups or individuals who consistently processed their data after the published deadlines. This was viewed as a difficult problem to tackle as it would involve addressing traditional working practices within the areas involved and this could potentially lead to conflict. This also provided an indication of the way in which the academic year is changing; with activities in higher education carrying on throughout the year, the traditional, extended summer break is now not possible for many staff. The request by the advising heads that the university look at reviewing the deadlines for the return of resit results (FG Ref 017) demonstrates the way in which certain policies have failed to keep pace of the other changes and as student

expectations, technology and academic services evolve, traditions in the university persist which can create unintended problems for staff and students.

It is inevitable that as society progresses and change continues, cultures will also be subject to adaptation. However, while Burke (2014) places this factor within the realm of 'tightly-coupled', the data from this study suggests that culture can be viewed as both tightly and loosely-coupled. Although the university as an institution presented a strong sense of tradition and history, the ways in which different areas carried out their day-to-day operations demonstrated a clear difference in priorities and methods, some of which were related to the subject area concerned and some of which had arisen as a result of previous custom and practice. The introduction of the new SRS changed the way in which processes were carried out and where departments continued to use local lists, spreadsheets or databases for tasks such as timetabling or enrolment, problems occurred for students and staff across the organisation. These problems helped to reinforce the negative view of the system as being unworkable and, in many areas, this became a commonly held belief and an influential factor when attempting to recruit advising staff.

The cultural aspects of an organisation are critical to its survival and this is perhaps even truer in respect of universities and the community benefits they aim to encourage. While the university aimed to develop better cross-disciplinary teaching and research, the culture of the institution was one of departmental autonomy and there were evident challenges faced in bringing together disparate groups and individuals. This provides further evidence of culture as a loosely-coupled factor within Burke and Litwin's (1992) model; even as strategy was operationalised and major changes occurred, the local cultures of the organisation had to evolve in order to adapt. Technological or structural changes may be introduced in response to environmental factors and these may be seen to be revolutionary, either for better or worse, however it is the human factors such as culture which determine how well the organisation manages change and learns from its experiences.

In the following section I will discuss the ways in which the data analysis presented above relates to the external environment and the ways in which the learning gained through this case study can be applied more widely. The cultural factors described above are presented in the table below.

Organisational Culture
<ul style="list-style-type: none"> • Different priorities - pastoral vs academic guidance • Specialisation of student services • Student diversity • Tension between older traditions and new processes - tight deadlines • Culture as both a tightly and loosely-coupled factor

Table 23 Summary of Change Factors - Organisational Culture (Focus Group Evidence)

External Environment

In the previous chapter, the university's espoused, strategic commitment to society, economy and culture was described (Doc Ref 006). Advisers play a key role in preparing graduates for life after university, by building relationships, providing appropriate academic guidance and engaging with students' personal development planning (Doc Ref 028). If advisers are unable to carry out this critical function, there is an inevitable impact upon the achievement of these key strategic aims.

The advance of technology and the idea of the student as a consumer has affected the role of the adviser directly. The advisers who took part in this study described the problems caused by the introduction of new systems and policies to meet the

needs and values of today's students. The divergence between the skills required to complete processes and the skills possessed by some of those using the system was exacerbated by poor lines of communication and lack of clarity around ownership of data and processes. The restructuring of the university at the same time as the introduction of a new student records system (SRS) proved highly challenging for the institution with many staff reporting stress and anxiety as the result of significant change. Although the adoption of new technology and systems cannot be avoided, many of the problems that resulted from change could have been foreseen and addressed within the institution and the post-implementation reviews of both initiatives confirmed that there were failures in planning, consultation and decision-making (Doc Refs 005/027). However many of the issues reported by advising heads in the focus groups related not to the functionality of the system, but instead to problems caused by failures to use the system as designed.

In Chapter Two I cited Phillips (2013) and her paper on the introduction of a new SRS to better support the operation of her institution and provide additional academic guidance to staff and students, allowing academics to concentrate on the specialised aspects of advising. Universities across the world are reviewing their systems and investing in new technology to allow them to compete effectively in a changing sector. This study is therefore relevant to other institutions who wish to learn from the experience of change within other universities in order to help predict the challenges they will face and perhaps avoid the resulting problems. As stated by Phillips (2013), such an endeavour requires the commitment of the entire university and this study shows that where staff do not feel engaged in a process or a system and where there is ambiguity and lack of knowledge about a task, problems will occur and these will impact upon not only the area in which they originate, but have significant impacts on other parts of the organisation as well.

The external factors directly affecting the role of the adviser are provided below and the concluding section provides a summary of the data and discussion contained within this chapter.

External Environment
<ul style="list-style-type: none"> • Adviser role in preparing students for graduate life • Technological developments

Table 24 Summary of Change Factors - External Environment (Focus Group Evidence)

Summary

The focus group discussions and their concentration on the processual knowledge of advisers provided a deeper understanding of the weaknesses in university processes and systems and the reasons for them. By attempting to make the tacit knowledge of advisers explicit through the implementation of IT to support their role, challenges for both leadership and culture in delivering strategic aims are revealed. These were further exacerbated as the tacit knowledge possessed by advisers related to the provision of academic programmes within old organisational structures and prior to the introduction of the revised advising policy. As new advisers were recruited to the role and the new student records system (SRS) was introduced, both staff and students struggled to make sense of the codified knowledge entered into the system and the university struggled to understand and address the problems being faced.

The issues raised and the solutions agreed were grouped within the factors of the Burke-Litwin (Burke and Litwin, 1992) framework in order to determine the way in which decisions and changes in one part of the organisation impact upon other areas. The data discussed in this chapter has been mapped to the model itself to

enable visualisation of the relationships between the different parts of the university and is presented below and also in Appendix D.

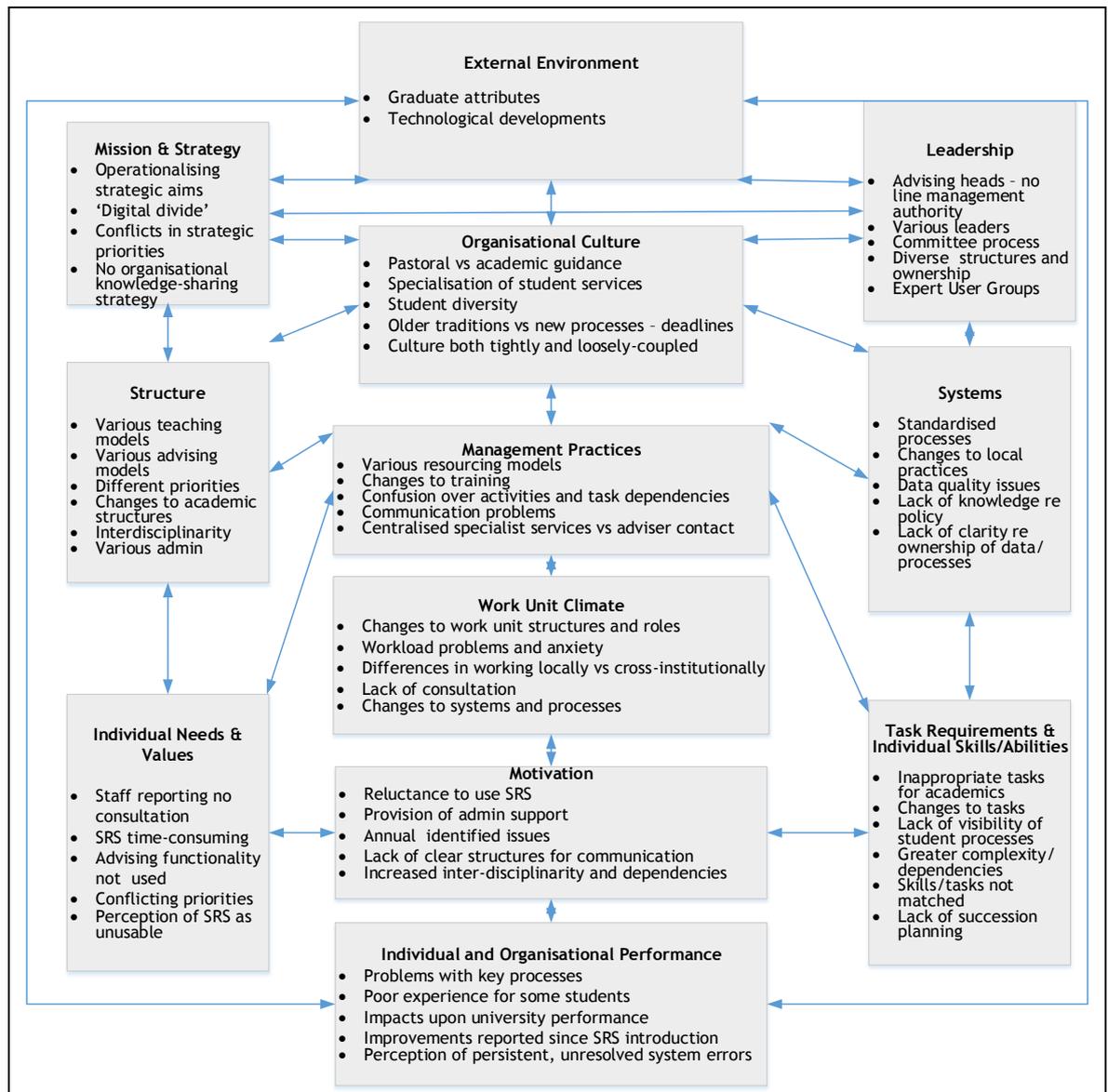


Figure 10 Revised Burke-Litwin Causal Model of Organizational Performance and Change (adapted from Burke and Litwin, 1992. Permission to reproduce this figure has been granted by SAGE Publications)

When viewed within the context of the data provided by the previous chapter, some of the reasons for the discrepancies between the university's espoused theory and theory-in-use can be identified. The experience of staff and students during a period of great change and upheaval had a negative impact upon staff motivation, and this is reflected in the perception staff have of systems and processes being unusable and unnecessarily complex. However the systems reflect the complexity of the university itself and the competing priorities of different roles and structures. Variation in management practices and problems with cross-departmental communications add significant complications when attempting to meet the needs and wants of the whole university. This results in conflicts between different areas as they become ever more reliant on one another and the effective management of accurate data and information. As new systems and structures were introduced in an attempt to standardise processes, the variety of practices and cultures across the institution was revealed and this provides evidence for the tensions between the tightly vs loosely coupled nature of the university (Burke, 2014).

The actions agreed collaboratively by the focus groups provided important data which provided a deeper understanding of the systems and structures employed by the university to manage organisational knowledge. Where actions fell within my remit or that of the advising heads, changes were made to the SRS or processes to help with the management of accurate and understandable data. Any actions which required wider consultation or participation by groups who had not participated in the focus group discussions were referred to the appropriate authority, such as when the actions related to revisions of timelines and policies or attempted to improve data quality. The implementation of a new system to manage data across the entire organisation meant that any exercises aimed at improving processes required consultation with and approval by representatives from across the university. Carrying out the actions required to ensure this consultation was adequately completed before any changes were made, contributed further knowledge about the organisational factors involved in change; the need to understand the transformational elements such as strategic direction, leadership and culture as well as the transactional elements in order to

be able to effect organisational change to the benefit of all stakeholders in the university. However this deeper understanding of the interactions between processes and their management also provided evidence of a critical issue for the university. Those who understand systems and processes in enough detail to be able to recognise the enhancements which can be made are often not the same people who are authorised to make decisions related to system changes. Those who do have the authority often do not have the level of knowledge required to make fully informed decisions, demonstrating the relationship between the processual knowledge required by organisations to function effectively and the organisational knowledge required to ensure effective decision-making. While the advising heads were in a leadership position in relation to the provision of advising, they had no management authority over their advisers due to the variety of roles undertaken by academics and the structure of the university. Nonetheless, the creation of the advising head role was significant and did create expert processual knowledge. However, as there were no equivalent roles for staff carrying out other processes such as those related to postgraduate advising, progression rule-building or curriculum management, it was more difficult to identify groups or individuals with whom collaborative action could be taken to make changes to other processes within the system.

One action taken which attempted to address this conflict to some degree was the creation of the expert user group. Building upon the discussions of the focus group and with the membership widened to include other staff involved in advising, such as administrators, the groups aimed to identify any further issues or changes required and either implement them or recommend their implementation via the appropriate committee. Membership also included staff who were involved in progression-rule building as this process was identified as having a significant impact upon the work of advisers and the amount of manual processing they were required to undertake. By taking actions such as these, the practical focus of this research can be seen to have impacted upon the organisation, as it is through the development of processual knowledge in the focus groups that the direction and priorities for the expert user group were determined. Despite this change, the usefulness of the group is limited; in order for expert user groups to make

significant impact, groups dedicated to the enhancement of other processes are also required. This further reinforces the point above in relation to benefits of the advising head role being limited when no equivalent roles exist for other processes. Without leadership in areas such as curriculum or timetabling it is difficult to identify the appropriate people, in manageable numbers, who are able to both understand the processual detail of discussions and make decisions about changes and developments to systems and policies.

The data produced by the focus groups provides an enhanced map of changes and outcomes at an institutional level and a more detailed picture of the way in which knowledge production at the group and individual level affects the organisation's ability to learn effectively and to the benefit of all stakeholders. This map exposes weaknesses in the organisational knowledge required to make properly informed decisions within the context of processes and systems. A greater strategic focus on addressing the cultural and structural issues which are negatively impacting organisational knowledge-creation and sharing is required to help better support the academic activities of the university. By encouraging better formal and informal learning (Argyris and Schön, 1978), the university also enhances internal relationships as well as its methods of teaching, learning and research and this, ultimately, works to the benefit of the university in achieving its strategic aims and optimising operational performance.

The following chapter will present the conclusions and recommendations from this research and the wider implications for other universities and organisations attempting to implement system changes at an institutional level.

Chapter Seven - Conclusions and Recommendations

Introduction

The aim of this research was to understand the ways in which change had impacted upon a higher education institution by examining the organisational learning which had occurred as a result. It was intended that this would help to identify enhancements to organisational knowledge management and this would help the university to manage change more effectively in the future. Using a case study methodology, this line of enquiry led to new and emerging ideas as the process of investigation progressed and the methods used were assessed in relation to both the practical and theoretical aims of the study. The results show support for the theories of Argyris and Schön (1978), by demonstrating that organisations struggle to adapt in the face of unrelenting external change and that the introduction of standardised strategies, structures and systems leads to conflict and obscurity, but also ultimately produces organisational knowledge and learning. This was revealed by contrasting the documented espoused theory of the university with the theory-in-use as revealed through collaborative processual enquiry and narratives of change (Dawson, 2014).

While the focus of the research was on the processes related to undergraduate advising at one university, there are implications for the results and analysis which go beyond the scope of the practical project. The examination of the various factors and dependencies identified by Burke and Litwin (1992) as being involved in organisational change provides an understanding of how the university's external environment influenced the transformational factors at the organisational level. The factors related to strategy, leadership and culture have been shown to have impacted upon the groups and individuals who are responsible for operationalising the university's strategic aims, with conflicting priorities and practices manifesting within the shared parts of the university: its structures, systems, management practices and culture. These factors demonstrate the tensions between centralised resources and control and localised custom and practice. Staff are required to manage and negotiate the combination of tightly

and loosely-coupled elements within the organisation (Burke, 2014), adding further complexity to already complex university systems and practices. It is through understanding the processing issues being experienced by staff that we come to understand where the broader source of problems lies and strategic focus can be achieved (Willcock, 2013). However the purpose of this study was not to achieve strategic aims, but to gain a greater understanding of how organisational knowledge is managed and better comprehend its effectiveness in critiquing the knowledge claims which underpin higher education strategy (Firestone and McElroy, 2003). The processual knowledge captured in the course of this research revealed specific areas of concern for the university and the results are not only of interest to the institution in question, but also to other universities currently introducing or planning to introduce new systems and processes in response to similar external pressures and strategic priorities. Furthermore, the methods employed to gain this knowledge can be easily replicated by others keen to develop a deeper understanding of the problems and challenges faced by their own organisation, providing both practical results and contributing further knowledge to the scholarship of organisational learning.

In this chapter, the politics, constraints and limitations inherent in the critique of systems and organisations are discussed along with the validity of the conclusions drawn. The placement of this case study research within a complexity theory paradigm reflects the fact that this study does not seek to provide a final answer or universal theory to address the concerns identified, but that it provides one piece towards a greater whole in an attempt to provide further clarification and understanding of complex social phenomena, through a descriptive narrative of change (Dawson, 1997).

Research Question and Main Findings

Advising is core to the operation of the university; not only is it through this process that students are provided with the guidance and advice they require to be successful as both students and graduates, but it also plays a key role in

ensuring students are registered and enrolled appropriately and the university is able to operate effectively. This process is carried out using a variety of different types of knowledge: research into what advising is, processual knowledge about how to carry out the tasks related to advising and the tacit knowledge gained through experience and culture. Advising is also key to ensuring that one of the university's key products - a validated and accurate record of student learning - is assured. Over the past few decades and as a result of changes in the external environment, such as technology and student expectations, the role of the adviser has changed significantly. Within this study this change is examined through the lens of the system codification of previously tacit advising knowledge and the impact this process has had on advisers. The data reveals that the changes have proved to be challenging and have resulted in data of varying quality, often leading to confusion and frustration, demonstrating support for Polyani's (1967, p.4) assessment of tacit knowledge as being 'the fact we know more than we can tell'. The comments by advising heads, which suggest that new advisers experience fewer problems than staff who had used the previous system, indicate tensions between the old and new tacit knowledge required to complete tasks. While newer staff are more able to adapt and seem to report fewer complaints, other staff are required to relearn the task of advising and reassess their processual and tacit knowledge within the context of changed tasks and routines. As universities contend with ongoing environmental and internal change and upheaval and work to tighten their systems and structures, they must recognise the challenges they face in regards to creating new organisational knowledge from that which went before. As new processual knowledge is developed, it rapidly becomes tacit knowledge. However if there is confusion as to the reason for a process or a lack of understanding about the dependencies within the process, the tacit knowledge which is gained can be confused and lead to frustration and anxiety across the organisation. Without recognition of this social element of change, universities will struggle to recognise the anticipated benefits from the implementation of new IT.

The processes involved in advising also involve a complex range of roles and tasks and an understanding of the dependencies within the organisation. Therefore any

enhancements made to the production and integration of organisational knowledge within the scope of undergraduate advising have implications for enhancing the management of knowledge elsewhere in the university. It would appear fairly evident that any improvements to the understanding of advising at undergraduate level should also help to inform the process for postgraduate students, but a deeper comprehension of the complexities and dependencies inherent in supporting advising also helps to inform other areas, such as curriculum management and student finance. Other universities, subject to the same external pressures, are adopting similar approaches in regards to their strategies, systems and structures and can learn a great deal from the experience of change within institutions. However these issues are not restricted to the higher education sector; the factors responsible for causing obscurity and creating errors are common to almost all organisations as they too find themselves adapting structures and adopting new systems in order to compete and survive. As such, all organisations are required to deal with the unintended consequences of change in an unpredictable environment (Argyris and Schön, 1978). By analysing change and its impact upon the business processing environment through the use of processual investigation and analysis, organisations can build a clearer picture of where they are and why, as well as formulate appropriate techniques and strategies to detect and correct errors and enhance beneficial organisational learning (Firestone and McElroy, 2003). This study provides one more example of such an analysis.

But whereas the purpose of a business is to make profit, the purpose of a university is to create and disseminate knowledge which can be used by a wide range of stakeholders (Bowen and Schwartz, 2005). Arguably, universities have a greater responsibility and requirement to apply double-loop solutions (Argyris and Schön, 1978) to problems as their entire purpose is based on the testing and dissemination of knowledge for the betterment of society and its progress. Furthermore, as a result of this purpose and their history, many universities find themselves trying to manage large organisations which are both tightly and loosely-coupled (Burke, 2014). This represents a significant problem for higher education as attempts to enhance factors such as services, data quality or value for money often result in increased management control over structures and systems which is viewed with

mistrust and suspicion (Argyris and Schön, 1978). This is especially true in higher education where attempts to enforce greater control are viewed as attacks on academic freedom.

By examining the business processing environment and the consequences of its complexity and conflicts, the practical aims of the project were achieved. The issues which were impacting upon advisers' ability to support students were identified and discussed and the actions agreed collaboratively with staff involved were aimed at enhancing the knowledge and skills of staff involved in carrying out advising tasks. This resulted in various practical actions taken to solve problems, including improved access to queries, data, user guides and a review of training needs. It also helped to expose areas where existing knowledge was either hidden or unused and provided a greater understanding of the everyday issues being experienced by users and the reasons for those differences with regard to the variety of local structures and support. This enhanced, shared understanding allowed the source of problems and errors to be more easily identified and helped to ensure the appropriateness of the solution agreed.

The research aims were achieved by investigating not only the issues within the SRS, but also the organisational issues which were seen to be preventing advisers from effectively carrying out their role. The placement of processual knowledge within the context of the wider organisation allowed an examination of the various systems and dependencies supporting the role of the adviser and provided a means by which weaknesses and errors could be identified. By taking actions to change or recommend changes, a better understanding of the relationships between elements was developed and this is depicted within the framework of Burke-Litwin's model (Burke and Litwin, 1992). The focus on advising allowed me to place a boundary around the case being studied, however it also facilitated greater knowledge of the central role played by advising in the university. This provided a sound basis for making recommendations to help manage organisational knowledge on an ongoing basis, as any enhancements to knowledge-sharing in advising will bring benefits to other shared processes and areas within the university.

The issues raised in the focus group discussions demonstrated that many of the technical concerns related to the new student records system had been addressed by the time the focus groups took place, as the main issues raised related to the use of existing functionality and confidence in the data. It can be argued that the problems identified by the advising heads were 'better' (Firestone and McElroy, 2003) than the ones which were experienced when the system was first introduced, with comments made which indicated progress and improvement. This improved experience resulted from the evolutionary nature of change described by Burke (2014); as staff and students entered their fourth academic cycle using the system, more of them had developed the experience required to understand the data and processes in the overall context of the student lifecycle.

Despite this progress in performance, the feedback provided via both the documentation and focus groups demonstrates that there remains frustration with the SRS and a continuing suspicion of both its ability to support processes and the reasons for its introduction. The traumatic experience of its first year of use made staff wish to avoid using it or engaging with it (Lawler and Sillitoe, 2013), leading inevitably to differences in its use, data quality and support across the organisation. This resulted in the vicious circle of management control and ineffective decision-making, as described by Argyris and Schön (1978), as the resultant impact upon data quality and data processing for staff and students created greater obscurity and further reduced the effectiveness of the system and confidence in its use. This challenged the university's ability to apply double-loop solutions to address the problem and provides an example of an inhibitory loop (Argyris and Schön, 1978), demonstrating that it was necessary to take a more holistic look at the issues affecting staff and students, rather than concentrate solely on trying to identify technical fixes to the system.

As such, the paradigm of complexity theory adopted through a case study methodology was effective in bringing together these different strands of enquiry to build up a picture of the whole and identify the source of errors in the use of

the SRS. In doing so, the study has provided insight to the underlying and interrelated impediments to organisational learning in the university. Information and knowledge of advising is scattered across the university and its meaning is infused with a wide variety of perspectives and beliefs, with no effective strategy for collaboratively evaluating their accuracy or efficacy. Through examination of the complexity of the organisation, the data shows that appropriate structures are required to facilitate the communication and collaboration required to build effective systems. The creation of these structures is inhibited by various factors, including the tight vs loose nature of the organisation, the rapid rate of change experienced as a result of external pressures and the resulting 'obscurity' which inhibits the flow of organisational knowledge within the institution. Geographical dispersal, time pressures and variation across the institution in regards to roles, structures and management all result in problems when attempting to implement a centralised system and build processual knowledge and understanding among users. The challenges faced in trying to arrange the focus group discussions with advising heads underlined these difficulties, but also demonstrated the ongoing need to collaboratively engage with users in order to understand their requirements and develop greater understanding of processes. Leadership is required to provide strategic direction which will meet the organisational learning needs of the university and any strategy developed must be flexible enough to adjust to changing needs as well as reflect the values of a wide range of stakeholders. A great deal of strategic thought is given to how academic knowledge is produced and made available, but much less attention is paid to how the organisational knowledge which *supports* the creation of academic knowledge is effectively managed within the university. While the creation of the expert user groups go some way to addressing this gap in leadership, their impact is limited unless there are equivalent groups and roles created in other academic processing areas, such as curriculum management and postgraduate advising.

The data also points to flaws in the existing organisational feedback processes. Questions remain as to whether the organisational knowledge which currently exists can be truly considered to have been properly shared and validated when so many staff reported feeling excluded from decision-making processes. While it

can be difficult to capture the full range and variety of data scenarios involved in student records management, IT does at least provide a means to test knowledge by identifying whether the resultant data saved matches the requirement provided and can be understood by its users. It is far harder to test the range of knowledge possessed by staff within the university and the job of trying to do so is made more difficult by the obscurity within the organisation as it relates to communication, ownership of tasks and management of knowledge. However, if the knowledge claims which inform changes and decisions are not validated against the knowledge claims of others, it is difficult to ascertain whether organisational knowledge can be considered valid, undecided or false (Firestone and McElroy, 2003). This leads to further confusion, anxiety and problems within the organisation as motivation is adversely affected.

The mapping of data in the Burke-Litwin framework (Burke and Litwin, 1992) provides an analysis of the impact of change. The data suggests that many of the issues experienced by staff were related to the implementation of a standardised, tightly-coupled system upon a devolved, non-standardised, loosely-coupled structure. This led to new relationships between processes and data within the system and staff were unsure where the dependencies lay and were also unaware of the causal effects of certain errors. By exposing areas where there was a lack of clarity or understanding, the relationships became clearer and it became more evident which parts of the organisation should be involved in the provision of solutions to problems.

Actions were taken following the focus groups to address the issues raised and discussed. These actions were aimed at resolving processual problems and building knowledge around tasks. Through the acquisition of enhanced organisational knowledge, participants and users were enabled to detect and correct errors locally, such as problems with enrolment, which then allowed them to anticipate and avoid the errors occurring in the first place. The result of fewer errors is that students are provided with a better service and staff have access to data which is more likely to be accurate and provide them with the knowledge they need to carry out their tasks. However beyond any enhancements made to business

processing, the process of exploring the issues experienced by staff demonstrates that organisational knowledge reverts to being information when removed from the context of the reasons for decisions taken. It is this context - the 'metaclaims' referred to by Firestone and McElroy (2003) - which supports the knowledge creation process. The development of more bespoke training related both to the purpose of advising and the use of the SRS demonstrates an attempt to enhance processual knowledge production through the communication of contextualised knowledge based on experience, values and expert insight, the characteristics defined by Davenport and Prusak (2000) as crucial to the differentiation between knowledge and information.

This study was an attempt, if not to achieve double-loop learning across the organisation, to at least identify the factors which are inhibiting such learning within the university. The discussion related to difficulties in business processing and the actions agreed in response helped to identify the reasons for the errors in the system and for the challenges related to their correction. These findings underline Phillips' (2013) argument that the implementation of a student advising system is the responsibility of the whole university and the conclusions of Davenport et al (1998) as relates to the importance of the human factor in the deployment of IT. If the views and experiences of users have no forum in which to be heard and they are not empowered to take action, the insights required to provide robust systems and the creation of new knowledge are inhibited. It is only through the application of a holistic research approach that this can be examined and understood within the context of the real-life situation and that the weaknesses in the organisation which are inhibiting learning can be understood.

Another significant issue arising from this study relates to the concept of bottom-up change. The focus group discussions raised important issues in relation to the effective operation of systems and policies, which have implications across the university, however the changes required to improve communication channels, establish ownership of tasks or review strategy and policy can only happen if directed from the top-down. Nonetheless, without an effective means by which evolutionary learning can be gathered and analysed, the revolutionary change

required to convert it into beneficial organisational learning cannot be managed appropriately.

Research Methodology

The generality of this research relates to the design of the study and its grounding in the tools and techniques required for the creation of organisational knowledge and learning: taxonomies, mapping and collaboration. The examination of the university in relation to the past few years' experience provides a picture of where the university has been and why and where it is now. This mapping of the as-is situation is critical to understanding the potential outcomes of changes (Firestone and McElroy, 2003). What is less clear from the data and the methods used is where the university wants to go and how it goes about getting there.

The justification for the use of a case study methodology informed by an action research approach is based on the need to accommodate and account for emerging data over time. The process of exploring a system requires an examination of the whole within its environment, rather than one part isolated from the rest of the organisation in order to understand the inherent complexity (Uhl-Bien et al, 2007). By employing a case study methodology to examine the experience of change through processual research, 'the dynamic odyssey of workplace change' (Dawson, 1997, p.1) is described. Case study methodology provides a means by which the background and context of change can be explored, as well as the process of change itself. The influence of action research within the study provided the means to make changes within the system, allowing an understanding of how those changes impact other parts of the organisation. It is this understanding of the whole which is needed for an organisation to achieve - or attempt to achieve - double-loop learning. Through taking action, participants can make changes that matter to them, helping to expose tacit and undisclosed knowledge and change the status quo (Eden and Huxham, 1996).

The techniques employed in the course of this research are widely used by academics in their own teaching and research, even if approached from an alternative paradigm. The university itself has adopted a collaborative approach to academic learning and organisational change, demonstrating that it sees validity in the methods used by this study. By attempting to understand the needs and values of groups and individuals, theories emerge in relation to the reasons for the issues they experience and the best ways to address them. This investigation required an understanding of not only *what* difficulties staff face, but also *why* they are occurring and how they can be resolved, demonstrating the connection between Mokyr's (2002, p. 2) two types of 'useful' knowledge. However for new knowledge to emerge, there must be an attempt to elicit tacit knowledge to better comprehend the cultural perspective of participants and the potential causes for problems within any of the twelve factors Burke (2014) identifies as critical to the understanding and management of change. The examination of the data through the lens of the Burke-Litwin framework (Burke and Litwin, 1992) provides an understanding of *what* the overall issues are by highlighting the discrepancies between the university's view of itself at an organisational, transformational level and the views of staff involved in the transactional tasks which support strategic aims. This demonstrates the difference between the espoused theory and theory-in-use (Argyris and Schön, 1978), with the former reflected in the organisational documentation produced and the latter expressed through the views of staff found in the documented feedback and survey data. However it is the addition of the focus group data which provides the deeper understanding of the issues occurring within the processes being carried out and explains *why* there is a difference between expectation and outcomes of tasks. By investigating specific issues, patterns emerge in the actions agreed as appropriate and the underlying issues related to knowledge integration across the organisation are identified and placed within the context of knowledge management theory, helping to better inform understanding of the data.

The implementation of a student records system (SRS) provides an example of a change which created chaos on its introduction and greater complexity for the university by integrating services and creating more data and process

dependencies across the organisation. As it has become embedded in the operation and culture of the university there are fewer complaints about the system, suggesting user experience has built up understanding and reduced the gap between skills needs and knowledge over time. However the complexity remains and continues to cause difficulties and confusion for both staff and students. Most of the actions agreed by the focus groups related to the integration of existing organisational knowledge, which highlighted the need for formal structures which are required to support the informal learning and sharing of knowledge which is so valuable to the university (Ortenblad, 2002). Without effective feedback mechanisms and methods for validating knowledge, future changes to the system will either be of limited use or even cause further problems.

The SRS can therefore not only be seen as a way of capturing, processing and transmitting university data and information, but it also provides the opportunity to learn about how knowledge is produced and managed in the university. In this study, existing processual knowledge was mapped, patterns and themes were identified within the data, and actions were agreed. While the methods and techniques employed by this study can be adapted to suit the context and needs of any organisation, the purpose of this research is not to provide others with a means to replicate the same results. Organisational research outcomes cannot be reproduced exactly as they depend on the conditions which exist at the time and which are subject to constant change. The actions taken within the scope of the practical project provided the means to test ideas collaboratively with others and within the system to identify what worked technically and what didn't. However this research only provides one part of the picture, both in terms of the institution and also the overall body of research. Further research is required to build a more complete understanding, using a variety of methods and approaches to reflect a multiplicity of needs, skills and abilities.

In keeping with the study of complex systems, the data presented in this research has been placed in the context of its interaction with the environment and the relationships between different factors have been mapped, helping to create an understanding of the whole (Cilliers, 1998, cited in Uhl-Bien et al, 2007). It is this

requirement to understand the nature of the system as it operates, rather than individual elements, which necessitated the adoption of an approach which allows exploration of networks across all levels of the organisation (Morin, 1992; Morrison, 2007). The complexity paradigm therefore provided a useful and appropriate means by which methods of exploration could be adapted and adjusted in order to gather the knowledge required by this study. However the study also pointed to some discrepancies between Burke and Litwin's (1992) assignation of cultural factors solely to the realms of the transformative change, as the variety and diversity of custom and practice across the university revealed both the tight and loose-coupling of cultural influences, suggesting that culture might be more appropriately defined in the same way as systems, management practices and structures. There is a strong sense of overall culture attached to being part of the institution, however this finds its own expression at the local level, with different areas being very much defined by their own experiences and their own ways of doing things. It is within this element that much of the anger and frustration in regard to change is evidenced; as the more centralised structures, systems and management practices have emerged from strategy and leadership aims, the response to them has manifested itself in an ever-changing organisational culture. This has resulted in a multiplicity of roles and responsibilities and an accompanying sense of anxiety as both staff and students feel they are bearing the brunt of change and being held responsible for its success, even when they have voiced their objections to the need for change.

Also of note in regard to the model is that both the external environment and individual and organisational performance factors can also be seen to be as both tightly and loosely-coupled. This is because the way an individual or group reacts to the environment or performs within that environment is defined as much by their own local issues as by the institutional situation. Therefore, while technology has an impact upon the entire university in regard to methods of communication and networking, it can also have a specific impact upon a subject area when a technological development related to a specific field of study is identified. Furthermore, some local areas adopt new technology for learning or research, before an institutional approach is decided or implemented and while the overall

rankings or performance of the university impact upon local areas, the subject-specific performance of an area is also very important in relation to core activities, such as attracting students or research funding.

Although the use of Burke-Litwin model in this study provides evidence that the three factors highlighted above - culture, environment and performance - cannot be limited to the categorisation applied by Burke and Litwin (1992), it nonetheless provides a means by which both their transactional and transformational aspects can be identified, examined and compared. This provides additional support for the model itself, as does its application within the paradigm of complexity - as opposed to systems - theory. A good knowledge management tool should be flexible and adaptable and the findings of this study support the assessment of Cooper (2015) and Spangenberg and Theron (2013) as regards the model being a useful tool which can be adapted and enhanced to meet the particular needs of an organisation or focus of study.

Implications

The implications of this study are of critical importance to the university, as staff involved in discussions and decisions related to change inevitably move on and others assume their roles. This exemplifies the enormous challenge organisations face in regards to succession-planning in a world where roles are constantly evolving and staff are regularly changing, and again underlines the need for enhanced organisational knowledge production and integration. Through the description of the process of academic advising, insights have been provided as to why certain issues and situations have occurred and the steps which might be taken to avoid similar issues, however they provide only one explanation of the situation (Eden and Huxham, 1996). While the actions taken as a result of the research were agreed collaboratively and considered appropriate responses to issues, they must be viewed in the context of the environment as it was at the time of the study. If decisions and actions and the reasons for them cannot be adequately communicated to those who need them, they cannot be appropriately

reviewed and reassessed over time as circumstances change. Therefore consideration must be given to the structures and systems supporting decision-making as the success of any IT system or reorganisation in the pursuit of strategic goals is dependent on how successfully the social elements function and interact. Only by creating 'good dialectic' (Argyris and Schön, 1978) and focussing on how it is managed and maintained can a fuller picture of the situation be formed and captured and a deeper understanding of the concepts related to organisational knowledge and learning be achieved.

These implications are also applicable more widely, beyond the sphere of higher education and IT. Funding for public services is increasingly restricted and cost of living increases mean that organisations are competing in challenging economic and political circumstances. Since the economic crash of the late 2000s, many large or familiar organisations have been subject to collapse, take-over or major corporate change. As organisational groups are formed and reformed, organisational knowledge and learning is both created by the changes experienced as well as lost, as relationships and communications are disrupted or broken. Workforce turnover is a reality that organisations should be attempting to mitigate by creating and capturing as much valuable knowledge as possible in order to help ensure their ongoing relevance and existence. By examining weaknesses in their processes they are better able to identify the dependencies which exist between factors and groups and this helps to build organisational knowledge. However, as this study demonstrates, it is not enough to simply introduce new technology and expect it to resolve processing issues; without full recognition of the human factors involved in technology there will be mistrust and reluctance to adopt system changes and therefore less opportunity to realise any real operational benefits.

Politics and Professional Reflection

This study not only highlights the complexity of the processes required by advising but also the multiplicity of roles involved and the challenges in communicating

effectively across such a broad range of stakeholders. It is difficult to see how an external consultant would be able to access the knowledge required to be able to take effective actions in the business processing environment. As a participant I possessed the tacit knowledge of the organisation required to be able to understand the variety of structures and systems in use across the university and the reason for those differences. This study provided the opportunity to view my day-to-day role from a different perspective, taking a step back from the tasks related directly to the system to view them through the lens of complexity and wider organisational change.

However the advantages brought by being a participant in the research also proved to be a constraint. While I was able to identify differences in processes and structures in local areas, I had little or no knowledge of the internal cultures within the different areas and the resultant differences in operations, communications and assumptions upon which they base decisions. My role in a centralised team meant that I had very little involvement in the various local groups which comprise the university and as a result, the assumptions made about their ways of working were based on my knowledge as an outsider from those groups. Argyris and Schön (1978, p.30) describe the experience of the 'Mercury Corporation' and their creation of a centralised New Business Division, charged with innovating new products, but seen as a threat to the autonomy and success of the organisation's sub-divisions. They describe the resultant mistrust of centralised projects and how this prevented collaborative working to achieve results and this resonated with my experience working with the SRS, providing me with a new perspective on a difficult problem. My participation in the implementation project and ongoing support of the SRS made me highly conscious of the level of anger felt about the system by many, as well as the tricky politics involved in critiquing wider organisational systems beyond the narrow scope of IT. This involved a great deal of reflection on the data in relation to theory as well as my own practice and methods of evaluating and validating knowledge. I might be aware of the existence of processual knowledge in relation to a business process, task or situation and assume that others are also aware of its existence, however the process of exploration for this study demonstrated to me that organisational

knowledge is often not widely known or used. While the technical problems which affected the system initially were not raised in the focus groups discussions with advisers, ongoing problems in relation to communication, collaboration and ownership of processes were evident. This indicated to me that too great a focus on the technical functions of a system and too little attention paid to the human elements easily negates any benefits gained by designing a technically-sound system solution.

My status as an insider to the organisation meant I was less able to engage in robust critique of individual areas where problems arose or the reasons for them as this could lead to conflict within my professional role. Argyris and Schön (1978) stipulate that double-loop learning can only occur when individuals' theories-in-use are challenged. Therefore, as the conflicts inherent within the organisation were not fully exposed and addressed, organisational double-loop learning was not achieved. Nonetheless the process of investigation through action has provided important knowledge as relates to issues within the management of change and knowledge and the effectiveness of organisational learning by bringing together the 'scattered maps' of the university to identify the discrepancies between them and the espoused theory of the institution (Argyris and Schön, 1978). The topic of my research has deepened my own comprehension of organisational learning and has also developed a deeper understanding of the factors which inhibit good dialectic and effective problem-solving, making me more aware of my own behaviours which inhibit my learning and that of my colleagues. As a both a subject of this research and the researcher I have gained an invaluable insight into the concept of personal learning and reflection and their importance to the research process and the creation of new knowledge. Only by taking time to reflect on and assess previous actions and decisions can appropriate future actions be taken.

By examining the data using the lens of complexity theory I also came to understand that the picture of the university, represented by the documentation selected to support my study, portrays my own understanding of the institution's espoused theory; a different researcher may have selected different documents

to present their understanding or used the same data sources and arrived at a different conclusion based on their own experience. This led me to further consider the concept of espoused theory as forming from the multitude of theories-in-use employed by individuals within an organisation and infused by their own individual knowledge and experience. The official strategy and policy of an organisation is more highly influenced by its leadership than its workers and therefore the espoused theory of an organisation tends to reflect the views of senior management. However, as they too are part of the organisation and therefore subject to the same cultural and social influences as other staff, their espoused theory is inevitably affected by the theories-in-use employed by individuals, further underlining the relationships and dependencies between different parts of the organisation.

There is a need for further research into concepts related to organisational learning and knowledge in higher education and for a variety of perspectives and ideas to be gathered which can be held up to scrutiny to help identify those which work, those which don't and why. Therefore, while an insider perspective carries with it many advantages, it does not provide a complete picture. Just as this thesis is an attempt to bring together fragmented knowledge and understanding of dependencies and reasons for error, it is simply one part of a larger whole which can be added to a wider array of evidence provided both from within and without the institution to help inform the university's overall map (Argyris and Schön, 1978) and contribute to the wider theory which informed the direction of my study. As I have moved on from the university into an external consultancy role, I no longer occupy an insider position in the universities where I work and this lends a different perspective to my work and my understanding of problems. In many ways this can be seen to be of benefit, however my experience as an insider-researcher in the course of this study has provided me with tools and methods which enable me to understand the experience of other universities and better address the challenges and issues they are facing within the context of both their internal and external influences. The investigation of processes and the categorisation of data has developed skills which enable me to identify the similarities and differences within higher education and equip me with the

knowledge for understanding the reasons for any variety, as well as an understanding of how to address problems caused as a result.

Limitations

The practical and political concerns described above, along with the research approach, resulted in some limitations to the study. Issues related to bias were addressed using triangulation of methods, collaborative enquiry and validation of data by various stakeholders. However my immersion in the processes involved, both as a practitioner and a researcher, inevitably informed my approach and the selection of theories used to underpin my research. The resulting limitations provide important insight into the value of case study research and highlight ways forward in terms of developing the approach and theory related to organisational learning.

Many of the concerns raised by the advising heads in the course of this research reflect my own experience of implementing and supporting change in the institution. Additional validation was provided by cross-checking the data produced by the focus groups with the wider university community. This helped to ensure the needs and views of those areas that did not participate in the study were heard and that the data produced was recognised as reflective of the situation within the organisation as a whole. However, due to ethical and methodological considerations, the only voices present in this narrative are represented by a limited number of advising heads. The reasons for others declining attendance were varied and the insight provided by those who accepted was invaluable both practically and with regard to the production of rich data. However it did limit the investigation of the university to half of the undergraduate programmes offered and this provides a less complete picture of the ways in which processes are carried out and organisational learning occurs across the entire institution.

Another practical limitation of this study relates to the constraints placed upon participants in relation to availability and time. This is an important aspect to consider when planning any form of collaborative enquiry, however is made all the more crucial when investigating complex social networks; as people change roles or take on additional duties, it can be difficult to ensure participants are either available or remain within the same role across the course of the research. As advising heads in one area changed, so too did the participation in my study and this resulted in some additional challenges, as previous discussions had to be repeated and clarifications made. This again reduced the amount of time available to discuss processual issues more deeply, but also provided valuable understanding in regards to the issues caused by changing roles and responsibilities, which helped to inform the research itself.

My own time and access to organisational resources also impacted the selection of research methodology and methods. A fieldwork based case-study provided the opportunity to study a phenomenon with which I was familiar and which was also of relevance to my employer. This facilitated greater access to data sources than would perhaps have been available had I studied a situation with which I was not professionally involved. However my role within the university also necessitated the application of a methodology which would allow for me to take actions and make changes to resolve the issues raised, thereby influencing the outcomes and results of the study. The influence of action research provided a means by which this could be accommodated and it is an approach which can be closely aligned to a case study methodology (Blichfeldt and Andersen, 2006), however it is also difficult to envisage a way in which researchers are able to investigate their own area of work without requiring the ability to take action and make changes to address any problems identified. This highlights a tension inherent in practitioner research; the process requires a methodology which is flexible enough to accommodate new and emerging knowledge and discoveries, but this in turn limits the approaches available to the researcher in carrying out their enquiry.

These considerations not only affected the selection of methodology, but also methods. As previously described, various methods were assessed in relation to

both their suitability to the study and also their accessibility. My role within the university may have provided access to interview senior management, however it would also have placed additional political constraints upon any analysis and critique, so was removed from consideration early in the decision-making process. A proposed questionnaire to advisers reached the initial planning stages, however it was set aside as I came to the conclusion that it would prove to be a time-consuming endeavour which would neither yield the expert knowledge I was seeking, nor provide sufficient specific information to solve the practical concerns facing staff and students. The constraints around time, politics and practical outcomes placed limits upon the range of methods available, however attempts are made to mitigate these limitations by combining a manifest content analysis of documentary sources (Graneheim and Lundman, 2004, p. 106) with focus group data generated collaboratively with those affected by the changes documented. Suggestions as to how these limitations may be addressed in future projects or research are provided in the next section, along with recommendations for further investigation.

Future Directions and Recommendations

The results of this study inform several practical and academic directions for future research. The recommendations made reflect the theoretical concerns of this thesis and can be understood more generally within the scope of organisational learning and its applicability within higher education.

One development following on from this research was the creation of an ongoing advising expert user group to continue the discussions and actions of the advising focus groups. Involving academic and administrative staff, it was formed to enable cross-departmental discussion and knowledge transfer. Its composition reflected the variety of roles involved in supporting the student lifecycle and was aimed at helping staff to understand the process dependencies between elements such as registration, enrolment, timetabling, grading and progression.

The formation of this and other user groups concerned with different aspects of the system demonstrates that the university recognises that there are problems with communication across the organisation and the ways in which systems are used. However this also highlights a key concern of this research as relates to the lack of organisational strategy for encouraging the creation and sharing of processual knowledge. In order to effectively address the impacts of change and workforce turnover, there must be a drive within leadership to create a culture of organisational knowledge-sharing and enquiry. The focus group discussions themselves highlighted the lack of appropriate fora and structures for the exchange of ideas and information across the university and therefore there is a need to find ways in which collaboration can be encouraged and enhanced in future. Universities seeking to implement technical solutions to resolve current system problems must be aware of the social element of such endeavours and provide appropriate direction and support to those involved in transformational change. While the creation of the user group signifies a step in the right direction for the university, its effectiveness remains to be established and there are no formal methods by which its performance is assessed.

With regard to the difficulties experienced by the university as it attempts to manage a traditionally loosely-coupled structure within a tightening management and regulatory regime, it is recommended that processes are closely examined and analysed to identify ways in which localisation can be supported without working to the detriment of other areas. Many of the variations in process and practice are closely related to the academic provision they support, however the problems related to missing or inaccurate data diminish students' experience and create problems across the organisation. By standardising certain elements of the system and devolving them out to fewer expert users, rather than multiple individuals spread across all departments, the effects of too much variety and too little knowledge may be mitigated to some extent. The creation of advising support teams at the programme level and their enhanced knowledge of systems and processes suggests that such a model is equally appropriate when looking to manage other shared elements, such as curriculum-building and academic progression.

A further practical recommendation relates to the methods and tools adopted by the university to carry out organisational enquiry. A key challenge in managing change relates to the requirement to understand the needs of the users and balancing those with the views of managers and others involved in the decision-making process. Workshops, meetings and committees are all involved in directing organisational change, however boundaries tend to be drawn between groups and roles and this often results in problems when the wrong people are brought together in a room; often they either don't have the knowledge required of a process to be able to approve a change or they don't have the authority required to make the approval. This leaves organisations in a difficult position as inappropriate changes are signed-off and implemented or staff are made anxious by concerns that they will be held responsible for unpopular changes. This involves great expense for organisations, both because they are required to revisit previous changes and amend them and also because staff productivity drops due to a lack of motivation and an increase in stress. Greater investigation into how this can be better managed is required at a practical level to address the immediate issues being faced as a result of change.

In regard to further future research directions, there is little in the literature related to change that addresses the issue highlighted above and helps provide organisations with some direction as to ensure the optimum mix of decision-makers and users are involved in system change. The problems caused when inappropriate decisions are made can cost dearly, both in relation to the amount of redesign and rework required, but also in terms of goodwill and patience. Organisations have a vested interest in ensuring that they make sound decisions based on validated knowledge and an increased application of knowledge management techniques may help them to attain this. However, while the theory related to change has evolved over the past decades to view the process as more messy than linear (Burke, 2014), much of the literature remains theoretical in nature. There is still a significant gap in our understanding as relates to practical solutions and methods which can be applied to help ensure that the collaboration required for successful change is effectively achieved. Further investigation into

a variety of processes, involving other organisations, is required to provide a deeper understanding of the ways in which 'bad dialectic' (Argyris and Schön, 1978) affects all levels of the organisation as well as helping to identify ways in which better dialectic can be achieved and better decisions can be made.

Summary

By recognising and addressing the theoretical issues related to how organisations learn in the face of external and internal change and by considering how knowledge can be better managed to assist with this process, a greater understanding of complex relationships is formed. The experience of this one university is important as it helps to develop further knowledge related to the process and impact of change. Narrative accounts of organisational change and learning are critical to building our understanding of the social factors underpinning all technical advances and economic circumstances.

Using collaboration, organisations can identify methods and techniques which help to provide them with the knowledge they require to adapt to changes in their external environments. However these challenges cannot be addressed via a bottom-up method, as this study and its limitations in effecting wider change reveals. For universities to assure their contribution to the society through the creation of new knowledge, they must be able to rely on robust systems to support teaching, learning and research. The facilitation of this knowledge creation can only be achieved if there is leadership focus on this area and the development of a culture of organisational knowledge-sharing. This is a difficult task, however if it is not a task that universities embrace, society stands to lose as opportunities for evidence-based, organisational learning are missed and the value of education continues to be articulated in quantified or financial terms with its true purpose of encouraging critical thought diminished. Through the adoption of knowledge management techniques, universities are better able to meet the challenges posed by their external environment and able to develop enhanced organisational learning which will help them to manage ongoing dynamic change.

Appendix A

Documentary Data

Doc Ref	Document	Produced by	Year of publication	Intended Audience	Key Contents
001	Senior Management Group paper	University - Senior Management Group	2009	SMG	<p>Paper to Senior Management Group recommending the implementation of third party SRS software.</p> <p>Paper documents background and rationale for project, along with key anticipated benefits and responsibilities within the project.</p>
002	Student newspaper article	University student newspaper	2011	Students and staff	<p>News article reporting staff feedback provided during course of Lessons Learned consultation.</p> <p>Provides evidence of frustration and anger felt towards system implementation.</p>

003	Student newspaper article	University student newspaper	2011	Students and staff	<p>News report related to university Senate discussion of SRS implementation.</p> <p>Demonstrates University response to system problems.</p>
004	Student newspaper article	University student newspaper	2011	Senate, staff, students and other stakeholders	<p>Email sent to all members of Senate by academic department.</p> <p>Provides data related to staff views of SRS and their proposed actions for resolution of issues.</p>
005	SRS Lessons Learned review - final report	University	2012	Staff, students and other stakeholders	<p>Final report outlining conclusions of Lessons Learned review panel.</p> <p>Review panel selected from across institution and carried out consultation exercise with 'user community' and another institution using the same software product.</p> <p>Report makes recommendations relating to further developments of both SRS and future software projects.</p>

006	University strategy	University	2010	“Primarily” staff and other stakeholders	Strategic priorities and targets over five years from 2010. Focus on key strategic activities for university defined.
007	Advising review report	University - Senate Office	2008	Staff and students	Report from the advising working group. Lays out key recommendations from review of undergraduate advising.
008	Research Strategy	University	2013	Staff, students and other stakeholders	Strategy document related to research activity. Details key strategic focus for research.
009	Data protection policy	University	2016	Staff, students and other stakeholders	General information related to records policy and management, records retention schedules and good practice in records-keeping.
010	University press release	University	2009	Staff, students and	University news article praising 2009 National Student Survey results.

				other stakeholders	
011	Enhancement-led Institutional Review Reflective Analysis	University	2013	Staff, students and other stakeholders	Reflective analysis detailing period of change for the university. Review of changes in University over previous five years. Contains information related to SRS Benefits Realisation exercise.
012	Learning & Teaching Strategy	University	2011	Staff, students and other stakeholders	Strategy document related to academic quality enhancement. Focus on key learning and teaching activities.
013	Internationalisation Strategy	University	2010	Staff, students and other stakeholders	Strategy document related to raising university's international profile.

014	University press release	University	2009	Staff, students and other stakeholders	News article announcing appointment of new Principal with a focus on strategic leadership qualities.
015	University Court Remit	University - Court Office	2015	Staff, students and other stakeholders	Remit and responsibilities of Court. Responsibility for the deployment of resources and for the strategic plans as well as oversight of University performance.
016	University Senate Remit	University - Senate Office	2015	Staff, students and other stakeholders	Remit and responsibilities of Senate, the senior academic body of the University. Legal and constitutional responsibility for the academic activity of the University and student conduct.
017	General Council Committee Remit	University	2015	Staff, students and other stakeholders	Remit and responsibilities of General Council. Represents academics and alumni.

018	Who's Who	University	2015	Staff, students and other stakeholders	List of senior positions and post-holders in the university.
019	Roles and Responsibilities	University - Human Resources	2010	Staff	Roles and responsibilities within context of revised organisational structure.
020	Court meeting minutes	University - Court	2010	Staff, students and other stakeholders	Report to Court re redundancies and structural changes
021	Staff handbook	University - Human Resources	2013	Staff	Information and guidance for staff working at the university.
022	Information for current students	University	2015	Students	Information provided for students on a range of academic and non-academic matters.

023	University Facts and Figures	University	2015	Staff, students, prospective applicants and other stakeholders	Key statistics and facts about University
024	Academic Standards Report	University - Academic Standards Committee	2015	Staff	Staff and student feedback provided via annual monitoring process
025	Annual monitoring process	University - Senate Office	2015	Staff	Guidance on the annual monitoring process used to monitor and enhance academic quality assurance.
026	Court meeting minutes	University - Court	2009	Staff, students and other stakeholders	Report from Principal regarding organisational restructure and reasons for change.

027	Court meeting minutes	University - Court	2011	Staff, students and other stakeholders	Report from Principal regarding review of organisational restructure.
028	Undergraduate student advising policy	University - Senate Office	2009	Staff	Policy and guidelines related to undergraduate advising including the remit and roles of staff involved.
029	Student attendance policy	University - Policy & Strategy Committee	2009	Staff & students	Roles and responsibilities of students and departments in regards to student attendance and absence and visa regulations.
030	Outcome agreement	University	2014	Staff, students and other stakeholders	Sets out plans to enhance university's performance related to public funding objectives and agreements.

031	Report to Senate	University - Court Office	2011	Senate, staff, students and other stakeholders	Report from chair of project board regarding implementation of SRS. Provides information relating to difficulties in implementation and actions proposed for resolution of ongoing problems.
032	Court minute of meeting	University - Court	2012	Staff, students and other stakeholders	Update to Court on system hardware issues.
033	Management group minute of meeting	University	2013	Staff, students and other stakeholders	Update on issues experienced with timetabling interface.
034	Staff Survey results	University - Human Resources	2012	Staff and other stakeholders	Presentation of Staff Survey results 2012. Highlight information only - does not contain full results of each question. Contains comparison to 2009 results.

035	Staff Survey results	University - Human Resources	2014	Staff	Staff Survey results from 2014 - staff-only access available to full results.
036	Freedom of Information (FOI) response	University	2012	Members of public via FOI request.	Response to FOI request requesting details of numbers of support calls related to SRS, their status and cost.
037	Performance review process	University - Human Resources	2015	Staff	Information for staff related to performance review process. Provides details of roles and responsibilities and purpose of review.
038	Financial statements	University - Finance	2014	Staff, students and other stakeholders	Financial statements for the university detailing financial performance of institution.

039	National Student Survey	Times Higher Education	2014	Members of the public and university stakeholders	News article related to NSS results 2014.
040	Research Excellence Framework (REF)	Higher Education Funding Council for England, Scottish Funding Council, Higher Education Funding Council for Wales, Department for Employment and Learning	2014	Members of the public and university stakeholders	Provides data and results of latest REF exercise. Background to REF and purpose of framework is detailed.

041	HESA - Graduate Destinations	Higher Education Statistics Agency	2015	Members of the public	Information related to the Destination of Leavers from Higher Education (DHLE) survey, its questions and analysis.
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Appendix B

Documentary Data Analysis

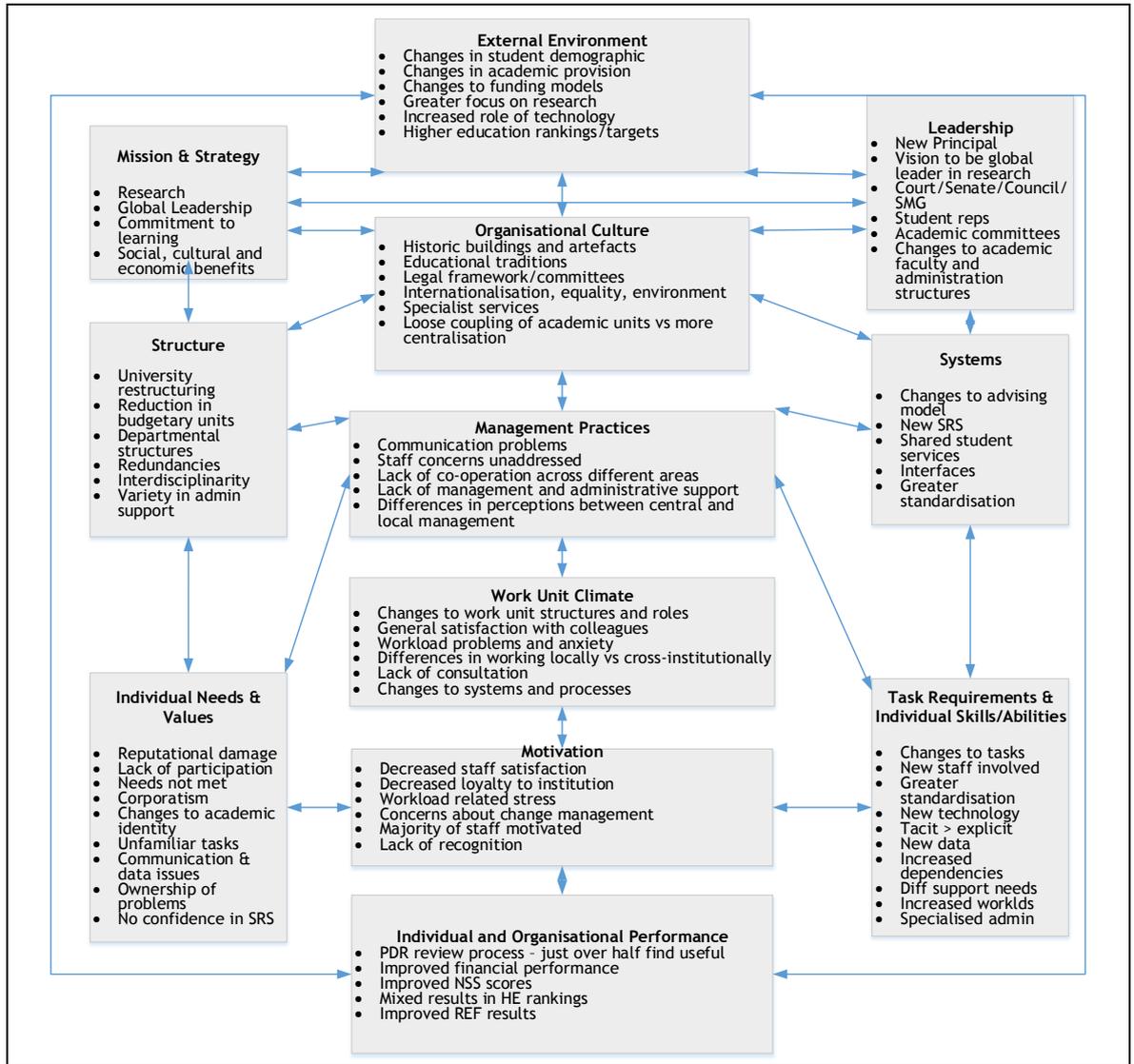


Figure 11 Revised Burke-Litwin Causal Model of Organizational Performance and Change (adapted from Burke and Litwin, 1992. Permission to reproduce this figure has been granted by SAGE Publications)

Summary of Findings

External Environment
<ul style="list-style-type: none"> • Changes in student demographic • Changes in academic provision • Changes to funding models • Greater focus on research • Increased role of technology • Higher education rankings/targets

Table 25 Summary of Change Factors - External Environment

Mission and Strategy
<ul style="list-style-type: none"> • Research • Global leadership • Commitment to learning • Social, cultural and economic benefits

Table 26 Summary of Change Factors - Mission and Strategy

Leadership
<ul style="list-style-type: none"> • New Principal/Vice-Chancellor • Vision to be global leader in research • Court/Senate/Council/SMG leadership structure • Student representatives • Academic committees • Changes to academic faculty and administration structures - changes to leadership

Table 27 Summary of Change Factors - Leadership

Organisational Culture
<ul style="list-style-type: none"> • Historic buildings and artefacts • Educational traditions • Legal framework and committee structures • Commitments to internationalisation, equality, environment • Increased specialist services - changing staff and student demographic • Loose coupling of academic units vs more centralised management

Table 28 Summary of Change Factors - Organisational Culture

Structure
<ul style="list-style-type: none"> • University restructured to achieve strategic objectives, enhance support and improve performance • Reduction in number of budgetary units • Changes to academic departmental structure • Increased interdisciplinarity • Variation in academic support structures

Table 29 Summary of Change Factors - Structure

Systems
<ul style="list-style-type: none"> • Changes to advising model - blended approach recommended • New student records system • Shared student services • Interfaces between corporate systems • Greater standardisation of data and processes • Greater complexity

Table 30 Summary of Change Factors - Systems

Management Practices
<ul style="list-style-type: none"> • Communication problems • Staff concerns unaddressed • Lack of co-operation across different areas • Lack of management and administrative support • Differences in perceptions between central and local management

Table 31 Summary of Change Factors - Management Practices

Work Unit Climate
<ul style="list-style-type: none"> • Changes to work unit structures and roles • General satisfaction with colleagues • Workload problems and anxiety • Differences in working locally vs cross-institutionally • Lack of consultation • Changes to systems and processes

Table 32 Summary of Change Factors - Work Unit Climate

Task Requirements and Individual Skills/Abilities
<ul style="list-style-type: none"> • Changes to tasks as a result of new systems and policies • Increased numbers of new staff involved • Greater standardisation of processes and tasks • New technology • Tacit > explicit, codified knowledge • New data gathering requirements • Increased dependencies between tasks • Different support needs • Increased workloads • More specialised administrative support

Table 33 Summary of Change Factors - Task Requirements and Individual Skills/Abilities

Individual Needs and Values
<ul style="list-style-type: none"> • Perceptions of reputational damage to university • Lack of participation in major decisions • Staff and student needs not met • Increased corporatism • Less time for teaching and research - changes to academic identity • Unfamiliar tasks • Communication and data problems • Issues identifying ownership of problems • Lack of confidence in SRS

Table 34 Summary of Change Factors - Individual Needs and Values

Motivation
<ul style="list-style-type: none"> • Decreased staff satisfaction • Decreased loyalty to institution • Workload related stress • Concerns about change management • Majority of staff motivated • Lack of recognition

Table 35 Summary of Change Factors - Motivation

Individual and Organisational Performance
<ul style="list-style-type: none">• Performance review process - just over half find useful• Improved financial performance• Improved NSS scores• Mixed results in HE rankings• Improved REF results

Table 36 Summary of Change Factors - Individual and Organisational Performance

Appendix C

Focus Group Data

Focus Group A

Focus Group Reference (FG Ref)	Process	Issue/Impact	Action
001	Academic Advising (General)	<ul style="list-style-type: none"> • Training covers all aspects of advising management in the system and not all functions are carried out by all advisers. Difference between the advising models for different programmes requires different levels of system knowledge/data input. 	<ul style="list-style-type: none"> • Development of jointly delivered bespoke training for advisers. • Use of drop-in sessions in agreed areas for new and continuing advisers to cover aspects of unfamiliar or unclear system steps/processes.

002	Academic Advising (General)	<ul style="list-style-type: none"> • Currently using paper notes to track discussions with students- helpful to remember personal details about advisees for meetings. No information held on SRS in relation to decisions taken and why. 	<ul style="list-style-type: none"> • Further investigation required into the types of information to be captured by advisers in relation to discussions and who should be able to access this information.
003	Academic Advising (General)	<ul style="list-style-type: none"> • Students approaching advisers when they encounter difficulty with the system or are unsure how to complete tasks such as enrolment etc. 	<ul style="list-style-type: none"> • All information which is made available to students to be sent to advising heads for review and to identify gaps. • Make Advisers aware of the information available and where it is located. • Identify different methods of making information visible/accessible to students.

004	Academic Advising (General)	<ul style="list-style-type: none"> Poor attendance at adviser meetings; staff time wasted and students don't receive help they require. 	<ul style="list-style-type: none"> Request that advisees respond to invitations to meet their adviser and inform staff if they don't intend to attend or feel it is not required. Investigate further use of system notifications informing students that they should make an advising appointment. Audit to track how many students make use of adviser meetings.
005	Academic Advising (General)	<ul style="list-style-type: none"> Useful for more staff to be involved and to gain experience of advising 	<ul style="list-style-type: none"> Investigate how flexibility can be built into advising models to be able to deal with gaps created by sabbaticals, overseas travel etc.
006	Class Enrolment	<ul style="list-style-type: none"> Late addition of/changes to timetabling data can cause 	<ul style="list-style-type: none"> Investigate use of functionality to reserve places for students

		<p>timetable clashes and causes confusion for students. Students contact advisers for resolution.</p> <ul style="list-style-type: none"> • Advisers required to individual students who have not completed self-service enrolment 	<p>on particular programmes where their timetable availability is limited due to mandatory courses.</p>
007	Class Enrolment	<ul style="list-style-type: none"> • Students in some areas with fixed curricula are mass enrolled, but not all. 	<ul style="list-style-type: none"> • In applicable areas where mass enrolment is not currently employed, its use and any potential difficulties will be assessed.
008	Programme Registration	<ul style="list-style-type: none"> • Inaccurate advisee lists in SRS. 	<ul style="list-style-type: none"> • Examples of missing students and other issues to be provided to allow investigation of problem.

			<ul style="list-style-type: none"> • Where issues relate to data set-up, review training information and potentially develop queries to help ensure data is set up correctly.
009	Student fees and funding	<ul style="list-style-type: none"> • Problems for students registering and graduating due to debts. • Students on reassessed placements experience issues relating to fees, registration and funding due to timeframes. 	<ul style="list-style-type: none"> • Investigate process to allow certain cohorts with specific circumstances to register. • Raise issues relating to debt and fees to appropriate working group.

Focus Group B

Focus Group Reference (FG Ref)	Process	Issue/Impact	Action
010	Academic Advising (General)	<ul style="list-style-type: none"> • Some areas currently using paper advising notes. • No information held on system in relation to decisions taken and why. 	<ul style="list-style-type: none"> • Explore use of SRS functionality for advising notes - should be available to all advisers but only allow them to edit/view comments on their own advisees. Advising heads to have view of all advisees in their programme.
011	Academic Advising (General)	<ul style="list-style-type: none"> • No visibility of student pages and processes so unable to assist students with SRS problems 	<ul style="list-style-type: none"> • Provide screenshots of student pages. • Consult with student representatives re the best method of providing support.

012	Academic Advising (General)	<ul style="list-style-type: none"> • Multiple ways to same pages within SRS. • Different staff have different permissions so difficult to provide staff with support with navigation. 	<ul style="list-style-type: none"> • Send advising heads reports of system roles and security assigned to members of staff in SRS. • Send advising heads reports of advisers attached to programmes of study for review and update. • Development of jointly delivered bespoke training for advisers. • Use of refresher training sessions in agreed areas for continuing advisers in August.
013	Academic Advising (General)	<ul style="list-style-type: none"> • Difficulties in recruiting Advisers due to various reasons, including reticence to use SRS. 	<ul style="list-style-type: none"> • Some programmes moving towards read-only access for academic staff in SRS and/or

			providing administrative support for administrative tasks.
014	Academic Advising (General)	<ul style="list-style-type: none"> • Move to centralised system has created new inter-dependencies between different areas- creation of more local problems as a result of data not all being entered at the same time. • Difficulties in identifying process owners. 	<ul style="list-style-type: none"> • Request enhancements to pre-registration checklist to ensure all tasks listed, deadlines provided, task dependencies noted and ownership allocated. Referred to operations group for action. • Make all student services contacts available to all advising heads to allow them to identify sources of help.
015	Assessment, Progression and Award	<ul style="list-style-type: none"> • Progression rules not up-to-date in all areas. 	<ul style="list-style-type: none"> • Update progression rules and course lists • Review progression reports to provide fuller information.

016	Assessment, Progression and Award	<ul style="list-style-type: none"> • Where students have not automatically progressed due to incorrect progression rules, they are being manually progressed by advisers. This manually applied progression status is overridden once progression is run following resits as the progression rules remain incorrect. 	<ul style="list-style-type: none"> • Make change to progression process in SRS - if student is manually progressed, value should not reset. • Review automated progression process to only review satisfaction of current academic year.
017	Assessment, Progression and Award	<ul style="list-style-type: none"> • Issues with grades being returned after deadlines - missing grades prevent students from being automatically progressed. • Various deadlines (exam results, progression, progress boards etc) based on requirements of previous 	<ul style="list-style-type: none"> • Problems related to late grades and the impact on progression and registration to be referred to advising committee. • Review of deadlines for interdependent tasks and consultation with different areas.

		systems - results in tight turnaround times for processes.	
018	Class Enrolment	<ul style="list-style-type: none"> • Difficult to establish priorities for enrolment on oversubscribed courses. 	<ul style="list-style-type: none"> • Provide advising heads with full access to all enrolment data for a student or class. • Promote greater use of functionality to provide information about enrolment priorities and allow greater control over enrolment.
019	Class Enrolment	<ul style="list-style-type: none"> • Problems with students enrolling on too many credits. 	<ul style="list-style-type: none"> • Review upper credit limit for student enrolment. • Promote use of reports to identify students with too many/too few credits.
020	Class Enrolment	<ul style="list-style-type: none"> • Advisers unable to identify suitable classes for students 	<ul style="list-style-type: none"> • Promote use of queries to help advisers search for suitable

		requesting assistance with timetable choices.	<p>classes in a subject area and investigate development of more complex queries to provide more refined information.</p> <ul style="list-style-type: none"> Investigate how information can be better communicated between departments to identify which classes are closed.
021	Class Enrolment	<ul style="list-style-type: none"> Timetable clashes may appear on a student's timetable after enrolment, causing issues with reselecting appropriate classes. 	<ul style="list-style-type: none"> Request registration and enrolment operations group communicates importance of timetabling all classes prior to start of enrolment to help avoid timetable clashes. Advise students to check timetables for clashes.

022	Class Enrolment	<ul style="list-style-type: none"> • Advisers are unaware when students have dropped or changed courses. 	<ul style="list-style-type: none"> • Promote use of system flags to indicate curriculum has been checked and use of queries to identify any changes to curriculum following checking. • Develop report to audit curriculum checking.
023	Class Enrolment	<ul style="list-style-type: none"> • Students able to make changes to Semester 2 classes throughout Semester 1 - difficult to plan classes. 	<ul style="list-style-type: none"> • Enrolment can be stopped on individual classes where required, however decision required as to whether this functionality should be used. Referred to advising committee for discussion.
024	Programme Registration	<ul style="list-style-type: none"> • Confusion about what certain system values mean and what they control. 	<ul style="list-style-type: none"> • Provide definition of system values. • Allow advising heads access to change student's level of study.

025	Programme Registration	<ul style="list-style-type: none">• Calculated end of study dates for students are sometimes incorrect (eg in 2025).	<ul style="list-style-type: none">• Investigate incorrect end dates and provide clarification as to how they are calculated.
026	Student Fees and Funding	<ul style="list-style-type: none">• Lack of information about how fees are calculated.	<ul style="list-style-type: none">• More information on fee structures to be requested via advising committee.

Focus Group C

Focus Group Reference (FG Ref)	Process	Issue/Impact	Action
027	Assessment, Progression and Award	<ul style="list-style-type: none"> • Check and correct progression rules 	<p>Refer following actions to advising expert user group:</p> <ul style="list-style-type: none"> • Carry out a testing exercise to fix incorrect data and test progression process. • Fully transition maintenance of progression rules to local experts. • Review timelines for progression and registration at advising user group. • Review reports of progression data to assess usefulness.

			<ul style="list-style-type: none">• Review descriptions of progression codes to enable better understanding.• Development of functionality to alert staff responsible for progression rules when programmes and courses are introduced or changed.
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028	Class Enrolment	<ul style="list-style-type: none">• Better guidance for staff and students required	<p>Refer following actions to advising expert user group:</p> <ul style="list-style-type: none">• Add text to curriculum to indicate that enrolment on some courses may be restricted to those on particular programmes of study, meeting certain pre-requisites etc• Course lists to be reviewed and updated to ensure accuracy.• Liaison between advising heads in general degrees to communicate changes to course availability for students.• Discuss how best to communicate benefits of self-service enrolment to students,
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			e.g. class choice, personalised timetables, etc
029	Programme Registration	<ul style="list-style-type: none"> Address difficulties in ensuring all students are assigned an adviser of studies 	<p>Refer following actions to advising expert user group:</p> <ul style="list-style-type: none"> Remind all staff responsible for programme data to ensure a default advising head is entered against each programme to ensure the automated initial allocation of advisers.

Appendix D

Focus Group Data Analysis

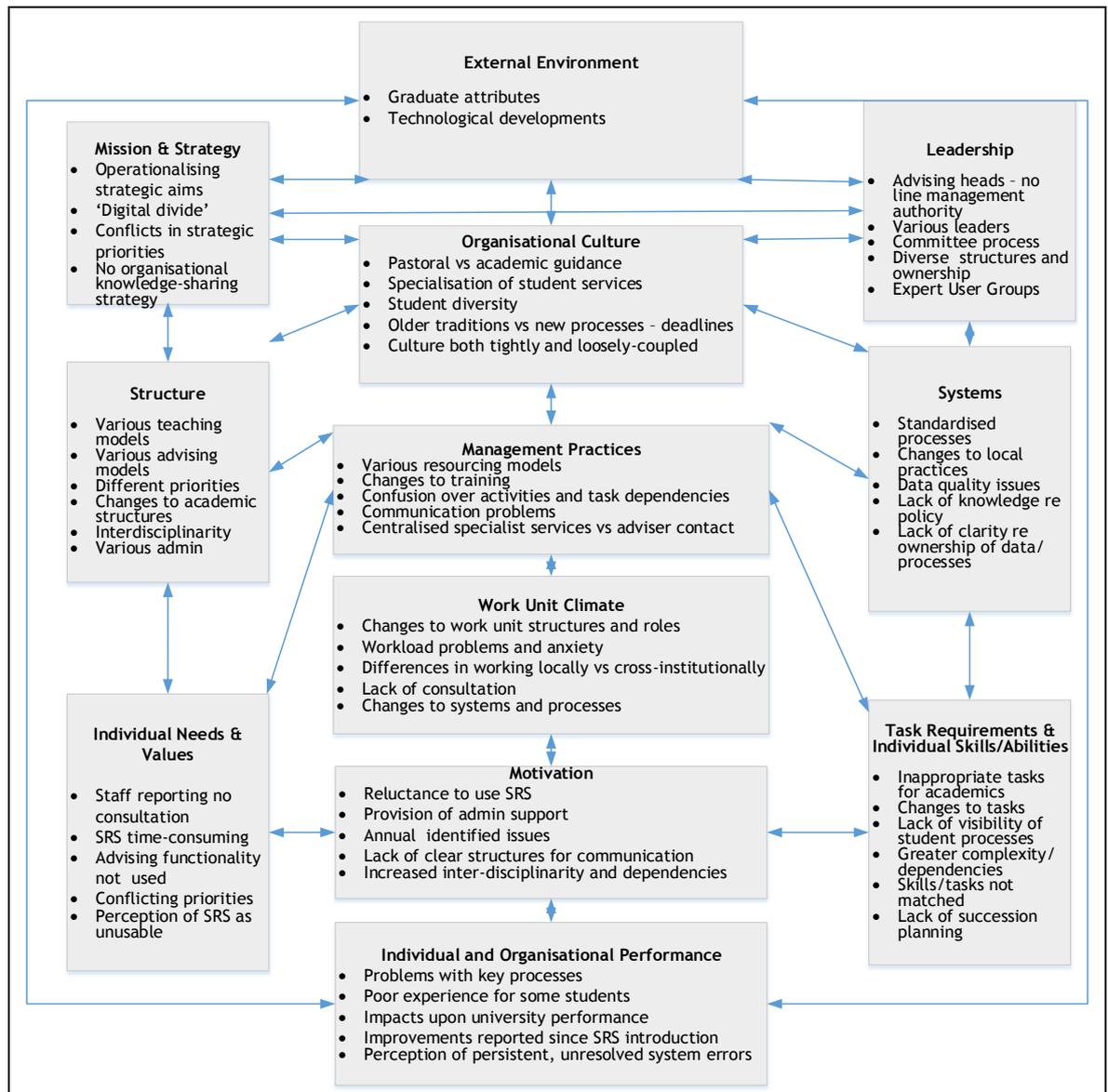


Figure 12 Revised Burke-Litwin Causal Model of Organizational Performance and Change (adapted from Burke and Litwin, 1992. Permission to reproduce this figure has been granted by SAGE Publications)

Summary of Findings

Structure
<ul style="list-style-type: none"> • Various teaching models • Various advising support models • Different priorities • Changes to academic departmental structures • Increased interdisciplinarity • Various administrative support structures

Table 37 Summary of Change Factors - Structure

Systems
<ul style="list-style-type: none"> • Standardisation of processes, e.g. timetabling, enrolment, student progression • Major changes to local practices • Data quality issues - inconsistent, missing or inaccurate • Lack of knowledge in relation to policy decisions • Lack of clarity establishing ownership of data and processes

Table 38 Summary of Change Factors - Systems

Management Practices
<ul style="list-style-type: none"> • Various resourcing models • Changes to training • Confusion over activities and task dependencies • Communication problems • Centralised specialist services vs adviser contact

Table 39 Summary of Change Factors - Management Practices

Work Unit Climate
<ul style="list-style-type: none"> • Changes to work unit structures and roles • Workload problems and anxiety • Differences in working locally vs cross-institutionally • Lack of consultation • Changes to systems and processes

Table 40 Summary of Change Factors - Work Unit Climate

Task Requirements and Individual Skills/Abilities
<ul style="list-style-type: none"> • Inappropriate tasks for academic staff • Changes to tasks from legacy system • Lack of visibility of student processes • Greater complexity and more dependencies between tasks • Skills not matched to tasks • Lack of succession planning - loss of critical knowledge

Table 41 Summary of Change Factors - Task Requirements and Individual Skills/Abilities

Individual Needs and Values
<ul style="list-style-type: none"> • Staff reporting they had not been consulted • SRS time-consuming - less time for academic activities • Advising functionality provided but not always used • Conflicting priorities with others (e.g. students) • Conflicting priorities with other academic roles (e.g. advisers/class co-ordinators) • Perception of SRS as unusable

Table 42 Summary of Change Factors - Individual Needs and Values

Motivation
<ul style="list-style-type: none"> • Reluctance to use SRS • Provision of administrative resources to support advising • Annual problems related to identified issues in timetabling, enrolment and progression • Lack of clear structures for communicating and resolving curriculum data problems • Increased inter-disciplinarity and dependencies

Table 43 Summary of Change Factors - Motivation

Individual and Organisational Performance
<ul style="list-style-type: none"> • Problems with key processes (e.g. timetabling, enrolment and progression) • Poor experience for some students • Impacts upon university performance • Improvements reported since SRS introduction • Perception of persistent, unresolved system errors

Table 44 Summary of Change Factors - Individual and Organisational Performance

Mission and Strategy
<ul style="list-style-type: none"> • Difficulty in operationalising strategic aims • 'Digital divide' between staff and students • Multiple roles = conflicts in strategic priorities • No university strategy on organisational knowledge-sharing

Table 45 Summary of Change Factors - Mission and Strategy

Leadership
<ul style="list-style-type: none"> • Advising heads - no line management authority over advising staff • Various leaders depending on activity • Committee process • Diverse departmental structures and ownership of tasks • Expert user groups

Table 46 Summary of Change Factors - Leadership

Organisational Culture
<ul style="list-style-type: none"> • Different priorities - pastoral vs academic guidance • Specialisation of student services • Student diversity • Tension between older traditions and new processes - tight deadlines • Culture as both a tightly and loosely-coupled factor

Table 47 Summary of Change Factors - Organisational Culture

External Environment
<ul style="list-style-type: none"> • Adviser role in preparing students for graduate life • Technological developments

Table 48 Summary of Change Factors - External Environment

Appendix E

Ethics

Provided below is a summary description of the ethics information provided to focus group participants in the Plain Language Statement, following approval by the University of Glasgow's College of Social Sciences Ethics Committee. This was accompanied by a consent form, which was signed and returned to me to indicate participants' consent and understanding of the research being carried out.

1. Study title and Researcher Details

Brief introductory details about my work and study provided as well as information about the topic of my research.

2. Invitation paragraph

Invitation to advising heads to take part in a research study investigating the impact of changes to the SRS on the processes involved in undergraduate academic advising and agree actions and changes to make enhancements to the process.

3. Purpose of the study

Brief explanation of the background to the study, the purpose of the research and the intended outcomes in relation to both the practical and research results of the study. It was intended that the focus group discussions would allow participants to agree actions and changes to make enhancements to the advising process.

4. Reasons for selection

Explanation provided as to why they were selected for invitation. This was based on their role in the university and their expert knowledge of the issues concerned.

5. Explanation of voluntary nature of participation

Invited subjects were informed that participation in the study was completely voluntary, and they were free to withdraw at any time, without giving any reason. They were assured that if they did withdraw, any data they had already provided would not be used in the study.

6. Explanation of what will happen if agree to participate

An outline of the proposed schedule of focus groups was provided along with assurances that participants would be able to provide additional data and feedback following the focus group discussions if they were unable to attend, but were still keen to participate. The topics for discussion were provided in advance as it was not possible to arrange a pilot study in advance and advisers were informed that the meetings would be audio-recorded to help ensure accuracy.

7. Confidentiality

Participants were assured that I would not use any of the data they supplied without written consent or permission. Additionally assurances were made that any quotations used would not be explicitly attributed to them.

8. What will happen to the results of the research study?

Invited participants were informed that the results would be used for the purposes of my PhD thesis and potential academic papers.

9. Who is organising and funding the research? (If relevant)

This information was not applicable to this study.

10. Who has reviewed the study?

The College of Social Sciences Ethics Committee reviewed this study.

11. Contact for Further Information

Invitees were informed that if they had any questions concerning the proposed research, or wished to know more details, they were free to contact me, with contact details provided for me and the College of Social Sciences Ethics Officer,

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