

**The Quality Maturity Model: Assessing Organisational Quality Culture in
Academic Libraries.**

A thesis submitted towards the degree of Doctor of Philosophy

by

Frances Wilson

School of Information Systems, Computing and Mathematics
Brunel University

July 2013

ABSTRACT

Academic libraries operate in a fluid environment, where they must provide, and demonstrate that they provide, a high quality service that is focussed on customers' needs. It is broadly accepted that the way to provide a high quality service responsive to customers' needs is to have a culture of quality that underpins all the organisation's efforts, i.e. TQM. The literature on how to improve the service quality of libraries in particular, and organisations in general, is extensive and varied. But it is not informative to practitioners who wish to know what to do to improve the quality culture of their library. The literature provides many examples of what a high quality organisation looks like, and, by inference, what a low quality organisation looks like. However, anyone who has worked in an organisation knows that quality culture is not binary but is instead a developmental process. This disconnection between the published research and known practice has led libraries to avoid attempts to measure, and therefore improve, their culture of quality.

The purpose of this research is to facilitate engagement by directors of academic libraries with issues of quality culture. This is achieved by producing a new representation of the concept of quality culture, the Quality Maturity Model. The QMM enables library directors to assess their location on a roadmap to a culture of quality, guides them as to the next step forwards, enables them to measure their progress over time, and enables them to compare themselves to others and so learn from best practice.

The characteristics of the research problem suggest the use of Design Science Research as the most appropriate research paradigm. This is a novel paradigm for library and information science research; one that has the potential to bridge the research-practice gap prevalent in this field. Design Science is iterative, creative and evaluative in the process of devising useful artefacts to attain specified goals. This research applies the Design Science Research Methodology (Peffer *et al.*, 2008) as a framework and uses interpretive synthesis and grounded theory methods to create the Quality Maturity Model consistent with both theory and practice. Practice was identified via interviews with a cross-section of staff at ten academic library and information services in the UK.

The QMM delineates 40 elements of quality culture, grouped into eight facets: Management of the organisation; environmental sensing; learning organisation attributes; attitude to change; attitude to quality; leadership; investment in staff; and alignment. The QMM has five maturity levels describing the progression from low quality maturity to high quality maturity for each of the elements. As a companion to the QMM, this research applied standard survey design methods to develop the Quality Culture Assessment Instrument. The QCAI enables library directors to self-assess the location of their library on the QMM using feedback from their library staff. The QMM rubric then enables library directors to identify what the next level of maturity looks like for each element.

The evaluation of these artefacts demonstrates that they fulfil the aims of this research: changed the representation of quality culture and so promote engagement with such issues by academic library directors.

In memory of Eileen Frances Wilson 1919-2010
For you, through me.

CONTENTS

Abstract	p.ii
Dedication	p.iii
Contents	p.iv
List of figures.....	p.ix
Acknowledgements	p.x
Declaration	p.xi
Journal articles	p.xi
Conference papers	p.xi
Abbreviations	p.xii
CHAPTER 1: INTRODUCTION	p.1
1.1 Problem Identification and Motivation	p.1
1.2 Aim and Objectives	p. 5
1.3 Research Methodology	p. 6
1.4 Thesis Overview	p. 7
1.5 Summary	p.12
CHAPTER 2: PROBLEM IDENTIFICATION AND MOTIVATION	p.13
2.1 Total Quality Management	p.13
2.2 A Culture of Quality	p.15
2.3 Total Quality Management in Libraries	p.17
2.3.1 The Need to Demonstrate Quality in Libraries	p.17
2.3.2 Performance Measurement in Libraries	p.18
2.3.3 A Concentration on Library Users	p.20
2.3.4 Quality Assessment Techniques	p.21
2.4 The Enthusiastic Few	p.23
2.5 The Problem	p.24
2.6 Summary	p.26
CHAPTER 3: RESEARCH METHODOLOGY AND OBJECTIVES FOR A SOLUTION	p.27
3.1 The Importance of Paradigms	p.27
3.2 Design Science Research Paradigm	p.30

3.3 Design Science Research Methodology	p.32
3.4 The Application of the Design Science Research Methodology	p.38
3.5 Initial Objectives for a Solution	p.41
3.5.1 Reference Model	p.42
3.5.2 The Initial Search for a Solution	p.46
3.5.3 Evaluation of the Initial Solution	p.48
3.6 Summary	p.49
CHAPTER 4: ITERATION ONE	p.51
4.1 Research Design	p.53
4.2 Increment 1: Interpretive Synthesis of the Quality Culture Literature ...	p.54
4.2.1 Research Design	p.54
4.2.2 Development	p.55
4.2.3 Output of Increment 1	p.61
4.3 Increment 2: Grounded Theory of Quality Culture	p.65
4.3.1 Research Design	p.65
4.3.1.1 Methodological Framework	p.65
4.3.1.2 Data Gathering	p.66
4.3.1.3 Analysis	p.70
4.3.2 Development	p.72
4.3.3 Output of Increment 2	p.77
4.4 Increment 3: Assessment of Ubiquity of Constructs	p.79
4.4.1 Design and Development	p.79
4.4.2 Output of Increment 3	p.80
4.5 The Artefact, its Demonstration and Evaluation	p.82
4.5.1 The Artefact	p.82
4.5.2 Demonstration	p.84
4.5.3 Utility of the Artefact	p.84
4.5.4 Learning About the Problem	p.86
4.6 Summary	p.87
CHAPTER FIVE: ITERATION TWO	p.89
5.1 Research Design	p.91
5.2 Development	p.91

5.3 Demonstration and Evaluation	p.97
5.3.1 Demonstration	p.97
5.3.2 Utility of Artefacts	p.98
5.3.3 Learning About the Problem	p.99
5.4 Summary	p.99
CHAPTER SIX: ITERATION THREE	p.100
6.1 Research Design	p.102
6.1.1 Survey Design and Preliminary Planning	p.105
6.1.2 Pretesting	p.106
6.1.3 Final Survey Design and Planning	p.108
6.2 Development	p.109
6.2.1 Survey Design and Preliminary Planning	p.109
6.2.2 Pretesting – Draft Questionnaire	p.111
6.2.3 Informal Testing	p.111
6.2.4 Formal Testing 1	p.113
6.2.5 Formal Testing 2	p.115
6.2.6 The Artefacts	p.116
6.3 Demonstration and Evaluation	p.119
6.3.1 Demonstration	p.120
6.3.2 Utility of Artefacts	p.120
6.3.3 Learning About the Artefacts	p.123
6.3.4 Learning About the Problem	p.123
6.4 Communication	p.124
6.5 Summary	p.125
CHAPTER 7: CONCLUSIONS	p.127
7.1 Research Summary	p.127
7.2 Research Conclusions	p.129
7.3 Reflections on the Research	p.132
7.4 Limitations and Further Research	p.134
7.5 Final Thoughts	p.135
REFERENCES	p.137
APPENDICES	p.162

A: Examples of search strategy for Interpretive Synthesis (iteration 1, increment 1)	p.162
B: Complete list of literature items included in the Interpretive Synthesis (iteration 1, increment 1)	p.164
C: Ten examples of information derived from sources of interpretive analysis	p.171
D: Interview schedule for Director	p.174
E: Interview schedule for Library Management Team	p.175
F: Interview schedule for Professional / PLA & SLA / Library Assistant	p.176
G: Email sent to LIS-SCONUL requesting participants	p.177
H: Checklist for data gathering visit	p.179
I: Participant information and consent sheet	p.180
J: Examples of line-by-line coding of interviews for iteration 1, increment 2	p.181
K: Focussed coding for analysis of interviews for iteration 1, increment 2	p.185
L: Examples of focussed coding for analysis of interviews for iteration 1, increment 2	p.186
M: Paper presented at 7 th Northumbria International Conference of Performance Measurement in Libraries and Information Services	p.190
N: Presentation given to M25 Consortium of Academic Libraries Quality Working Group 24 June 2008	p.200
O: Output of Iteration Two	p.204
P: Test for testing of questionnaire at Middlesex	p.219
Q: Test for testing of questionnaire at Brunel	p.221
R: Draft QCAI questionnaire before pretesting	p.223
S: Pretesting questionnaire for formal testing 1 (screenshots)	p.235
T: Pretesting questionnaire for formal testing 1 (Middlesex)	p.238
U: Email recruiting respondents for formal testing 1 (Middlesex)	p.249
V: Pretesting questionnaire for formal testing 2 (Brunel)	p.250
W: Email recruiting respondents for formal testing 2 (Brunel)	p.260
X: The Quality Culture Assessment Instrument	p.261
Y: Rubric for mapping Quality Culture Assessment Instrument answers onto the QMM	p.271

Z: Instructions for using the Quality Culture Assessment Instrument	p.277
AA: Interview schedule for Nick Bevan and Ann Cummings	p.280
AB: Paper presented at the fourth Library Assessment Conference: Building Effective, Sustainable, Practical Assessment	p.281
AC: The Quality Maturity Model	p.289

LIST OF FIGURES

1.1	Structure of Thesis	p.11
2.1	Schein's Three Levels of Culture	p.16
3.1	The Design Science Research Method	p.35
3.2	Research Iterations	p.40
3.3	The Quality Management Maturity Grid	p.44
4.1	Research Iteration One	p.52
4.2	Visual Representation of Synthesis of Constructs of the QMM from Literature	p.62
4.3	Visual Representation of the Constructs of the QMM from Grounded Theory	p.78
4.4	The Quality Maturity Model Outline	p.83
5.1	Research Iteration Two	p.90
5.2	An Example of Vignettes The Express the Same Dimension of a Property	p.91
5.3	An Example of Using Evidence From Documentary Sources	p.93
5.4	An Example Where Descriptors Came From the Literature	p.94
5.5	An Example or Preserving the Natural Language of Interviewees	p.95
5.6	An Example Where Levels One and Two Could Not Be Discriminated	p.96
6.1	Research Iteration Three	p.101
6.2	The Stages of a Survey	p.104
6.3	Pros and Cons of Online Web Surveys	p.110
6.4	Example of Result Cross-Tabulation and Presentation Where There Are Two Modal Answers	p.118
6.5	Example of Presentation of Results	p.119

ACKNOWLEDGEMENTS

Thank you to those at Brunel who inspired and enabled me to complete my PhD: to my supervisor Mark Lycett for your understanding, explanation and unhesitatingly agreeing to supervise me with the immortal words “Now I can tell you what to do for a change” – how did that work out for you?

To Ray Paul for convincing me that I *could* do a PhD; and a plethora of academics, too numerous to mention, for taking me seriously.

To Nick Bevan, my director of Library Services (twice!), for your interest, enthusiasm, encouragement and practical support. I hope it helps.

Thank you to Stephen Town – without you all would be naught. Thank you for your inspiration, persistence, advice, time, enthusiasm and explanation. I know I was too slow for your purposes, but sometimes you have to let life get in the way. I am forever in your debt for the way you have changed my life.

Thank you to the staff at the subject libraries for your interest and time, particularly Biddy Fisher, Sue McKnight, Cathryn Gallagher, Mary Nixon, Margaret March, Janet Smith, Alison Ward, Sue David and Jackie Chelin. Thank you all for your honesty and openness. I am sorry I was over-optimistic about the timescale I could report back in – my inexperience led me to over promise. Thank you to Jo Algar, Claire Grover, Ian Hall, Selina Killick, and Davina Omar; Nick Bevan and his staff and Ann Cummings and her staff for being guinea pigs.

Thank you to those in the library world who took me seriously and were interested in my research: John-Carlo Bertot, Judy Broady-Preston, Juliet Eve, Biddy Fisher, Mike Heaney, Steve Hiller, Selena Killick, Sue McKnight and Jim Self.

Thank you to the Fellows of Brasenose College, Oxford for warmly welcoming me into your ‘republic of the learned’ – you did much to counteract the isolation that writing up a thesis brings.

Thank you to Mark and Benjamin for your love, support and understanding. I am sorry my research took me away from you so much. I couldn’t have done it without you.

Finally, thank you to my Mum and Dad for your support. I hope I make you proud.

DECLARATION

I declare that the work of this thesis is original, except where indicated by citation in the text. No part of this thesis has been submitted for any other degree at any time, except where indicated in the text.

Work in this thesis has led to the following publications:

Journal Articles

Wilson, F. (2006) 'What is the Meta Quality of Your Library?' *SCONUL Focus*, 38, pp.85-88.

Conference Papers

Wilson, F. (2007) 'The Quality Maturity Model: The Story So Far', *Proceedings of the 7th Northumbria International Conference on Performance Measurement in Libraries and Information Services. Measuring Library Performance and Organizational Effectiveness: From Research to Practice. 13-16 August 2007. Spier Hotel and Conference Centre, South Africa.*

Wilson, F. (2012) 'The Quality Maturity Model: Your Roadmap to a Culture of Quality', *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment. Charlottesville, Virginia. October 29-31.*

Wilson, F. (2013) 'The Quality Maturity Model: Your Roadmap to a Culture of Quality', *Proceedings of the 10th Northumbria International Conference on Performance Measurement in Libraries and Information Services. Measuring Library Performance and Organizational Effectiveness: From Research to Practice. 22-25 July 2013. Royal York Hotel, York, UK.*

ABBREVIATIONS

CILIP - Chartered Institute of Library and Information Professionals

JISC - Joint Information Systems Committee

L&IS – Library and Information Science (the discipline)

LIS – Library and Information Service (the provision)

MLA - Museums, Libraries and Archives Council

SCONUL – Society of College, National and University Libraries

TQM – Total Quality Management

CHAPTER ONE: INTRODUCTION

“Our thinking creates problems that the same type of thinking will not solve.”

Albert Einstein

The author of this thesis is a qualified librarian working in an academic library. Known to be interested in issues of quality in libraries, the Director of the Library asked the author “What do I need to do to improve the quality of the Library?” The research documented in this thesis attempts to answer this question.

This chapter introduces the research and sets out the structure of the rest of the thesis. Section 1.1 introduces the domain of the research and provides an overview of the problem space and to whom the problem is relevant. Section 1.2 states the aims and objectives of this research. Section 1.3 introduces the research design used to address these aims and objectives. Finally, Section 1.4 shows how this thesis is arranged in order to demonstrate how the research addresses these aims and objectives. The chapter is summarised in Section 1.5.

1.1 Problem Identification and Motivation

Currently, academic libraries in the UK are facing a period of retrenchment, as summarised in a recent report:

“After a decade of growth in budgets and services, librarians now expect a sustained period of cuts. ... they cannot achieve this simply by achieving more of the kinds of efficiency savings they have made over the last decade; there is not enough fat to cut anymore. Rather, they will have to look radically at the kinds of levels of service that they can provide in support of their universities’ missions.”
(Research Information Network and SCONUL, 2010, p.7)

This is not a novel situation; in the 1990s the Internet and the increased availability of online services were touted as the death knell for academic libraries (Sapp & Gilmour, 2003). As a consequence, libraries turned to performance measurement to try to demonstrate their quality and impact, driven by a desire to develop the tools to assess themselves rather than have inappropriate tools imposed upon them (Durrance & Fisher-Pettigrew, 2002).

Libraries have a long history of measuring their performance (Goodall, 1988). The failure of existing methods to address the need for quality assessment prompted some in the literature (e.g. Brockman, 1992; Shaughnessy, 1993; Brophy & Coulling, 1996; St. Clair, 1997) to advocate looking towards industry and the private sector for new performance measurement techniques, such as benchmarking (Shaughnessy, 1993; Cheetham, 1993; Town, 1995; Kinnell & Garrod, 1995; Town, 2000a; Town 2000b) the Balanced Scorecard (Pienaar & Penzhorn, 2000; Poll, 2001; Willis, 2004), customer relationship management (Roberts & Rowley, 2004), and customer value discovery (McKnight, 2009). The following decade, the literature documents academic libraries investigating approaches to measuring impact (Markless & Streatfield, 2006); Poll & Payne, 2006; Rubin, 2006). Later in that decade, the literature turned to methods of demonstrating the value of academic libraries (Oakleaf, 2010) and, most recently, worth (Town & Kyrrlidou, 2013).

A note about terminology: some in the literature use quality, impact, value and worth interchangeably, with indistinguishable meanings. However, in the above context they have distinct, albeit inter-related, definitions. Quality is the ability to perform satisfactorily in service and the suitability for its intended purpose (Juran, 1988). Impact is the effect a library has on individuals who interact with it and its services (Markless & Streatfield, 2006). Value is an indication of the importance of an academic library to stakeholders and can be defined in a variety of ways, including use, return-on-investment, production of a commodity, impact, and competing alternatives (Oakleaf, 2010). Worth is the importance of an academic library to an institution or society and is transcendent - the impact demonstrated must be beyond the library and immediate satisfaction, needs or demands, through contribution to less concrete aspects of institutional or societal intent (Town & Kyrrlidou, 2013).

Despite the consistent entreaties in the literature of the need to measure library performance in a manner that accurately describes their importance and effectiveness, most academic libraries have stuck with the easy-to-measure input, process and output measures, with the frequent, but not universal, addition of user satisfaction surveys. Indeed, the standard set of statistics collected by

SCONUL in the UK has remained broadly the same over the last 15 years, with no measures that relate directly to the users' experience. Some academic libraries have made the leap to trying to assess quality and impact. However, these efforts tend to be made by the pro-active few – the same libraries and library directors repeatedly striving for improvement in performance measurement.

Measurement of the quality of an organisation is not just the first step on the road to measuring the impact, value and worth of the library; there is a qualitative difference between these measures. Assessment of impact, value and worth are externally focussed, designed to answer calls from policymakers and the public for accountability. The measurement of quality is an internally focussed tool for improvement. The advocates of quality measurement techniques argue that they improve the quality processes of the organisation that applies them by creating a culture change and so transforming the organisation into a customer-focussed learning organisation (Atkinson, 1990; Karlof & Ostblom, 1993; Beckford, 1998). This approach, known in the management literature as Total Quality Management (TQM) is vital in challenging times such as those currently faced by libraries, when only a customer-focussed learning organisation will be able to determine what services are necessary to ensure the library's critical contribution to the university's mission, and to deliver them.

Despite its apparent relevance, the TQM approach has not been universally welcomed, or universally applied in the LIS sector. Many in the sector seem reluctant to implement any sort of management theory, wary of . the vocabulary of management, the level of commitment required, the long-term nature of the process, and fears about devaluing professionalism (Jurow & Barnard, 1993); or feeling that techniques imported from the private sector do not sit well with the mission of higher education and academic libraries (Oakleaf, 2010).

As has been described above, there is a discrepancy between what is advocated in the literature by the few, and what is applied in practice by the many. Kinnell & Garrod (1995) attribute this to the lack of utility of models in the literature. One of the difficulties library directors face is the lack of clear guidance from the literature

as to the nature of 'quality'. Gurus such as Crosby, Deming and Juran argue that the elements of TQM are universally applicable. However, "even the critical elements or factors that constitute TQM are not completely agreed upon." (Sila & Ebrahimpour, 2002, p.903). There is no single framework depicting the individual elements that underlie a quality culture. In fact there are very few frameworks in the literature at all. The most complete – the Malcolm Baldrige National Quality Award (U.S.) / EFQM Excellence Model (Europe) – are only available upon payment of a consultancy fee. What the literature does contain are many and varied descriptions of what a 'learning organisation' or 'TQM organisation' or 'high quality' or 'successful organisation' looks like. Library directors do not have time to undertake a thorough literature review, and choosing a single approach to follow produces an incomplete view of 'quality'.

A second difficulty is the lack of a framework to measure an individual library's progress in implementing quality management processes. The lack of such an instrument compounds the difficulties library directors face in trying to implement improvement techniques that require long-term investment in order to be successful. If such a framework did exist, by quantifying the hitherto unquantifiable it may promote engagement with quality management beyond the existing few. The TQM literature (e.g. Feigenbaum, 1961; Deming, 1986; Juran, 1988) implies that the development of a culture of quality is binary – you either have it, or you don't. However, the researcher's experience in practice suggests that this is not the case; development of a culture of quality is a journey of continuous improvement not just in quality processes, but in the quality of quality processes (meta-quality).

Such a framework may also precipitate a change of attitude about the abundance of quality improvement techniques. Some literature (Kinnell & Garrod, 1995; Wilson, 2004) suggests that benchmarking is only beneficial to libraries that already have a well-developed quality culture. If different techniques are viewed not as evidence of the fecundity of management theories, but instead as an evolutionary path with different techniques appropriate at different levels of meta-quality, then it would be easier for a library to select the most appropriate technique for their situation. At the moment the library sector looks to the private

sector and views all techniques as equal (with some, of course, being 'the latest thing'). If it were demonstrated that this was not the case, it may result in a better fit between the library and the quality improvement technique chosen, and therefore an actual improvement in quality.

This review of the research domain demonstrates the problem with the issue of quality culture in LIS, namely that the existing literature lacks utility, enabling only the enthusiastic few to engage with it. The literature presents quality as an opaque concept, impenetrable by LIS practitioners. Furthermore, the lack of an available framework for measuring progress towards a culture of TQM may lead those who are enthusiastic to view instructions in the literature as all-or-nothing, and so set themselves up to fail when those who are at the beginning of their journey of improving meta-quality try to run before they can walk. Existing practice shows that libraries find it difficult to engage with measures that are amorphous and hard to produce metrics for (such as impact, value and worth), consistently preferring ease of measurement over improvement in performance. This demonstrates that utility is the key success criteria in applying management techniques to LIS. However, if these difficulties can be overcome, there is the potential for all libraries to engage with the issues of quality culture, to make use of appropriate existing quality improvement techniques to improve the quality of their service to users, and therefore survive as a crucial pillar supporting the organisation's mission.

1.2 Aims and Objectives

The aim of this research is to produce a new representation of the concept of quality culture, which facilitates engagement by directors of academic libraries through its utility. In particular the new representation will enable the director of any academic library to assess their location on a roadmap to a culture of quality, to guide them as to the next step forwards, to enable them to measure their progress over time, and to enable them to compare themselves to others and so learn from each other.

In furtherance of this aim, the objectives of this research are to:

1. Develop and characterise a model of the evolution of a culture of quality.

2. Produce an instrument to enable an academic library to self-assess their quality maturity level.
3. Evaluate the research in order to demonstrate that the artefacts produced have helped directors of academic libraries engage with the idea of quality culture.

Construction of the artefacts, thought intended to be useful, is a means to an end: a method of changing the representation of the concepts to make evident what was previously obscure and to make the previously un-measurable, measurable.

1.3 Research Methodology

The aim and objectives of this research have implications for the research methodology used to address them. Firstly, the aim of the research is to devise a course of action aimed at changing an existing situation into a preferred one; it is concerned not with how things are, but with how things should be. Secondly, the research will devise artefacts as a means of achieving the aim and objectives. Thirdly, the research problem cannot be easily defined *a priori* and cannot be stated in such a way as to directly derive a solution. Finally, the crucial assessment of the success of the research is the utility of the output.

Natural science research or behavioural science research methodologies are unable to address such problems. In natural or behavioural science the initialising problem is a discrepancy between the available knowledge and the known facts. The purpose of the process is the adaptation of knowledge to the facts - to “bring about a change in the realm of the mind” (Eekels & Roozenburg, 1991, p.198). This research aims to “bring about a change in the realm of the external material world” (p.198). Furthermore, if the problem cannot be stated *a priori*, inductive or deductive reasoning cannot solve it because these logics can only apply to evaluative and analytical activity (March, 1984).

There is a third science research methodology – design science. This paradigm is novel in L&IS research, although it is used in related disciplines such as information systems and education. Design science problems are unlike natural or behavioural science problems in that they are “wicked” (Rittel & Webber, 1973)

- difficult to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognise. Cross (1994) details five characteristics of design problems:

1. There is no definitive formulation of the problem in the existing literature.
2. The problem formulation gives visible form to inconsistencies in the problem space.
3. The formulation of the problem is solution dependent.
4. Solutions are proposed as a means of understanding the problem.
5. There is no definitive solution to the problem.

These are the characteristics of the problem addressed by this research. This view is supported by the positive comparison between the characteristics of design science and characteristics of the research methodology required in this research:

1. Design science operates at the interface between the problem space and the solution space, both of which should be explored as part of the research. This makes design science especially relevant for problems that are not easily defined *a priori*.
2. The chief concern of design science is utility i.e. “the state of being useful, profitable, or beneficial” (Oxford English Dictionary, 1989).
3. Design science is creative, iterative and evaluative. It is not sufficient for the research to produce a novel solution; that solution must be evaluated for utility, and must be improved upon until the desired level of utility is reached, with this desired level defined by practitioners.
4. Design science is concerned with devising artefacts to attain goals.

Design Science is therefore the most appropriate research methodology within which to undertake this research.

1.4 Thesis Overview

This thesis uses the structure of the design science research process to structure the presentation of the research, in the same way that ‘scientific’ research papers take the structure of the scientific research process (problem definition, literature review, hypothesis development, data collection, data analysis, results, discussion, and conclusion). Every researcher trained in the cultures of natural

Chapter 1: Introduction

science or behavioural science research has a mental model of their paradigm - “a constellation of beliefs, values, and techniques” (Chua, 1986, p.602) - that enables them to recognise, understand and evaluate the work of others. This is a skill learnt early in a research student’s training and is so fundamental that it becomes implicit. An assessment of behavioural science research by a researcher with only a natural science mental model of what constitutes ‘proper research’ results in conflict and misunderstanding. This summary of Chapters Two to Seven explains the structure in order to avoid such confusion by the reader unfamiliar with the presentation of design science research.

Chapter Two presents the problem identification and motivation through a review of the relevant literature as it existed at the start of the research (2007). Three bodies of literature are presented – Total Quality Management, quality culture, and the application of TQM and performance measures in LIS. Total Quality Management is an integrative philosophy of management, which aims to achieve long-term success through continuously improving the quality of products, processes and services in order to provide customer satisfaction. In a TQM effort, all members of an organization participate in improving processes, products, services and the culture in which they work. It is hailed as a powerful tool for maintaining high customer satisfaction in a rapidly changing environment. TQM has been extensively discussed and applied in the business and manufacturing sectors, and to a lesser extent in the service and public sectors. TQM is discussed in the library and information science literature, where it is felt to be particularly suited to the needs of library and information services to improve their performance. However, close reading of this literature uncovers the lack of application of TQM techniques by library and information services in practice.

Chapter Three details the design science research methodology and its application in this research. The aim of this chapter is to provide a mental model to enable the reader to assess the rigor of the research. The chapter presents the justification for using a design science paradigm when it has not previously been used in Library and Information Science research, specifically its concentration on utility. The Design Science Research Methodology developed by Peffers *et al.* (2008) is presented as the framework used to plan, undertake, evaluate and

refine the research. The application of this framework is illustrated, which describes the iterative nature of design and its adaptive characteristics, with the evaluation of the artefact generated from each iteration feeding back into the objectives for a solution for the next. This framework is used to direct the three design iterations that are presented in Chapters Four, Five and Six.

To initiate the first design iteration, Chapter Three identifies the objectives for a solution derived from the literature review in Chapter Two. A maturity model is presented as the reference model for the solution, and a pilot project evaluating the appropriateness of this reference model is summarised.

Chapter Four presents the first design iteration, where the individual elements of quality culture are explicated from both existing literature and current practice in UK academic libraries. This iteration is developed incrementally, first using the interpretative synthesis method to analyse the literature, then grounded theory techniques to analyse interviews with staff from ten 'case studies'. Finally the grounded theory method is used to integrate the outputs from these two increments, and the reference model is applied. Evaluation of the demonstration of the resulting artefact confirms the utility and effectiveness of the outline Quality Maturity Model and provides additional objectives for a solution.

Chapter Five presents the second design iteration, which uses the grounded theory method of Charmaz (2006) to populate the Quality Maturity Model with a rubric derived from both the literature and interviews collected in Chapter Four. Evaluation of the demonstration of the resulting artefact confirms the utility and effectiveness of the Quality Maturity Model and provides additional objectives for a solution.

Chapter Six presents the third design iteration, which develops an assessment instrument that enables an academic libraries to self-assess their location on the Quality Maturity Model. The standard survey design method is detailed, and its application to this iteration described. The three iterations of testing the instrument are documented, and the Quality Maturity Model and Quality Culture Assessment Instrument are applied to two UK academic LIS. The evaluation of

Chapter 1: Introduction

these demonstrations indicates that the solution developed through this research is successful in achieving the research aims. Finally, the artefacts are communicated to the practitioner and research communities.

Chapter Seven summarises the research undertaken and presents the research conclusions. This chapter also considers the value of the design science research paradigm, and sets some themes for further research. It concludes with some personal reflections by the researcher on the doctoral research process.

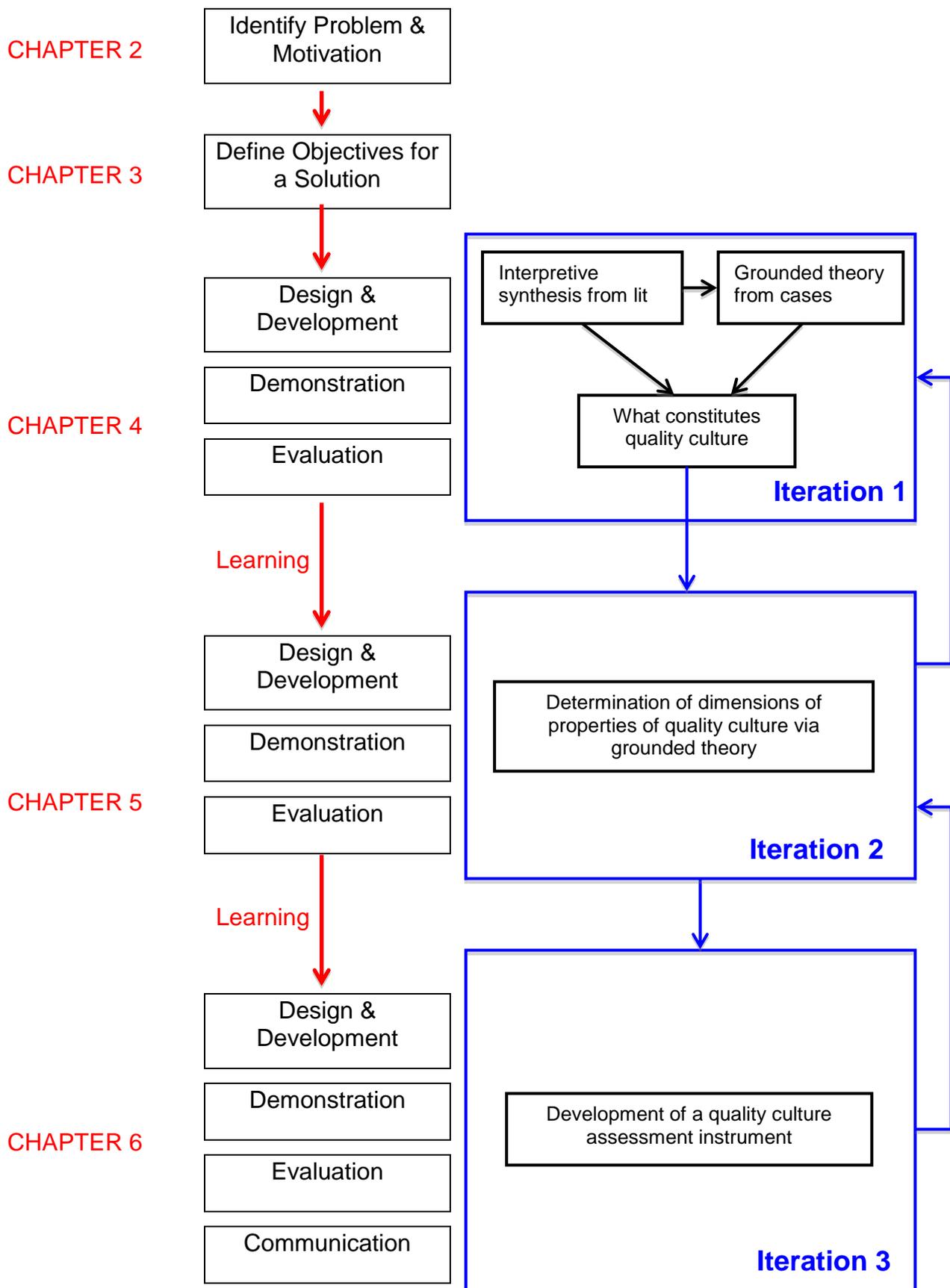


Figure 1.1: Structure of Thesis

Figure 1.1 presents a diagram of the research process, including directions to where each stage of the process is detailed in this thesis.

1.5 Summary

This chapter introduces the research domains relevant to this research, specifically Total Quality Management, quality culture, and TQM and performance measurement in academic LIS. The research aim and objectives are derived from this high level exploration of the literature. Design science research is introduced as an appropriate paradigm for the research, and an overview of this research methodology is presented. The chapter concludes with a summary of Chapters Two to Seven, and an illustration of how the thesis structure, research methodology and research method interact.

CHAPTER TWO: PROBLEM IDENTIFICATION AND MOTIVATION

“You do not have to do these things. Survival is not compulsory”

W. Edwards Deming

In the Library world, change is the only constant. New technologies, changes to user needs and expectations, different economic situations, and the introduction of assessment regimes have resulted in radical changes to the operating environments for every library – often year-on-year. To survive in such a fluid environment it is necessary to “keep the institution tuned to the winds of change and actively engaged in the major upheavals affecting the library and information world.” (Cotta-Schonberg, 1995, p.55). The literature (e.g. Brockman, 1992; Shaughnessy, 1993; Brophy & Coulling, 1996; St. Clair, 1997) suggests that the way to achieve this is to implement a Total Quality Management (TQM) approach. However, adoption of the TQM approach by LIS has not been widespread, despite near universal use of performance measurement techniques. Commentators propose that this is due to a lack of utility of the quality management theories espoused in the L&IS literature.

This chapter presents the starting point of this research – problem identification and motivation. The specific research problem is defined through a review of the existing literature on the engagement with issues of quality in libraries. This review forms a discrete stage in the design research process and serves the specific purpose of exploring the problem at the highest level of granularity so that the solution can effectively address its complexity. Therefore, this chapter presents a snapshot of the situation as it stood at the start of the research (2007). Section 2.1 describes the Total Quality Management approach to quality. Section 2.2 reviews the features of a culture of quality. Section 2.3 describes the history of Total Quality Management in libraries. Section 2.4 identifies the limits of the implementation of Total Quality Management techniques in libraries. Section 2.5 describes the research problem.

2.1 Total Quality Management

Total Quality Management is an approach to quality that embraces the whole organisation and takes the customer as its starting point (Oakland, 2003). Quality

is determined by the customer, and TQM is a comprehensive and integrated way of managing an organisation in order to meet the needs of the customer consistently (Jeffries, Reynolds & Evans, 1996).

TQM is the latest in a series of approaches to quality. Quality emerged as an important theme in management thinking in the mid-twentieth century. The initial ideas came from American theorists, but early commercial applications were predominantly among Japanese manufacturing companies, such as Toyota (Beckford, 2010). The early definitions of quality reflect this manufacturing context: quality is conformance to requirements (Crosby, 1979); quality is reduction in waste (Ohno, 1978, published in English 1988); quality is elimination of defects in process (Shingo, 1987). In the early 1980s, the definitions of quality changed to incorporate an appreciation of the customer's requirements: quality is a function of continuous improvement based on a reduction in variation around the desired output (Deming, 1986); quality is uniformity around a target value (Taguchi, 1987); quality is what the customer gets out and is willing to pay for (Drucker, 1985). In the late 1980s definitions of quality further emphasised the requirements of the end user: quality is fitness for use or purpose (Juran, 1988).

At the end of the twentieth century, many economies that had relied on manufacturing now see the service sector as the dominant economic force. For example, Hong Kong was a strong manufacturing economy in the 1960s; now 70% of its economic activity is derived from the service sector (Beckford, 2010, p.13). Adapting the manufacturing models of quality to the service sector was not enough. Unlike the tangible products of manufacturing, service quality is intangible and instantaneous. It cannot be independently audited or assessed *post hoc*. The manufacturing models of quality described above cannot be applied to service quality. The definition became: quality is meeting the customers' requirements (Oakland, 1989). Quality does not depend on what actually happened, but on how the participants in the transaction feel about what happened. There is a distinction between quality and grade (Corrall, 1996) – quality depends on what the customer wants whereas grade is an absolute, relative to a specific standard. A Rolls Royce is a higher grade car than a Smart,

but if the customer wants a small, cheap car that is economical to run, the Rolls would be low quality. This is the starting point of the TQM approach.

Numerous authors (e.g. Atkinson, 1990; Beckford, 1998) emphasise that the key to TQM is creating a culture change - to a customer focussed learning organisation. Beckford (1998) describes a learning organisation as “one engaged in an iterative, circular process of evolution” (p.223). Such organisations do not instigate change in response to the rise of a competitor or a change in the marketplace, but change constantly in small increments. For survival, it is more important to achieve an ongoing state of development than a given stage of development (Karloff & Ostblom, 1993).

2.2 A Culture of Quality

The development of a culture of quality is crucial to the achievement of TQM, where the key components are the people of the organisation. The culture of an organisation is:

“a set of behavioural and attitudinal norms, to which most members of an organisation subscribe, either consciously or subconsciously, and which exert a strong influence on the way people resolve problems, make decisions and carry out their everyday tasks” (Clutterbuck & Crainer, 1990, p.195)

To change the culture of an organisation requires a change in all members of that organisation (Queiroz & Bruno, 1995; Jeffries, Reynolds & Evans, 1996).

However, the forces created in social and organisational situations by culture are very powerful and cannot be changed by simply saying “here are the new rules”. Schein (2010) explained that they are so powerful because they operate outside awareness. He describes culture as consisting of three levels, illustrated in Figure 2.1.

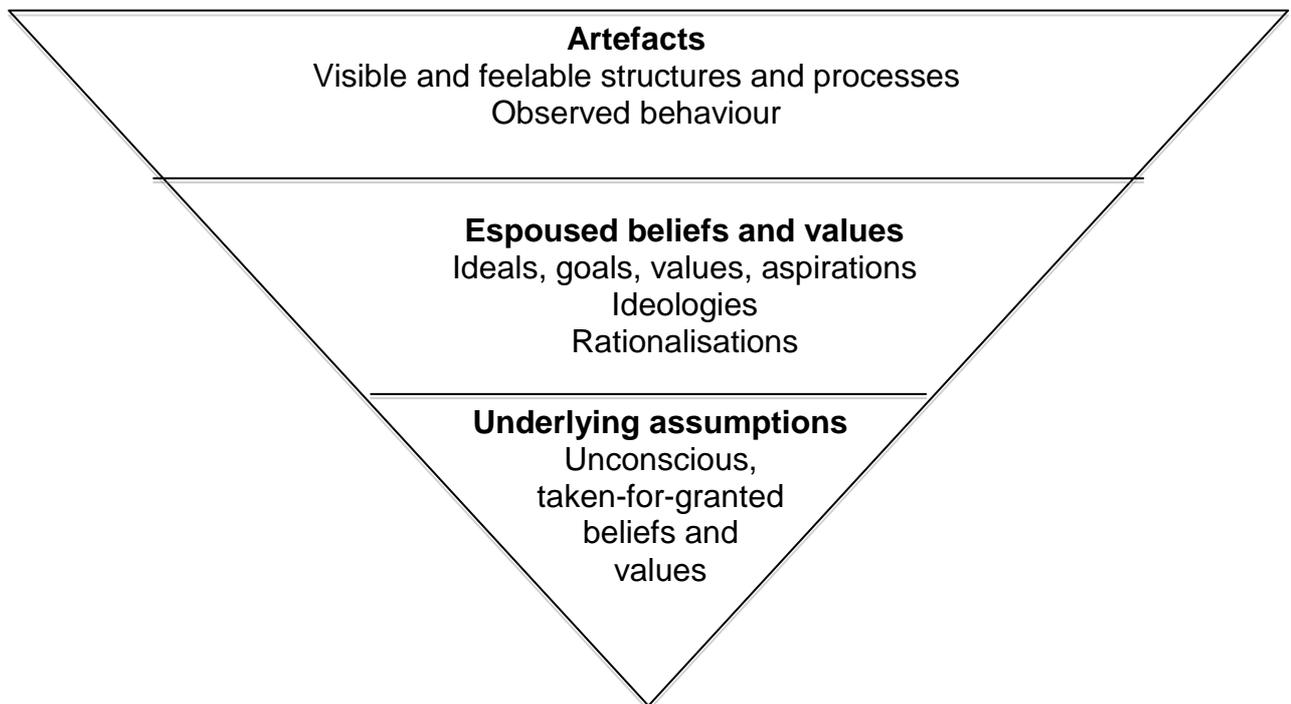


Figure 2.1: Schein's three levels of culture

The tangible, overt behaviours are the visible manifestations of a culture. These artefacts are underpinned by the conscious beliefs, values, ideals, goals, ideologies and aspirations of the culture. In turn, the foundations of the culture are the unconscious, assumed beliefs and values, which drive behaviour, perception, thought and feeling. In order to change an organisational culture, it is these basic underlying assumptions that must change.

Organisational culture came to prominence in 1980 with a Business Week cover story (Unknown) that described how company traditions and employees' beliefs about their roles in the organisation set a pattern for the company's activities, opinions and actions. The article describes the cultures of a number of leading American companies, and how their culture supports or impedes the CEO's strategies for that company. The article emphasises the difficulty of changing corporate culture, partly because it is so pervasive, and partly because it is so hard to understand: "It's like putting your hand in a cloud" (Stanley M Davis, cited p.149).

Basic, underlying assumptions are non-confrontable and non-debatable (Schein, 2010). Those who do not share them are seen as mavericks, and remain outside the 'cultural web' (Johnson & Scholes, 2002, p. 230) of the organisation.

However, such unconscious beliefs and values often emerge from procedures and measurement systems, which are seen as a communication of what senior management consider to be important (Beckford, 2010). Therefore, one way to change organisational culture is to design performance measurement systems and procedures that are congruent with the desired culture. Eventually, these will become culturally embedded as part of the underlying value and belief system of the organisation, and so behaviour will change to reflect this.

2.3 Total Quality Management in Libraries

The literature describes three drivers towards TQM for academic libraries: the need to demonstrate quality; a background of measurement; and a concentration on the users. This section details each of these in turn.

2.3.1 The Need to Demonstrate Quality in Libraries

Libraries are found in four main sectors: education; local government; health services; and the private sector. They must serve the same agenda as their 'masters' in terms of demonstrating their quality and worth, so those in education, local government and health have faced the same top down pressures as other public sectors. For example, the quality assurance assessment of UK Higher Education Institutions includes an assessment of library and information services; and American public libraries are motivated by the same government drives for greater accountability of public money as other public services (Durrance & Fisher-Pettigrew, 2002).

Within the UK library sector, academic libraries have led the way in striving to demonstrate their quality. The harsh economic climate of the 1990s pressed Higher Education Institutions for greater accountability and improved attention to quality. In particular, there was the need to demonstrate whether an institution was meeting its goals and objectives, and whether these goals and objectives were aligned with society's needs (Kyrillidou, 1998). Universities were required to account for their performance in teaching and research through Research

Assessment Exercises and Teaching Quality Assessments (Town, 1998). In turn, universities began to require accountability and attention to quality from their libraries. The Follett report of 1993 identified libraries as playing a fundamental role in the provision of high quality education, and in the autumn of that year the sector responded when SCONUL highlighted the quality theme at its conference (Sykes, 1996). However, unlike other public sectors, libraries also have their own reasons for wanting to demonstrate their quality. The Internet and the increased availability of online services are facilitating self-sufficiency for library users. As a consequence, libraries have turned to performance measurement to try to demonstrate their quality and worth, driven by a desire to develop the tools to assess themselves before decision makers do (Durrance & Fisher-Pettigrew, 2002). Libraries can no longer be viewed as storehouses of knowledge where people should want to come because libraries are 'good things' (Stuart & Drake, 1993).

2.3.2 Performance Measurement in Libraries

Libraries have been collecting performance measurement data and comparing themselves to others since the 1960s (Goodall, 1988). Initially the focus of measurement was the comparison of inputs (e.g. number of books added to the collection; staffing levels), with the implication being the more money spent, the better the library (Goodall, 1988; Morgan, 1995). The 1985 Jarratt report on university efficiency recommended the development of a range of performance indicators covering both input and output measures, for use both within the institution and for making comparisons between institutions. The emphasis moved towards cost effectiveness and performance measures relating inputs to outputs (e.g. cost of a loan). However, measures of inputs, processes, outputs, or composites of these (Cotta-Schonberg, 1995) are not adequate for the evaluation of, and so demonstration of the quality of, a library. Such metrics alone cannot determine why a performance gap exists – only the practices on which the metric is based will reveal this (Camp, 1989). The use of performance indicators results in the over-concentration on metrics, because they do not reveal the detail of the processes involved (Town, 1995). Town (1998) argued that libraries should be more concerned with performance rather than measurement, and warned that they were in danger from one of Deeming's 'Seven Deadly Diseases of Western

Industry': "Management by use only of visible figures, with little or no consideration of figures that are unknown or unknowable" (cited p.83).

Lancour (1951) wrote that libraries should be viewed as progressing through three periods: storehouse, service, and 'educational function'. In the intervening 50 years the literature has repeatedly celebrated the end of the storehouse period and the move to the service period. During the early 1990s there was a move to mirror this in the performance measures collected: Ford (1989) argued that the only people likely to measure a library's performance in terms of user needs were the users themselves. Output measures consisting of availability, accessibility, and delay were proposed (Thompson, 1991). In addition to output measures, and this user-focussed extension of output measures, process data (e.g. processing time for new books) was also included in performance measures (Cotta-Schonberg, 1995).

However, the use of such user-focussed performance measures does not address the quality measurement issues needed to assess the value of a library to its stakeholders. The measures used are still library, not user, focussed – with the emphasis on the library putting itself in the users' shoes to determine what the users want, rather than by asking the users. If quality is determined by the customer (as it is in TQM) then measures to determine quality must relate directly to users' experiences *as perceived by the users themselves*.

Town (1998) argued that the apparent change that occurred following the publication of The Effective Academic Library in 1995 (Joint Funding Councils) was not wholesale, as the prior existence of collected statistics influenced the final product. The standard set of statistics collected by SCONUL in the UK has remained broadly the same over the last 13 years, and indicates the relative importance given to different performance measures in libraries: firstly accommodation for studying (e.g. number of open access workstations), then collections (e.g. number of books added to stock), then users and usage (number of loan transactions), then staffing (e.g. number of professional posts), and finally financial (e.g. block grant). There are no measures of user satisfaction or that relate directly to the users' experience.

This review of the literature shows that libraries have a long history of performance measurement, with the emphasis on *measurement*, rather than *performance*. There are those who argue that libraries have attempted to measure their quality since the 1940s (Broady-Preston & Preston, 1999), but as described above, these were not true measures of quality, if *quality is defined by the customers*.

2.3.3 A Concentration on Library Users

In the early 1990s, the emphasis shifted slightly towards *performance*, and some libraries did make the leap to actually asking their users about the quality of the library. Such user satisfaction surveys were often exit questionnaires for students, developed from general university satisfaction surveys (Lock & Town, 2005). A 1995 study found that 81% of UK libraries gathered user feedback (Kinnell & Garrod, 1995). To build upon this history of satisfaction survey use, SCONUL developed their standard satisfaction survey in 2001 to provide a set of standard measures. However, even user satisfaction surveys do not address the issue of performance assessment for quality. Numerous studies have shown that users express satisfaction in spite of how they really feel (Rothstein, 1964; Pizer & Cain, 1968; Totterdell & Bird, 1976). Expressions of dissatisfaction, when they do occur, are not helpful because they only demonstrate that something is wrong, not what is wrong (Whitehall, 1992), or how to fix it. Martin had made this point in 1974: "Most standards in the library field have not been designed as aids in evaluation" (p.410).

In the early 2000s, a number of libraries expressed the desire for a survey that would provide information to drive improvements in quality, rather than just a simple measure of customer satisfaction. To address this, SCONUL approached American Research Libraries (ARL) with a view to adopting LibQUAL+ methodology. Since its inception in 2003, a fifth of UK HE institutions have been involved with LibQUAL+ (Lock & Town, 2005). The key elements of LibQUAL+ are its measurement of minimum, perceived and desired levels of service quality (Lock, 2004). This enables an assessment of the quality of the library as defined

by its customers.

In addition to these developments, there has recently been a 'top down' move to incorporate user feedback into official information collected about UK academic libraries – the National Student Survey, run annually from 2005, has a question about students' satisfaction with library resources.

2.3.4 Quality Assessment Techniques

Some libraries have looked to the private sector for techniques to assess their quality. Benchmarking is one of these techniques. It is used widely in the private sector to measure and improve the quality of products and services (Garrod & Kinnell, 1997). It has been used in UK libraries since 1993 (Town, 1995).

Benchmarking is "the search for industry best practices that lead to superior performance" (Camp, 1989, p.12). It is a change management process that goes beyond competitive analysis - competitive analysis will deliver measures against which an organisation can compare its own performance. However, little is discovered about why any gap exists. Benchmarking uncovers the actual processes that deliver the desired level of performance. Karlof & Ostblom (1993) suggest that benchmarking is particularly good at creating a cultural change in an organisation towards TQM and that the culture so created persists even if employees who took part in the benchmarking exercise leave the organisation.

Another technique brought to libraries from business is the Balanced Scorecard (Ceynowa, 2000; Pienaar & Penzhorn, 2000; Poll, 2001; Self, 2003; Self, 2004; Willis, 2004). The Balanced Scorecard "translates an organization's mission and strategy into a comprehensive set of performance measures that provides the framework for a strategic measurement and management system." (Kaplan & Norton, 1996, p.2). The novelty of the Balanced Scorecard is that it concentrates not on merely financial or control aspects of performance measurement, but measures organisational performance across four balanced perspectives – financial, customers, internal processes, and innovation and improvement activities. Kaplan & Norton (1996) propose that the Balanced Scorecard has its greatest impact when used to drive organisational change. It bridges the gap

between strategic objectives set at the senior management level and their operational execution. This is achieved by translating the vision and strategy into objectives and measures, thus providing a framework to communicate this vision and strategy to employees, and thereby channel the energies and abilities of people throughout the organisation towards achieving the organisation's long-term goals.

A technique that is specific to academic libraries, but based on one used in a business setting is LibQUAL+. LibQUAL+ is a 'total market survey' – a term used in the marketing literature for evaluations across an industry of customer expectations and perceptions of service quality (Thompson, Cook & Heath, 2003). The most widespread total market survey is SERVQUAL, developed in the retailing sector (Parasuraman, Berry & Zeithaml, 1988). LibQUAL+ was developed, with the support of the Association of Research Libraries (North America), from efforts to apply the SERVQUAL protocol in the library context (Cook & Thompson, 2000; Cook & Heath, 2002; Cook, Heath & Thompson, 2002). Although essentially a user survey, it does take as its starting point a TQM definition of quality: "only customers judge quality; all other judgements are essentially irrelevant." (Zeithaml, Parasuraman & Berry, 1990, p.12). In addition, Wall (2002) proposes that engaging with the LibQUAL+ process can be transformative for the library's culture, as it forces library staff to accept the importance of users' perceptions, and to address them through change.

As well as taking inspiration from others, there are instances where libraries are at the cutting edge of quality measurement. Whereas Smith (1995) argues that measures of the impact of a public sector service on society are too complex to determine (and therefore measures should only be used to inform political debate), libraries have taken on the challenges of investigating the measurement of outcomes, as a way of demonstrating their quality. They have recognised that such measurement is extremely difficult, but have been pursuing it in public libraries since the early 1990s (Cullen & Calvert, 1996). Recently SCONUL have sponsored a project to investigate possible methods of measuring the impact of academic libraries on the teaching, learning and research outcomes of their HEI

(Conyers & Payne, 2004).

The literature demonstrates that there have been multiple efforts in the last ten years to demonstrate library quality. However, these efforts tend to be made by the enthusiastic few – the same libraries and library directors repeatedly striving for improvement.

2.4 The Enthusiastic Few

Despite the described need for libraries to address quality management issues, there is a discrepancy between what is advocated in the literature by the few, and what is applied in practice by the many.

The adoption of benchmarking has not been widespread - around 7% of UK academic libraries (Kinnell & Garrod, 1995; Town, 2000a). This compares unfavourably with the number of libraries undertaking systematic user surveys – 93% in the period 1999-2003 (Pors, Dixon & Robson, 2004). It was hoped that the publication of the 'SCONUL benchmarking manual' in 2000 (Town, 2000b) would increase the number of libraries using this technique, but this does not appear to have been the case.

A 2002-3 survey of 237 library managers in the UK found that only 7% of them had extensive knowledge of the Balanced Scorecard (Pors, Dixon & Robson, 2004). This compared to 35% answering the same question with regard to benchmarking. If there is a similar conversion rate of knowledge to application for the balanced scorecard as there is for benchmarking (20%), then fewer than 1.5% of UK libraries are using the Balanced Scorecard.

LibQual+ has been the most successful of the assessment tools described above. From 2003-2007, sixty-two UK and Irish academic libraries used LibQual+ (Town & Lock, 2007) – around half of UK universities. However, two-thirds (41) of these were one-shot users (Killick, 2007), illustrating that, for them at least, it was just another management fad.

This picture is similar to that in America. Steve Hiller and Jim Self, two of the key people in the field of library assessment in the U.S.A., stated in 2004 that:

“There is growing evidence in the literature and from informal discussions that a sizable number of libraries experience difficulty devising appropriate measures or methods, understanding and analyzing the data, using data to make changes, and building a sustainable assessment program.” (p.1).

The literature appears to show engagement with quality assessment techniques by libraries. However, the evidence shows that this engagement is not widespread, and that most directors of academic L&IS experience difficulties in apply the theory to practice.

2.5 The Problem

The dichotomy between theory and practice is clearly illustrated by the assertion of Kinnell & Garrod (1995) that “Quality management is considered to be beneficial to the LIS sector, but a model which is in harmony with the needs of the sector has not yet been identified.” (p.159). Without clear guidance in the literature, it is difficult for all but the most enthusiastic library director to approve the significant investment required to implement a quality assessment technique.

Jurow & Barnard (1993) identified potential barriers to the adoption by libraries of quality improvement techniques including: vocabulary of management techniques; the level of commitment required; the long-term nature of the process; and fears about devaluing professionalism. An indicator of the library sector’s discomfort with the vocabulary associated with business comes from the title of a 1992 paper from the ASLIB proceedings: ‘Just another management fad? The implications of TQM for library and information services’. In it, Brockman alludes to the perception, found by Kinnell and Garrod (1995) to be commonly held in the library sector, that quality management is merely a gimmick. As a counter, if the investment can be justified and scepticism overcome, the benefits are potentially enormous. The advocates of techniques such as benchmarking and the Balanced Scorecard argue that they improve the quality processes – the quality culture – of the organisation that applies them. This

improvement is said to go beyond simply improving the quality of the product or service, to the creation of a learning organisation (Karlof & Ostblom, 1993; Tapinos, Dyson & Meadows, 2005) or communicating the organisational vision to all employees (Kaplan & Norton, 1996). In working towards Total Quality Management these issues are fundamental, because the key to TQM is creating a culture change – to a customer-focussed learning organisation (Atkinson, 1990; Beckford, 1998).

Quality assessment techniques have the potential to achieve culture change and so produce a customer-focussed learning organisation, able to fulfil the needs of its customers in a rapidly evolving environment. However, such techniques, though advocated in the Library and Information Science (L&IS) literature, have been implemented by only a small number of UK academic libraries. Reasons for this come down to a lack of widespread practitioner engagement with quality assessment techniques as being relevant or appropriate for Library and Information Services (LIS).

In contrast, academic LIS have a long and widespread history of performance measurement, using the results for competitive analysis, identification of areas of weakness and demonstration of improvement. If quality assessment techniques were more like existing LIS performance measurement techniques, it may promote engagement with the concept of quality beyond the existing few.

In addition such a model may help organisations seeking to improve their quality procedures. It would enable measurement of the progress of an individual institution, which would counteract the difficulties faced when working with an improvement technique that requires long-term commitment in order to be successful. It would also enable comparisons to be made across institutions – something the library sector is particularly keen on.

A quality assessment model may also precipitate a change of attitude about the abundance of quality improvement techniques. Some literature (Kinnell & Garrod, 1995; Wilson, 2004) suggests that benchmarking is only beneficial to libraries that are at a high level of quality maturity. If different techniques are viewed not

as evidence of the fecundity of management theories, but instead as an evolutionary path with different techniques appropriate at different levels of quality maturity, then it would be easier for a library to select the most appropriate technique for their situation. At the moment the library sector looks to the private sector and views all techniques as equal (with some, of course, being 'the latest thing'). Perhaps this is an illusion. The following illustration, though naïve, may be illuminating here. Survival in the competitive world of commerce and industry necessitates the implementation of a succession of quality approaches.

Companies implementing the latest quality improvement technique survive; those that lag behind do not (Deming, 2000, p.155). However, once this evolution has occurred the field is then level again, as all players have the same techniques. So those that find an edge in another, new, technique once again pull ahead. It is survival of the fittest (Koch, 2001). Although the pressures on libraries to demonstrate their quality do come from competition (perceived or actual), the situation is very different to that faced by the private sector. Library directors are free to choose which technique they wish to implement without a baseline of existing performance. Natural selection is not at work here, but if it were demonstrated that something akin to it was at work in the private sector, it may result in a better fit between the library and the quality improvement technique chosen, and therefore an improvement in quality.

2.6 Summary

Libraries thrive on comparing their performance with that of others, but find it difficult to use quality assessment measures. This is a problem because quality assessment techniques have the potential to change the culture of an organisation to one of TQM - customer-focussed learning organisation. A model that converts measures of quality into a format similar to existing performance measurement techniques is needed, which may enable the sector as a whole to come to terms with measures of quality, rather than just the enthusiastic few.

CHAPTER THREE: METHODOLOGY AND OBJECTIVES FOR A SOLUTION

“When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge of it is of a meagre and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely in your thoughts advanced to the stage of science.”

Lord Kelvin

This chapter presents design science research as the epistemological framework underpinning this research. The evolution of the design science research paradigm is explained, to demonstrate both its applicability to this research, and the variety of approaches and methods advocated in this immature area. The Peffers *et al.* (2008) Design Science Research Methodology is presented as the most appropriate of the available frameworks for undertaking and evaluating this research. Finally, to start the research process, the initial objectives of a solution that follow from the literature review in Chapter 2 are detailed, including a description of maturity models as the reference model and a discussion of the initial search for a solution.

Section 3.1 describes the influence of paradigms on research; Section 3.2 summarises the characteristics of the design science research paradigm; Section 3.3 presents the Design Science Research Methodology framework; and Section 3.4 shows how this methodological framework is applied in this research. Section 3.5 details the objectives for a solution and summarises the reference model used to inform the search for a solution. The chapter is summarised in Section 3.6.

3.1 The Importance of Paradigms

Academic L&IS departments, like many professional subjects (e.g. design, architecture, business, education, computer science), faced pressure in the 1970s to reject vocationalism in favour of subject matter that was “intellectually tough, analytic, formalizable and teachable” (Simon, 1996, p.112). At that time, the benchmark for academic respectability and acceptance in universities was

the natural science paradigm, with its quantitative approach. In the intervening years behavioural science, with its qualitative approach, has also become accepted. These paradigms differ in their assumptions of ontology, epistemology, and methodology (Chua, 1986), but both are concerned with the development of theory and theory testing. As described in the much cited work by Orlikowski & Baroudi (1991), the quantitative paradigm is appropriate where quantifiable measures of variables are possible, where hypotheses can be formulated and tested, and inferences drawn from sample to populations. The qualitative paradigm is appropriate when the phenomena under study are complex, social in nature, and when understanding the cultural context from which people derive meaning is important.

However, the issues facing L&IS practitioners are often “wicked problems” (Rittel & Webber, 1973) – problems with incomplete, contradictory, and changing requirements and with solutions that are often difficult to determine because of complex interdependencies. Such problems cannot be addressed by theory development or testing *per se*, and so do not fit within either of the quantitative or qualitative paradigms. Practitioners are not concerned whether a particular solution fits theory A or theory B – just as long as it works!

The mismatch between what is researched in academic L&IS departments and therefore published in the literature, and what is needed by the L&IS practitioners is not simply driven by differences in interest, the requirements for funding (Eve & Schenk, 2006) and publication (McNicol & Nankivell, 2003), or a lack of communication (Genoni, Haddow & Ritchie, 2004), though these are both real and serious. More fundamental than all of these is the dichotomy between the nature of the problems facing practitioners and the research questions that can be answered using the natural science or behavioural science paradigms. However, there is a third way – a paradigm that has proven academic rigor and acceptance as well as the ability to address the types of problems facing practitioners. That paradigm is design science.

Design science emerged in the 1970s as an alternative paradigm to the natural sciences’ positivist paradigm and the behavioural sciences’ constructivist /

interpretivist paradigm. It is established in the fields of art & design, engineering, architecture, planning, and information systems as a framework for undertaking research, and has recently begun to be used in the field of education.

Design science has three characteristics (Simon, 1969):

- Firstly, it operates at the interface between the problem space and the solution space, both of which should be explored as part of the research. This makes design science especially relevant for problems that are not easily defined *a priori*.
- Secondly, the chief concern of design science is utility. Utility is defined as “the state of being useful, profitable, or beneficial” (Oxford English Dictionary, 1989). This is in contrast with the positivist and constructivist / interpretivist paradigms, whose chief concern is the discovery of ‘truth’ - either absolutely, or triangulated from multiple socially constructed ‘truths’.
- Thirdly, design science is creative, iterative and evaluative. It is not sufficient for research to produce a novel solution; that solution must be evaluated for utility, and must be improved upon until the desired level of utility is reached, with this desired level defined by practitioners.

These characteristics mean that design science is applicable to any field where the goal of research is to devise a course of action aimed at changing existing situations into preferred ones; concerned not with how things are, but with how things should be.

Design science as a research paradigm offers the potential to change the interface between research and practice. If the starting point for research into quality management in LIS were utility, then academic researchers would be addressing problems that are of direct value and relevance to practitioners. The outcomes of such research would therefore be easily adopted by practice. The following section introduces the design science research paradigm more fully.

3.2 Design Science Research Paradigm

Design Research emerged as a research paradigm following Herbert Simon's 1969 call for "a science of design, a body of intellectually tough, analytic, partly formalizable, partly empirical, teachable doctrine about the design process" (p.58). Simon was concerned that the move to natural science teaching and methods at the expense of "sciences of the artificial" (p.56) was damaging professional competencies in the fields of engineering, business, medicine, law, journalism and library science. He drew the distinction between natural science's role to teach about natural things, and the role of the above professional schools to teach about artificial things - "how to make artefacts that have desired properties and how to design" (p.55). He proposed a curriculum to redress the balance, and engineering schools responded to his call, as did research centres concerned with computer-aided design, such as computer science, architecture, and operations research groups in business schools (Simon, 1996).

Design is concerned with devising artefacts to attain goals (Simon 1996, p.114). Design problems are unlike natural or social science problems in that they are "*wicked*" (Rittel & Webber, 1973). Cross (1994) details five characteristics of design problems:

1. There is no definitive formulation of the problem in the existing literature.
2. The problem formulation gives visible form to inconsistencies in the problem space.
3. The formulation of the problem is solution dependent.
4. Solutions are proposed as a means of understanding the problem.
5. There is no definitive solution to the problem.

He further characterises design problems as those that cannot be stated in such a way as to directly derive a solution. Inductive or deductive reasoning cannot solve such problems, because these logics can only apply to evaluative and analytical activity (March, 1984). Design science problems require synthesis to produce the solution and so require 'abductive' reasoning:

“Deduction proves that something must be; induction shows that something actually is operative; abduction merely suggests that something may be.” (Peirce, 1903, cited in Cross, 1994, p.29).

Eekels & Roozenburg (1991) postulate an illuminating comparison of the structures of natural science and design science research. The aim of natural science research (and the same could be said of behavioural science research) is to “bring about a change in the realm of the mind” (p.198); while the aim of design science research is to “bring about a change in the realm of the external material world” (p.198). In natural science or behavioural science the initialising problem is a discrepancy between the available knowledge and the known facts. The purpose of the process is the adaptation of knowledge to the facts. In design science the initialising problem is a discrepancy between the known facts and practitioners’ preferences concerning these facts. The purpose of the process is the adaptation of the facts to the value preferences.

Design science is still a relatively immature paradigm, and as such there are differences in terminology and methodological approach in the literature (e.g. Cross, 1994; March & Smith, 1995; Dhillon, 1996; Pahl & Beitz, 1996; Birmingham *et al.*, 1997; Gregg, Kulkarni & Vinze, 2001; Markus, Majchrzak & Gasser, 2002; Puroo, 2002; Hevner *et al.*, 2004; Cao *et al.*, 2006; Venable, 2006). However, there are some common principles identified by all authors:

- Design science is concerned with problem solving;
- Design science produces a solution that is both new and useful;
- Design science is iterative;
- Design science is heuristic while at the same time creative;
- Design science is evaluative; and
- Design science produces an end product that is the communication of the solution.

Beyond these generally accepted principles, proponents of design science fall into two camps: (a) the purpose of design science is to determine the solution (e.g. March & Smith, 1995; Pahl & Beitz, 1996; Simon, 1996; Birmingham *et al.*,

1997; Glass, 1999; Purao, 2002); (b) the purpose of design science is to explore the solution to better understand the problem (e.g. Cross, 1994; Venable, 2006). The first camp splits into two further distinctions: whether the solution must be the optimal solution (e.g. Pahl & Beitz, 1996; Glass, 1999) or a satisfactory solution (eg. Purao, 2002; Simon, 1996). There is also lively debate about the nature and role of theory in design science research (e.g. Walls, Widmeyer & El Sawy, 1992; Gregg, Kulkarni & Vinze, 2001; Markus, Majchrzak, & Gasser, 2002; Hevner *et al.*, 2004; Gregor, 2006; Venable, 2006).

Orlikowski & Baroudi (1991) advise self-reflection by researchers about their research perspectives. Therefore, the author wishes to explicitly state her position regarding design science. This research is undertaken with the purpose of exploring a solution in order to better understand the problem, and as such the solution is a means to an end. The solution need not be optimal or satisfactory as long as it has sufficient practical adequacy to illuminate the problem. She subscribes to Eekels & Roozenburg's (1991) philosophical explanation about the nature of design science, and therefore believes that the role of theory is to be used in the construction of the solution.

Design science research is undergoing a 'scientific revolution' and as such the literature has attempted to define it, characterise it, differentiate it from other research paradigms, analyse its essential elements, defend its legitimacy, and compile a bibliography (Gregory, 1966; Cross, 1994; Dhillon, 1996; Pahl & Beitz, 1996; Birmingham *et al.*, 1997; Wright, 1998; Dieter, 2000; Purao, 2002; Hevner, *et al.*, 2004; Venable, 2006; Vaishnavi & Kuechler, 2009). However, only Peffers *et al.* (2008) explicitly present a methodology for conducting and presenting design science research. The following section details this methodological framework.

3.3 Design Science Research Methodology Framework

A number of researchers in information systems have presented, demonstrated and evaluated frameworks for design science research. The information systems discipline is similar to the L&IS discipline in that they are both interdisciplinary fields concerned with the interaction of information, people, and technology. They

are applied research disciplines - applying theory from other disciplines such as computer science, the social sciences, and management science to solve problems in their fields. In addition, as Orlikowski & Baroudi (1991) state, “the research approaches adopted by researchers ... are influenced to a greater or lesser extent by the various institutional contexts within which they are trained and work.” (p.24). Therefore it must be acknowledged that this research has been undertaken in a department of Information Systems and Computing, no doubt influencing the author in her choice to follow this methodological framework.

Perhaps the most influential framework for design science research comes from Hevner *et al.* (2004), which set out seven guidelines for what constitutes good design science research:

1. Design as an artefact - the research must produce a viable artefact, as defined by March & Smith (1995).
2. Problem relevance – the research must address an important and relevant business problem.
3. Design evaluation - the utility, quality and efficacy must be “rigorously demonstrated via well-executed evaluation methods” (p.83).
4. Research contribution - the research must provide “clear and verifiable contributions” (p.83).
5. Research rigour – the research must apply “rigorous methods in both the construction and evaluation of the ... artefact” (p.83).
6. Design as a search process – the research process is a cyclical problem solving process, where solutions are tested against each other and against their efficacy for solving the problem.
7. Communication of the research – the research must be appropriately presented to both an academic and professional audience.

Despite such influence, Venable (2010) found that very few researchers using a design science paradigm rated adhering to all seven of the guidelines as mandatory for the publication (through journal article or conference presentation) of the research. The guidelines are both too dogmatic and too unspecific to be generally applied as methodology.

Peppers *et al.* (2008) acknowledge that existing literature has introduced principles that define what design science research is, and practice rules that provide guidance for conducting it, but assert that “these are only two out of the three characteristics of a methodology ... The missing part is a procedure ... for carrying it out.” (p.50). They wanted to provide a “road map” (p.50) for those who wish to use the design science paradigm; not dogma of how it must be done, but a “good way to do it” (p.50). Peppers *et al.* (2008) synthesised the existing literature from information systems, computer science, and engineering to produce a process model for design science research consisting of six activities.

1. Problem identification and motivation. Define the specific research problem and justify the value of a solution.
2. Define the objectives for a solution. Infer the objectives (quantitative or qualitative) of a solution from the problem definition and knowledge of what is possible and feasible.
3. Design and Development. Create the artefact (construct, model, method, instantiation or social innovation).
4. Demonstration. Demonstrate the use of the artefact to solve one or more instances of the problem.
5. Evaluation. Observe and measure how well the artefact supports a solution to the problem via comparing the objectives of a solution to the actual results observed from the use of the artefact.
6. Communication. Communicate the results of the research and the research process itself to both scholarly researchers and practising professionals.

This framework is described graphically in Figure 3.1, and in the following sections.

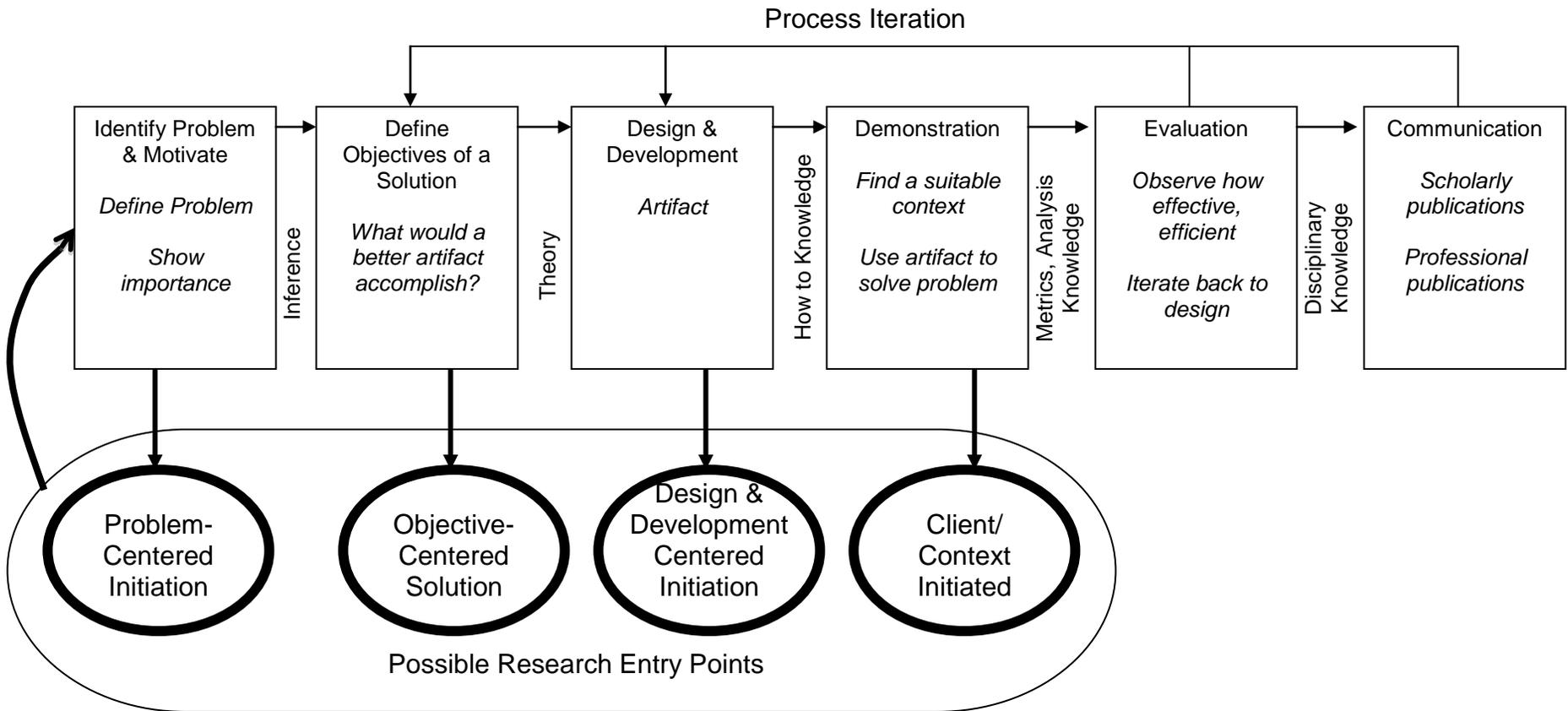


Figure 3.1: The Design Science Research Methodology (Peffers et al., 2008, p.54)

Problem Identification and Motivation

In this stage, the specific research problem should be defined, and the importance of the solution justified. As the problem definition will be used to develop an artefact that can effectively provide a solution, it is useful to explore the problem at the highest level of granularity, so that the solution can effectively address its complexity. Justifying the value of a solution helps the audience of the research to understand the reasoning behind the researcher's understanding of the problem. It also motivates the audience of the research to accept the results of the research.

Once the problem has been identified, it does not necessarily directly translate into objectives for the artefact because the process of design is necessarily one of partial and incremental solutions. Consequently, after the problem is identified, the performance objectives for a solution must still be determined.

Define the Objectives for a Solution

The objectives of a solution should be inferred rationally from the problem definition and from knowledge of what is both possible and feasible. The objectives can be quantitative, such as how a desirable solution would be better than existing solutions, or qualitative, such as a description of how a new artefact is expected to support solutions to a previously unaddressed problem.

Design and Development

This stage is the core of design science research as it consists of the creation of the artefact. A design science research artefact can be any designed object in which a research contribution is embedded in the design. In published design science research, artefacts tend to be constructs, models, methods, instantiations, or "new properties of technical, social, and/or informational resources" (Jarvinen, 2007, p.24).

Constructs are the conceptual vocabulary of the problem/solution space. Constructs arise during the conceptualization of the problem and are refined throughout the design cycle. Models are representations of the design problem, the proposed solution, and the connection between them (March & Smith, 1995).

Although there are similarities between design science models and natural science theories, a model is presented in terms of what it does (situated utility), whereas a theory is described in terms of construct relationships. Examples of models include mathematical algorithms, narrative descriptions of best practice, data models, and expert systems. Methods are the steps necessary to produce a model, or part of a model. They are often used to transform from one model into another (March & Smith, 1995). Instantiations operationalize the constructs, models and methods, demonstrating their effectiveness (March & Smith, 1995). Instantiations may precede constructs, models and methods, in much the same way that proof of a giraffe's existence can occur before a full understanding of how, why and where it came to be.

Creation of the artefact includes determining the artefact's desired functionality and its architecture as well as actually creating the artefact.

Demonstration

This stage of the design science research framework involves demonstrating the use of the artefact to solve one or more instances of the problem. This may involve using the artefact in experimentation, simulation, case study, proof, or any other appropriate activity.

Evaluation

The evaluation stage consists of the observation and measurement of the effectiveness of the artefact in supporting a solution to the problem. This involves comparing the objectives of a solution to the actual observed results from the use of the artefact in the demonstration. Evaluation can include any appropriate empirical evidence or logical proof; its form depends on the nature of the problem demonstration and the artefact.

At the end of the evaluation stage, the researcher must decide whether to iterate back to Design & Development to try to improve the artefact, or whether to continue to the Communication stage.

Communication

This is the last of the stages of the design science research methodology, and involves the communication to both researchers and practising professionals. The communication should include: the problem and its importance; the artefact; its utility and novelty; the rigour of the design; and its effectiveness.

The Peffers *et al.* (2008) Design Science Research Methodology is structured in a sequential order, but researchers may start at any of the first four steps and move onwards: a problem-centred approach would start at activity one; an objective-centred approach would start with activity two; a design- and development-centred approach would start with activity three; a client/context-initiated solution would start with activity four. The methodology has been used extensively in information systems research (Google Scholar has 619 citations as of July 2013), including being advocated in Hevner & Chatterjee's influential 2010 book. This research takes a problem-centred approach and so starts at 'Problem Identification & Motivation'.

3.4 The Application of the Design Science Research Methodology

The design science research method involves the design and development of artefacts as an iterative search process. A design artefact is complete when it satisfies the requirements and constraints of the problem it is meant to solve. However, these requirements and constraints are unknowable due to the ill-defined environmental context, and the complex interactions between subcomponents of the problem and its solution. Therefore, the design process is a problem solving search process, a generate/test cycle, where each attempt at a solution further illuminates the requirements and constraints of the problem. Reliance on creativity, innovation and trial-and-error are characteristic of design science research.

This research starts at 'Identify problem and motivate', then has three iterations of the cycle:

Define objectives of a solution – Development of artefact – Demonstration – Evaluation

Each iteration builds on the artefact produced from the previous iteration and the learning about the problem space elicited through the evaluation of the demonstration of that artefact. The iterations are illustrated in Figure 3.2. Finally, the research ends with 'Communication'.

Iteration One

The first iteration aims to explore the various facets of quality culture, and tease out the practice areas that contribute to it. This iteration is developed incrementally, in order to ensure that the representation of quality culture in the artefact reflects both existing literature and known practice. The interpretative synthesis method is used in increment one; the grounded theory method is used in increments two and three. The artefact produced applies the reference model as a framework to produce the outline of the Quality Maturity Model depicting levels, elements and practice areas. This outline model is evaluated for effectiveness and utility.

Iteration Two

The second iteration populates and uses the model of quality culture instantiated in Iteration One, using the grounded theory method. The artefact produced is a complete rubric for assessing the quality culture of an academic library and information service. This model is evaluated for effectiveness and utility.

Iteration Three

The third iteration uses the Quality Maturity Model from Iteration Two as the basis for developing an instrument to enable an academic library and information service to self-assess their quality culture as a location on the model. The Quality Culture Assessment Instrument, and associated instructions and schedules, is evaluated for effectiveness and utility. Furthermore, the complete package of artefacts (the outputs from Iterations Two and Three) are applied to two case study academic LIS, and then evaluated and amended in order to produce the final output of the research.

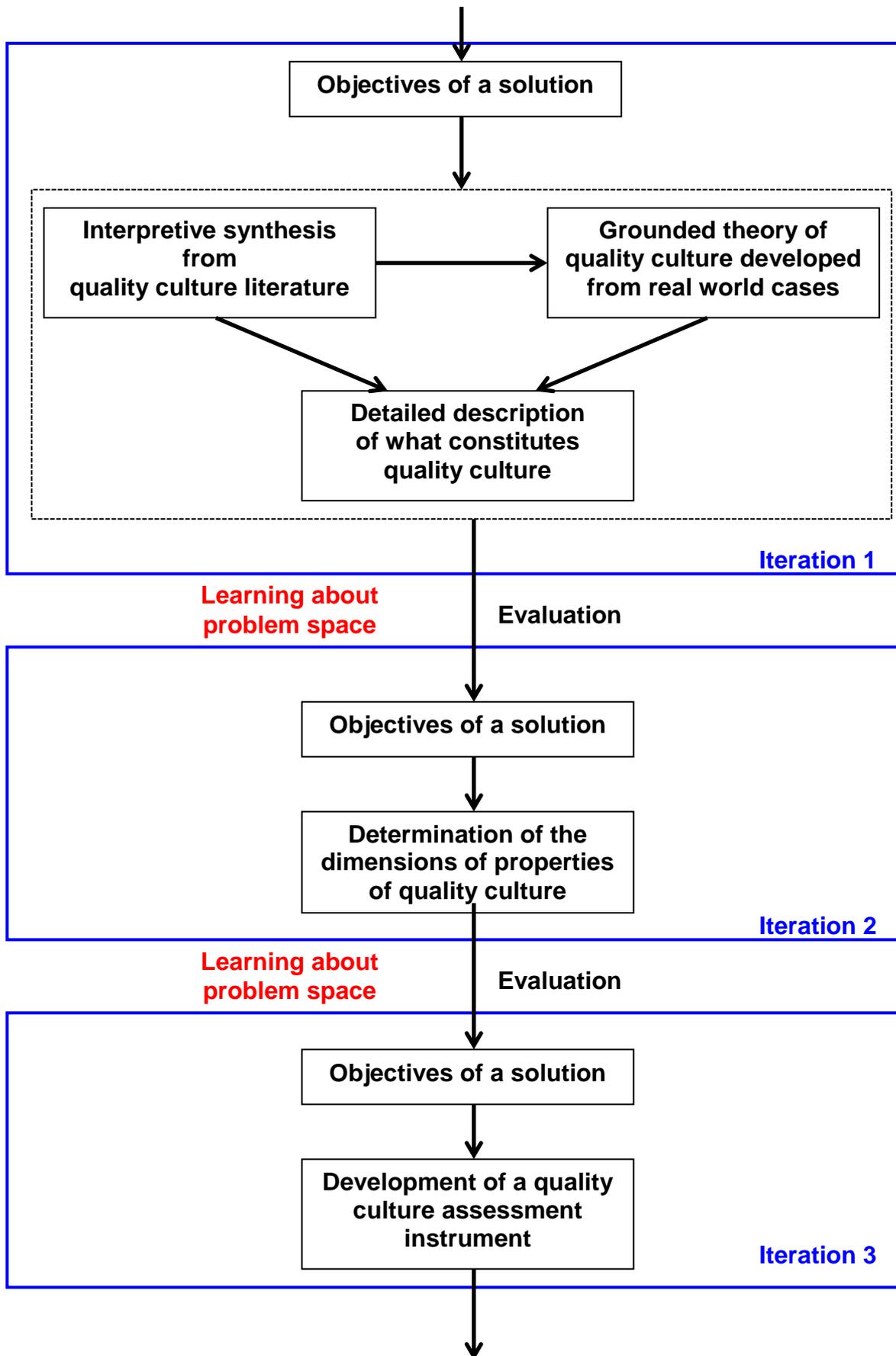


Figure 3.2: Research Iterations

3.5 Initial Objectives for a Solution

The initial objectives of a solution are derived from the literature review undertaken in order to identify the problem and motivation for the research (Chapter 2). From this literature, it is proposed that, in order to address the problem of lack of L&IS practitioner engagement with quality assessment, the solution must conform to three constraints.

Firstly, it must be similar to the formulation of performance measures that are in widespread use by Library and Information Services (LIS). Such existing measures are specific, discrete, easy-to-understand single concepts. Quality is an amorphous concept, one that “Everyone feels they understand ... (Even though they wouldn't want to explain ...)” (Crosby, 1979, p.15). Most research benefits from the application of Occam’s Razor – the Aristotelian principle that elegant solutions are optimal. However, in this case the elegant solution of describing the complexities of a TQM culture by the single term ‘quality’ has had the opposite effect on understanding and engagement by academic LIS. The limitations of Occam’s Razor is evocatively illustrated by Bruce Thompson:

“The first-order factors, the individual mountains in a range, allow one to look at the singular characteristics of the mountain: the peaks, the valleys, the flora and fauna. The second-order factor allows one to view the entire mountain range and to absorb the full panorama, to see a full system in effect, although in the process the individual characteristics lose clarity.” (Cook & Thompson, 2000, p.401).

Therefore, the solution to the problem detailed in chapter two must tease out the individual first-order factors that make up the concept of quality.

Secondly, if it is to function in a similar way to existing, well-used techniques, the solution must allocate a measurement to different levels of quality. It is a truism to state “what gets measured, get managed” (Peter Drucker), but it is a fundamental aspect of human psychology. For example, in 2000 the UK National Health Service introduced a number of performance indicators including “amount of time spent on a trolley”. What they meant to manage was the time between the decision to admit an emergency patient and their being admitted to a ward. But

what gets measured, gets managed, and so enterprising NHS staff unscrewed the wheels from the trolleys of patients who were nearing the four hour time limit and trolleys became beds. (Burnett, 2001). Because the measure was inappropriately constructed, staff did not behave in accordance with how they were instructed to do so (*i.e.* get patients onto the ward in less than four hours). Instead they behaved in order to comply with how their performance was measured. Therefore, the management of quality by academic LIS will not be achieved by telling staff “this is what you must do”. It must be appropriately measured. And if it is to be measured, it needs to be measurable.

In addition, if the measurement of quality is to be used to assess progress towards a TQM culture, it must describe the evolutionary stages in adopting quality practices. Therefore the solution must function as a roadmap to enable practitioners to both assess where they are, and to identify where they are heading towards.

Thirdly, the solution must above all be useful to academic LIS practitioners. As illustrated in the review of the literature in chapter two, practitioners are not short of quality management and assessment techniques, but the problem is that they have not been able to use them. However, the purpose of this research is not to ‘invent’ anything new about quality, but to change its representation to enable practitioner engagement:

“All mathematics exhibits in its conclusions only what is already implicit in its premises ... Hence all mathematical derivation can be viewed simply as a change in representation, making evident what was previously true but obscure.” (Simon, 1996, p.132).

Therefore the solution must be consistent with existing theory and be useful to practitioners.

3.5.1 Reference Model

There are no frameworks for the measurement of quality culture in the literature. The quality literature (e.g. Tenner & De Toro, 1992; Oakland, 1993; Pike &

Barnes, 1994; Hradesky, 1995; Oakland, 2003) does provide frameworks for measuring the quality of a product, process or service, but not the quality of the quality-process. Even a book entitled “Achieve Total Quality” (Hutchins, 1992) gives no indication of how to tell when an organisation has reached this goal!

ISO 9000 could be proposed as a framework for measuring the quality level of an organisation. However, ISO 9000 requirements are only concerned with product quality – as defined by ‘freedom from defects’ (Hoyle, 1998). ISO 9000 is a standard that, once met, requires no improvement to meet repeatedly. The focus of ISO 9000 is on the technical system of procedures and work instructions (Pike & Barnes, 1994). It does not address the culture of the organisation, advocated in the literature as the key to a quality organisation.

Crosby (1979) presented a framework for measuring the management of quality within an organisation, the Quality Management Maturity Grid (Figure 3.3). The purpose of this grid was to help an organisation’s managers determine where they were on the road to a completely implemented quality programme, and to help them “get moving” along that road. This framework is firmly rooted in Crosby’s definition of quality as ‘free from defects’, and so cannot be used as a framework to measure quality culture. However, his concept of a maturity grid has been used by others as a method of judging the quality of organisational management processes.

Chapter 3: Methodology and Objectives for a Solution

Measurement Categories	Stage I: Uncertainty	Stage II: Awakening	Stage III: Enlightenment	Stage IV: Wisdom	Stage V: Certainty
Management understanding and attitude	No comprehension of quality as a management tool. Tend to blame quality department for "quality problems"	Recognizing that quality management may be of value but not willing to provide money or time to make it all happen.	While going through quality improvement program learn more about quality management; becoming supportive and helpful.	Participating. Understanding absolutes of quality management. Recognize their personal role in continuing emphasis.	Consider quality management an essential part of company systems.
Quality organization status	Quality is hidden in engineering or manufacturing departments. Inspection probably not part of organization. Emphasis on appraisal and sorting.	A stronger quality leader is appointed but main emphasis still on appraisal and moving the product. Still part of manufacturing or other.	Quality department reports to top management, all appraisal is incorporated and manager has role in management of company.	Quality manager is an officer of the company; effective status reporting and preventative action. Involved with consumer affairs and special assignments.	Quality manager is on board of directors. Prevention is main concern. Quality is a thought leader.
Problem handling	Problems are fought as they occur; no resolution; inadequate definition; lots of yelling and accusations.	Teams are set up to attack major problems. Long-range solutions are not solicited.	Corrective action communication established. Problems are faced openly and resolved in an orderly way.	Problems are identified early in their development. All functions are open to suggestion and improvement.	Except in the most unusual cases, problems are prevented.
Cost of quality as % of sales	Reported: unknown Actual: 20%	Reported: 3% Actual: 18%	Reported: 8% Actual: 12%	Reported: 6.5% Actual: 8%	Reported: 2.5% Actual: 2.5%
Quality improvement actions	No organized activities. No understanding of such activities.	Trying obvious "motivational" short-range efforts.	Implementation of the 14-step program with thorough understanding and establishment of each step.	Continuing the 14-step program and starting Make Certain.	Quality improvement is a normal and continued activity.
Summation of company quality posture	"We don't know why we have problems with quality."	"Is it absolutely necessary to always have problems with quality?"	"Through management commitment and quality improvement we are identifying and resolving our problems."	"Defect prevention is a routine part of our operation."	"We know why we do not have problems with quality."

Figure 3.3: The Quality Management Maturity Grid (Crosby, 1979, p.38-39)

Frankie Wilson: The Quality Maturity Model

Radice (*et al.*, 1985), working under Humphrey at IBM adapted, Crosby's Quality Maturity Management Grid for the software process (SW-CMM). Humphrey brought this maturity framework to the Software Engineering Institute in 1986 and went on to develop a number of Capability Maturity Models with his colleagues there (Humphrey, 1989). These models covered the areas of the software process, software engineering, the software acquisition, and the integrated product development CMM. The SW-CMM, detailed by Paulk *et al.* (1993), inspired others to develop maturity models, including: the people CMM (Curtis, Hefley & Miller, 2001), the project management CMM (Kerzner, 2005), the knowledge management CMM (Berztiss, 2002), and the business enterprise intelligence CMM (Tan, Sim & Yeoh, 2011).

Although development of the SW-CMM was driven by the same concerns as the ISO 9000 standard, Paulk (1999) contrasts the CMM with ISO 9000, and aligns it to TQM as a framework for helping organisations achieve continuous improvement. High maturity organizations have a "quality culture" (Miller, 1998, cited in Paulk, 1999, p.4) where every employee is empowered to participate in process definition and improvement and "process improvement is part of everyone's job" (Paulk, 1999, p.4).

The SW-CMM has received criticism in the literature (e.g. Capers Jones, 1993; Weinberg, 1991), most of which relates specifically to that CMM, rather than maturity models in general. However, Ahern, Clouse & Turner (2001) argued that the presentation as a staged format was not conducive to assessing the capability of the organisation. Under the auspices of the Software Engineering Institute they produced an upgrade - the CMMI (Capability Maturity Model Integration). However, this criticism is a positive attribute in the reference model for the research presented here, because "predefined road map for organizational improvement" (Ahern, Clouse & Turner, 2001, p.80) is exactly the format of the solution required. A staged representation is necessary if the model is to act as a measuring tool.

In conclusion, the search for a solution will take a maturity model as the reference model because it fits two of the criteria of a solution described in the previous

section: (1) it delineates the characteristics that contribute to the overall whole; and (2) it represents the developmental process as a number of levels, thereby making it a measurement of performance and a roadmap for improvement towards a culture of TQM.

3.5.2 The Initial Search For A Solution

As an MSc dissertation, this author (Wilson, 2004) undertook a small-scale study to investigate the long-term effects of benchmarking on the quality culture of academic libraries, using a case study approach with three illustrative libraries. In order to undertake the research it was necessary to use an instrument to measure the quality of quality processes – “meta-quality” (Wilson, 2006) – within the library. As has been detailed in previous sections, there was no such instrument, in any organisational situation. This author developed her own model, closely based on the Capability Maturity Model for software, and named it the Quality Maturity Model.

The five stages of the Quality Maturity Model were initially characterised as follows.

Initial

- Quality is achieved in an *ad hoc* way.
- Customer satisfaction is reactive and unpredictable.
- Quality depends on the capabilities of individuals, and varies with their innate skills, knowledge, and motivations.
- Training for quality is *ad hoc* and reactive to an inability to undertake a specific task adequately.

Repeatable

- Quality policies, and procedures to implement those policies, are established.
- There are effective management processes to allow the organisation to repeat earlier success in customer satisfaction.

Chapter 3: Methodology and Objectives for a Solution

- Such management processes are practised, documented, enforced, trained, measured, and able to improve.
- Training for quality is provided as a programme of training for specific work tasks, and / or is reactive to events.

Defined

- There is a defined, documented organisational strategy, from which all work processes are derived.
- There is an organisation-wide understanding of the activities, roles, and responsibilities of each member of the organisation, and how they fit into the organisational strategy.
- Training for quality is a cycle of training needs assessment and programme provision.

Managed

- Quality measures are part of every documented work process.
- These measurements form the basis for evaluating products and processes.
- Changes are implemented to improve quality of services, products and processes.
- The organisation sets quantitative goals for quality and customer satisfaction.
- Training for quality is a cycle of training needs assessment, programme provision, and measurement of the effectiveness of the programme.

Optimising

- The entire organisation is focused on continuous improvement in every service, product and process.
- All staff are encouraged to continuously improve themselves and their work.
- The organisation is able to identify weaknesses, and the means to strengthen the process proactively, with the goal of preventing problems.

- Innovations that exploit the best practices are identified and transferred throughout the organisation.
- Training for quality is focussed on preparing staff for future organisational requirements.

The research was presented at the Sixth Northumbria International Conference of Performance Measurement in Library and Information Services, and subsequently published (Wilson & Town, 2006).

3.5.3 Evaluation Of The Initial Solution

There was an extremely positive response from the library community to the Quality Maturity Model. The response to its presentation at the Sixth Northumbria International Conference on Performance Measurement in Library and Information Services was threefold: (i) acknowledgement that the model fitted with existing experiences and research; (ii) expression that the model went beyond what was currently available; and (iii) desire to know the quality maturity level of “my library”.

Following attendance at this conference, a number of senior figures in Australian academic libraries advocated the use of the QMM at the September 2005 CAUL (Council of Australian University Librarians) meeting (Bevan, 2005). And the Libraries of the Australian Technology Network (LATN) used the QMM as a measurement tool to identify what changes had occurred in the management of quality in six Australian University libraries between 2005 and 2009 (Tang, 2012). Tang commented (p.396) “the beauty of ... [the Quality Maturity] model is that it gives libraries a roadmap for where they might go and what they need to aim for.”

This response demonstrates that a solution with the characteristics of a maturity model addresses the third objective of a solution: the criteria of utility and consistency with existing theory.

3.6 Summary

This chapter has proposed the design science research paradigm as a novel framework for conducting Library and Information Science research in order to address the dichotomy between theory and practice in quality management. The principles of the paradigm are:

1. It operates at the interface between the problem space and the solution space, both of which should be explored as part of the research.
2. The chief concern is utility.
3. It is creative, iterative and evaluative.

There is considerable debate in the literature concerning the purpose of design science research. This research is undertaken with the purpose of exploring a solution in order to better understand the problem, and as such the solution is a means to an end. The solution need not be optimal or satisfactory as long as it has sufficient practical adequacy to illuminate the problem. The role of theory is to be used in the construction of the solution.

This research used Peffers *et al.* (2008) design science research methodology, which consists of six stages:

1. Problem identification and motivation;
2. Define the objectives for a solution;
3. Design and development;
4. Demonstration;
5. Evaluation; and
6. Communication.

This research has three iterations of stages two to five.

The problem identification and motivation occurred in Chapter two. The objectives for a solution are addressed by identifying three constraining criteria. The solution must:

1. Tease out the individual first-order factors of quality;
2. Act as a roadmap; and
3. Be useful to practitioners and be consistent with existing theory.

Chapter 3: Methodology and Objectives for a Solution

A review of maturity models as a reference model and a pilot study demonstrated that a Quality Maturity Model has the potential to fulfil all three of these criteria, and so provide a solution to the problem of practitioner engagement with issues of quality culture.

CHAPTER FOUR: ITERATION ONE

“If you don’t know where you are going, any road will do” Chinese Proverb

“If you don’t know where you are, a map won’t help” Watt S. Humphrey

The purpose of Iteration One is to explore the constructs and properties of quality culture in order to determine whether a solution framed in terms of levels, elements and practice areas promotes practitioner engagement with the concept of quality. Within Iteration One there are three increments in order to ensure that the constructs are consistent with both existing theory and practice. The artefact produced by Iteration One is an explicit description of the processes and practice areas that make up a quality culture, and the characterisation of the development of a quality culture through maturity levels.

Section 4.1 describes the research design used in this iteration. Section 4.2 details the development process of increment one, covering the research design and development of this phase. Section 4.3 details the development process of increment two, covering the research design and development of the second phase. Section 4.4 details the development process of increment three, covering the research design and development of the final phase. Section 4.5 presents the demonstration and evaluation of the output of Iteration One, including the communication of the artefact, an evaluation of the artefact in supporting a solution, and the description of the learning that has occurred about the problem space. Finally, section 4.6 summarises the chapter.

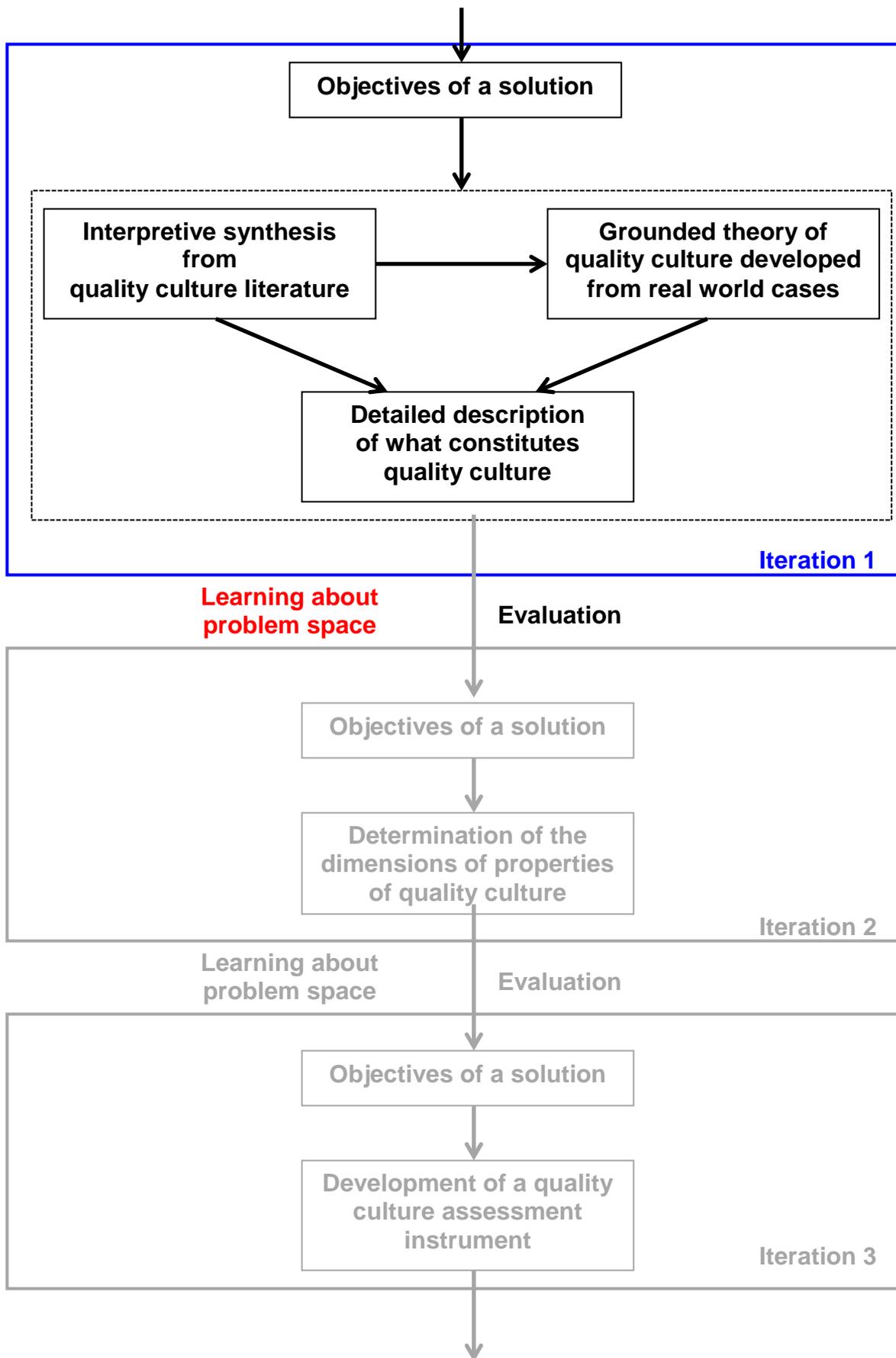


Figure 4.1: Research Iteration One

4.1 Research Design

This research follows the same research design of a satisficing, iterative, problem-solving search process within iteration one as it does overall. The artefact produced from Iteration One is a model describing the elements of quality culture, consistent with both theory and with practice. The design and development of Iteration One is therefore developed incrementally.

Increment one

The aim of the first increment was to deduce the characterisation of the model from the published theory of organisational quality, TQM, and organisational culture. Literature in these areas was identified, selected and subjected to interpretative synthesis. The determinants of organisational quality culture described in the literature were used to generate the initial underlying constructs of the model.

Increment two

The aim of the second increment was to induce the characterisation of the model from observation of practice. Data was gathered from nine UK HE libraries using semi-structured interviews with a sample of staff. Strategic, policy, process and procedural documents were also obtained to provide background information on each library. The interview questions were developed from the instantiation of the model generated in increment one.

The data from four of the HE library 'cases' were analysed following standard grounded theory methodology to induce the categories that make up the construct 'quality culture'.

Increment three

Data from five remaining HE library 'cases' were analysed using the instantiation of the model generated in increment two in order to further refine the categories and sub-categories. These categories were compared with the categories in the instantiation from iteration one, and a combined set of categories and sub-categories was produced.

4.2 Increment One: Interpretive Synthesis of Quality Culture Literature

The purpose of this phase is to develop the constructs and properties of quality culture consistent with the existing theory.

4.2.1 Research Design

Systematic review of existing literature is a well-established method in a number of disciplines, including library and information science, as one of the cornerstones of evidenced-based practice (Booth and Brice, 2004). It was developed in the fields of medicine and health as a specific methodology for searching for, appraising and summarising findings of primary studies including statistical analysis (meta-analysis) of the pooled results (Higgins and Green, 2011). Conventional systematic reviews are reductive in nature and therefore are unsuited for application to qualitative literature, where richness and thickness of description are valued over totalising concepts (Walsh and Downe, 2005). As Sandelowski, Docherty and Emden (1997) state:

“To summarize qualitative findings is to destroy the integrity of the individual projects on which such summaries are based, to thin out the desired thickness of particulars, to undermine the “function and provenance” (Davis, 1991, p. 12) of cases, and, ultimately, to lose the vitality, viscerality and vicariism of the human experiences represented in the original studies.” (p.366)

However, they go on to argue that synthesis of qualitative research is necessary in order to avoid researchers reinventing the wheel, and to ensure that the understanding gained from such research is used. This argument is echoed by Glaser and Strauss (1971).

In their ground-breaking book, Noblit and Hare (1988) proposed a hermeneutic method of synthesis, seeking to understand and explain rather than aggregate phenomena. This method, *interpretive synthesis*, is primarily concerned with the development of concepts, and theories that integrate those concepts, through induction and interpretation (Dixon-Woods *et al.*, 2006). Walsh and Downe (2005) describe the interpretive synthesis process as “opening up spaces for new

insights and understandings to emerge” (p.205). This method is therefore applicable to synthesis of qualitative research, and has been widely used (861 citations according to Google Scholar in September 2012). It is argued here that interpretive synthesis is the most appropriate for developing the constructs and properties of quality culture grounded in the existing theory, and therefore is the method used in this increment of this research.

4.2.2 Development

The method for interpretive synthesis (Noblit and Hare, 1988; Walsh and Downe, 2005; Dixon-Woods *et al.*, 2006) follows the same steps as that for systematic review (Higgins and Green, 2011), though not the same techniques for undertaking these steps. Although the steps are presented below in a linear manner, Dixon-Woods *et al.* (2006) emphasise that the process should be characterised as iterative, interactive, dynamic and recursive rather than as a fixed sequence. The similarities between this process and both the research methodology (design research) and the other method used in this research (grounded theory) is not lost on the researcher.

Formulating the research question

Consistent with all research effort in quantitative and qualitative paradigms, an appropriate research question frames an interpretative synthesis. Conventional systematic review methodology (Higgins and Green, 2011) emphasises the need for a research question to be tightly and precisely formulated. This strategy is appropriate where the aim of the review is aggregative (Dixon-Woods *et al.*, 2006). However, when the aim is to allow the definition of the phenomena to emerge from the synthesis of the literature, it is neither possible nor desirable to tightly specify the research question *a priori*. Instead, the research question should be framed broadly (Walsh and Downe, 2005), and without hypothesising (Dixon-Woods *et al.*, 2006).

In this research sub-iteration, the research question is: *What is a culture of quality?*

Searching the literature

A defining characteristic of conventional systematic review methodology is its use of explicit searching strategies, and its requirement that such strategies be transparent so that the search methods can be reproduced (Higgins and Green, 2011). Systematic review exclusively focuses on primary quantitative research, which is published as peer-reviewed journal articles and comprehensively indexed in electronic bibliographic databases. The search strategy therefore involves highly structured, protocol-driven searches across a range of electronic bibliographic databases.

Barroso *et al.* (2003) state the similar need for exhaustive search and retrieval of qualitative research or theoretical literature, both of which may be synthesised, along with quantitative research, in interpretive synthesis. However, they illustrate that this process is not as straightforward as it is for quantitative research. This is because such literature may consist of books, book chapters, research reports, working papers, theses, and other grey literature. Such sources are not comprehensively indexed in electronic bibliographic databases (some types of literature are not indexed at all). In addition, in the genre of 'business', leading gurus may publish their work as non-academic books, on websites, as broadcasts, via speaking tours, at conferences, or as documents pertaining to their consultancy - which are only available to organisations who have hired them (usually at vast expense). Search strategies must therefore augment bibliographic database searches with methods including back-tracking of references, citation searching, appeals to known authorities in the area for advice about the existence of more obscure publications, trawling of both physical and online literature aggregators (ie bookshops and Google), and an element of serendipity.

As identified in Chapter One, the subject areas pertaining to a culture of quality included: quality; Total Quality Management (TQM); business excellence; learning organisation; organisational culture; and culture change. The search strategies for the sub-iteration of this research comprised:

Chapter 4: Iteration One

- Searching electronic databases (ABI Inform, Academic Search Complete, Business Source Premier, Emerald, Google Scholar, Sage, Scopus, Web of Knowledge);
- Searching websites (using Google);
- Searching library catalogues (Brunel University Library, Bodleian Libraries, British Library, Cranfield University Library; WorldCat);
- Browsing shelves of bookshops (Blackwells in Oxford, Foyles in London);
- Reference chaining; and
- Contact with experts (from Brunel Business School, Brunel University Department of Information Systems and Computing, Brunel University Department of Systems Engineering, and visiting seminar speakers to these departments).

In addition, some literature (notably about Tricordant, Investors in People and HELICON) was discovered serendipitously through the researcher's practitioner work. Some examples of the search strategies used are presented in Appendix A.

Sampling

The literature presents different viewpoints regarding whether sampling is necessary or appropriate in the interpretative synthesis process. One point of view, that sampling is inappropriate, is illustrated in the above section. Dixon-Woods *et al.* (2006) agree with Barroso *et al.* (2003) that the search process should be comprehensive enough to pick up papers that "while not ostensibly about [the research question] were nonetheless important to the aim of the review" (p.37).

In this research increment, the number of pieces of literature retrieved was fewer than 150, so no sampling was used.

Determination of quality

Conventional systematic review methodology uses assessment of study quality in a number of ways (Higgins and Green, 2011). Firstly, studies included in a review may be limited to a particular research design (usually randomised controlled

trials). Secondly, inclusion criteria are developed *a priori* and studies that fail to meet these criteria are excluded. Thirdly, an appraisal of included studies, using a structured quality checklist, is undertaken to assess the effects of weaker papers.

Whether to appraise literature for inclusion in interpretive synthesis is a point of debate in the literature, with little consensus (Dixon-Woods *et al.*, 2004; Dixon-Woods *et al.*, 2006). Some researchers argue that a set of criteria specifically designed for qualitative research is needed (Lincoln and Guba, 1985; Seale, 2002). Others argue that it is impossible to produce criteria for the quality of qualitative research, as opinions of quality are historically and culturally dependent, and so vary from person to person (Schwandt, 1996; Sandelowski, Docherty and Emden, 1997).

Dixon-Woods (*et al.*, 2006) recommends the exclusion only of literature that is not relevant. They also propose that one of the distinctive characteristics of interpretive synthesis is its emphasis on fundamental critique, rather than a more limited sense of critical appraisal in which each study is judged against standards of its type. Literature is treated as warranting critical scrutiny in its own right. They suggest that this “may involve the identification of the research traditions or meta-narratives that have guided particular fields of research [...] as well as critical analysis of particular forms of discourses.” (p.40). As such, judgements and interpretations of credibility and contribution are undertaken as part of the synthesis, rather than as a pre-cursor.

The research in this phase follows Dixon-Woods’ suggestion. Examples of exclusions are presented in Appendix A. The interpretive synthesis of the literature on the nature of a culture of quality therefore included 120 items of literature, which are listed in Appendix B. This literature comprises 59 journal articles, 48 books, and five sets of documents provided as part of ‘consultancy’ (Baldrige, EFQM, HELICON, IIP, Tricordant).

Conducting the analysis

Noblit and Hare (1988) build on Turner's (1980, cited p.25) approach that all explanation is comparative. They propose that interpretive synthesis is undertaken by translating multiple studies into one another's terms. They describe three different types of interpretive synthesis, depending on how the studies are related.

1. *Reciprocal translation analysis*, where studies to be synthesised are about roughly similar things. Firstly, each study is rendered into the key concepts, themes, organisers and metaphors that the author uses to explain what is taking place. Then each study is translated into the metaphors of the others, and vice versa. These translations may reveal that the metaphors of one study (or a set of metaphors not drawn from the studies) are able to represent the set of studies. However, the uniqueness of the cases may mean that it is not possible for a single set of metaphors to adequately express the studies. In this case, understanding comes from the attempts at translation, rather than from the metaphors alone.
2. *Refutational synthesis*, where studies refute each other. Once again, each starts with the identification of the major metaphors that the authors use to construct their interpretations. This is followed by the identification of the metaphors in the refutation of the other work. This enables the studies and refutations to be translated, or, if they do not translate, to determine how the ideas affect the interpretations.
3. *Line-of-argument synthesis*, where studies successively build a line of argument. The purpose of this synthesis is to build a whole from a set of parts. Following the translation of the studies into one another, a grounded theory is developed to put the similarities and differences between the studies into an interpretive order. Dixon-Woods *et al.* (2006) term this *synthesising argument*, where evidence from across the studies is integrated into a coherent theoretical framework comprising a network of constructs and the relationships between them.

Noblit and Hare (1988) also describe a fourth situation, where studies are about different things, and state that in this case “there is little reason to attempt to synthesize them” (p.38). Dixon-Woods *et al.* (2006) disagree. They propose that a diverse body of literature may be subject to interpretive synthesis, but argue that translation is unsuitable as the core concept. Instead, they propose the use of *synthetic constructs*, where the underlying evidence is transformed into a new conceptual form.

“Synthetic constructs are grounded in the evidence, but result from an interpretation of the whole of that evidence, and allow the possibility of several disparate aspects of a phenomenon being unified in a more useful and explanatory way.” (p.39)

Quality is a multidimensional, multilevel, and dynamic concept. Therefore, this phase of this research involves the interpretive synthesis of a diverse body of literature, which appears to be about different things. Drawing primarily on the work of Dixon-Woods, this research follows an iterative process that starts with detailed reading of the literature, gradually identifying recurring themes. It is followed by the generation of themes that help to explain the phenomena being described in the literature, with constant comparison of these theoretical structures with the literature. Finally, categories are determined, and the relationship between the categories is identified.

How the themes are generated, the categories determined and the relationship between the categories identified cannot be specified. Indeed, it cannot be directly measured or observed. It is a “creative leap that the agile mind makes in the struggle to comprehend observations and to link them together.” (May, 1994, p.13). While this ‘knowing’ appears to the outsider to be “magic” (May, 1994, p.14), it is most often found operating within the context of careful and rigorous attention to method (Perkins, 1981). However, technique and rigor cannot fully explain what moves the analyst from simple description to understanding (May, 1994). May drew on Benner’s (1984, cited p.17) observation that experts view situations holistically, and draw on past experiences to move beyond method as they confront information that must be understood. While these proposals go

some way to illuminating the conditions necessary for the 'magic' to occur, they do not illuminate how it actually happens. As such, the reader of this thesis must exercise a certain amount of trust in the researcher

4.2.3 Output of Increment 1

The themes identified in the literature are presented in Figure 4.2. As can be seen from this figure, there are eighteen clusters of concepts.

The next stage of the synthesis was to generate the synthetic constructs, transforming the clusters of concepts into a new conceptual form. Figure 4.2 attempts to illustrate this process. However, as stated above, full explanation and transparency is not possible because of the creative, inductive and interpretive processes involved.

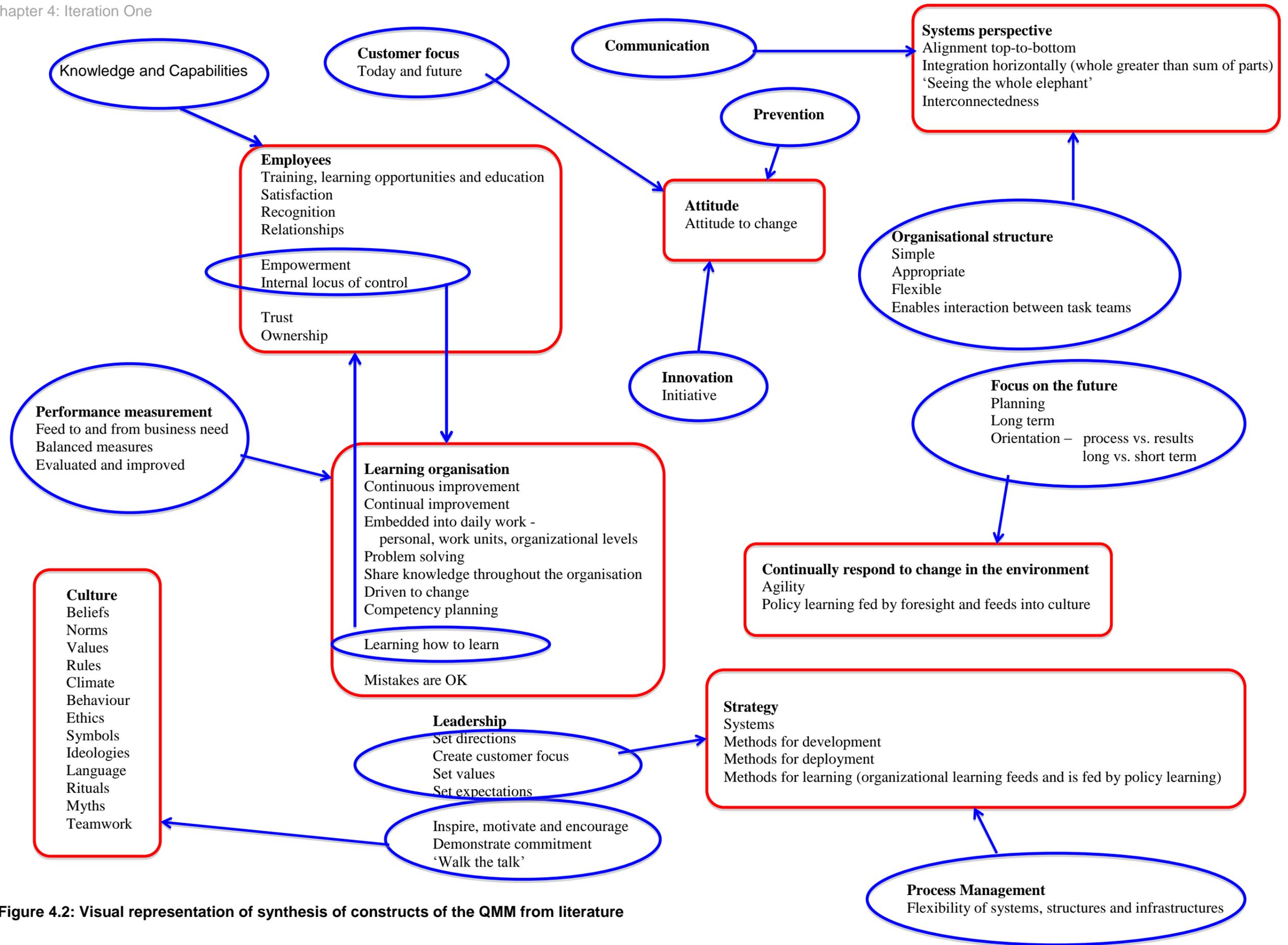


Figure 4.2: Visual representation of synthesis of constructs of the QMM from literature

The final part of the interpretive synthesis of the literature produced the following:

A culture of quality is made up of seven constructs:

1. Environmental sensing
2. Culture of quality
3. Alignment
4. Management of the organisation
5. Learning organisation attributes
6. Utilisation of human capital
7. Attitude to change

Each of these constructs is made up of between four and six properties, each of which will be described in turn.

Environmental sensing

1. How the organisation obtains customer feedback.
2. How the organisation assesses customer feedback.
3. How the organisation involves customers in decision making.
4. Whether the organisation is future-focussed in the assessment of customer requirements.
5. The nature of changes made on the basis of customer feedback.
6. Engagement with anticipatory organisational planning.

Culture of quality

1. Who is responsible for quality.
2. How the organisation improves quality.
3. How quality is embedded in the management of the organisation.
4. How strong the quality culture is.
5. The nature of the organisational leader's vision regarding the quality of the organisation.

Alignment

1. How well the organisation is aligned top to bottom.
2. How well work units of the organisation are integrated.

Chapter 4: Iteration One

3. The extent to which the organisation uses systems thinking.
4. The effectiveness of communication within the organisation.

Management of the organisation

1. How work processes are related to the organisational strategy.
2. Whether goals are defined.
3. How work units engage with each other.
4. The congruency between documentation and practice.
5. The nature of performance measurement undertaken.

Learning organisation attributes

1. The attitude to mistakes.
2. How learning and knowledge are shared throughout the organisation.
3. How problem solving is used.
4. What the organisation is willing to change of itself (rules, insights, principles).
5. The empowerment of individuals.

Utilisation of human capital

1. How staff are encouraged in developing themselves.
2. The commitment to the holistic development of staff.
3. Provision for recognition, reward and progression of staff.
4. How staff are encouraged to continually improve themselves and their work.

Attitude to change

1. The organisational attitude to change.
2. The impetus for change.
3. The empowerment of decision-making.
4. The attitude to failure.
5. The barriers to change.

These concepts and dimensions form the output of the first increment of iteration one.

4.3 Increment Two: Grounded Theory of Quality Culture

The purpose of this increment is to develop the constructs of quality culture consistent with practice.

4.3.1 Research Design

This section describes the research design for this increment, covering both the theory and application of the methodological framework, data gathering and analysis.

4.3.1.1 Methodological Framework

Grounded theory was developed by Glaser and Strauss (1967) as a systematic methodological strategy that social scientists could use to generate theory. The researcher does not deduce testable hypotheses from existing theories in advance and test them against the data, but systematically analyses the data to construct theories 'grounded' in the data themselves (Glaser & Strauss, 1967).

Since their original publication, Glaser and Strauss have diverged in how to apply the grounded theory methodology. Glaser remains faithful to the initial description of grounded theory, described as a constant comparative method where the analyst begins analysis with the first data collected and constantly compares indicators, concepts and categories as the theory emerges (Glaser, 1992). Strauss has developed the grounded theory methodology towards verification, into one described as an approach for looking systematically at qualitative data aiming at the generation of theory (Strauss & Corbin, 1998).

Kathy Charmaz, a student of both Glaser and Strauss, has developed her own interpretation of grounded theory that "returns to the classic statements of the past century and reexamines (sic) them through a methodological lens of the present century." (Charmaz, 2006, p.xi). This interpretation is rooted in pragmatism and relativist epistemology, and assumes that neither data nor theories are discovered, but are constructed by the researcher as a result of his or her interactions with the field and its participants (Charmaz, 2006; Bryant & Charmaz, 2007a).

In accordance with the pragmatic nature of the Design Science paradigm within which it is conducted, this research follows Charmaz's interpretation of grounded theory, and her methodology. This method also fits with using grounded theory as part of an incremental and iterative research process where it is not the only methodology.

4.3.1.2 Data Gathering

Charmaz (2006) argues that the logic of grounded theory guides the methods of data gathering as well as analysis. She advises the researcher to "adopt methods that hold a promise of advancing your emerging ideas." (p.16), and advocates letting the research problem shape the data collection methods chosen. However, she cautions that although methods are merely tools, they do have consequences as "*How* you collect data affects *which* phenomena you will see, *how*, *where* and *when* you will view them, and *what* sense you will make of them." (p.15). She states that the key to credible grounded theory research is to gather rich, substantial, relevant, suitable and sufficient data.

Framework and methods

There are three frameworks for collecting data within a grounded theory approach (Bryman, 2012): longitudinal; case study; and pseudo-case study. A longitudinal study entails the investigation of a sample on at least two occasions, separated in time, in order to map change. A case study entails the detailed and intensive analysis of a single case and its context. The case may be a single community, a single family, a single person, a single organisation, or a single event. A pseudo-case study investigates the experiences of different people / families / communities / organisations to a single concept (e.g. chronic illness). This research increment uses a pseudo-case study approach, where rich data about what constitutes a culture of quality was gathered from UK University LIS.

The most common method for gathering appropriate data within the grounded theory approach is via unstructured interviews (e.g. Glaser & Strauss, 1967; Glasser, 1992; Strauss & Corbin, 1998; Charmaz, 2006; Bryant & Charmaz, 2007b; Bryman, 2012) because they yield rich insights into people's experiences, opinions, aspirations, attitudes and feelings. An unstructured interview uses only

a brief set of prompts – a single question or a list of general topics – and the interviewee is encouraged to respond freely (Patton, 2002; May, 2011; Bryman, 2012). The aim is to elicit detailed answers to gain insight into what the interviewee considers to be relevant and important. In contrast, a semi-structured interview entails the use of a list of questions as a guide for the interviewer (Patton, 2002; May, 2011; Bryman, 2012). Questioning may not follow exactly the order outlined in the schedule and questions may be asked that are not included in the guide, in order to follow up replies (May, 2011). The interview process is flexible, but generally all questions on the schedule will be asked and similar wording will be used from interviewee to interviewee. Although rarely used in grounded theory methodology, semi-structured interviews are consistent with Blumer's (1969) notion of sensitizing concepts in grounded theory.

As detailed above, interviews are an appropriate way of eliciting employee's opinions about a LIS's culture of quality. However, organizational culture consists of both the beliefs / norms / values / behaviour of the people of the organisation and the policy, procedures and practices of the organisation (Deal & Kennedy, 2000; Schein, 2010). Data concerning the latter can be found in the documents of the organization (Scott, 1990). These documents may be public documents, such as annual reports; or internal documents, such as procedural manuals and produced by routine, regular or special administrative practices (Hakim, 1983).

In order to develop a conceptualisation of quality culture that is consistent both with the output from increment one and with what is occurring in practice, the data will be gathered from the UK LIS via two methods: semi-structured interviews, where the questions are explicitly taken from the output of increment one; and the administrative documents of the LIS.

Undertaking Semi-Structured Interviews

After the specification of the research problem, the first stage in designing a semi-structured interview study is to choose the site, cases or organisations where the research will be conducted (Kvale & Brinkmann, 2009; Rubin & Rubin, 2012; Warren, 2002). The location(s) chosen must be relevant to the research problem, and also be accessible by the researcher. If there are a number of

options that fit these criteria, it can be helpful to have locations that are likely to provide contrasting information, and that enable the testing of tentative explanations (Rubin & Rubin, 2012).

The next stage is to choose the interviewees. Potential participants must have first-hand experience of the issue being researched, be knowledgeable about the area, have complementary experiences of the research topic and so hold different points of view to each other (Kvale & Brinkmann, 2009; Rubin & Rubin, 2012; Warren, 2002). This ensures that the results of the research will be fresh and real, with conclusions that are balanced and credible (Rubin & Rubin, 2012). This is essential if the results of the research are to have utility.

The third stage is to write the interview questions. The questions need to explore in detail each part of the research question (Kvale & Brinkmann, 2009; Rubin & Rubin, 2012). In order to obtain nuanced results, a semi-structured interview must use open questions to obtain as much detail as possible (Foddy, 1993). The interviewer will also need to use follow up questions to elicit a variety of examples. The main purpose of the semi-structured interview is to investigate a theme or themes in depth. Rubin & Rubin (2012) describe a number of questioning techniques that contribute to this: (i) using how and what questions to explore the interviewees experience; (ii) asking for clarification of meaning when interviewees use a specialist term – this enables the interviewer to understand the interviewees conceptualization of the term in use; (iii) asking about apparent contradictions; (iv) asking two related questions together, to indicate that the interviewee is looking for a full exploration of the topic. Semi-structured interviews also need to obtain data that provide vividness to the research results, promoting its utility. Vividness can be elicited through asking for descriptions of iconic and illustrative moments, and by asking questions about a highly charged incident or area (Rubin & Rubin, 2012).

The final stage is to draft the interview schedule. There are four parts to an interview (Kvale & Brinkmann, 2009; Rubin & Rubin, 2012). At the start of the interview, the interviewer should introduce themselves and the topic, endeavoring to make a personal connection with the interviewee in order to garner their trust,

and so candid responses. Respected writers on the methodology of interviewing (Kvale & Brinkmann, 2009; Rubin & Rubin, 2012) suggest viewing the interview as a conversation, and that the interviewer should choose a role for themselves that is meaningful to the conversational partner and understood and accepted in their world. The interviewer should emphasize that there are no right or wrong answers to the questions, and the interviewer is interested in their experiences.

The second part of the interview should utilize easy questions, central to the research topic, but non-threatening and that the interviewee will feel confident in their opinions on (Kvale & Brinkmann, 2009; Rubin & Rubin, 2012). The interviewer should reinforce the trust established at the start of the interview through empathetic responses, such as use of non-verbal communication cues, statements of understanding, or short examples of his/her own (Rubin & Rubin, 2012).

In the third stage, the interviewer is able to ask more sensitive and / or conceptually difficult questions. The interview should finish with less stressful questions and end with an invitation to the interviewee to freely comment on the topics of the interview (Kvale & Brinkmann, 2009; Rubin & Rubin, 2012)

Other Considerations

Employing a grounded theory approach means entering the 'research participant' world. In doing so, researchers have an obligation to respect their subjects (Blumer, 1969). One way of respecting participants is through trying to establish rapport with them (Charmaz, 2006). Another way of respecting participants is by taking care of their data. Documents that are not in the public domain may be sensitive, or have strategic or competitive implications. Therefore all documents were kept securely and remained confidential. Any embargo on the reporting of exact text from such documents was carefully maintained. Views expressed during the interviews may be inflammatory, controversial, or reflect badly on colleagues of the participant, or their institution. It is therefore important to ensure that participants remained anonymous and unidentifiable throughout the study. In addition to obtaining informed consent before the start of the interview (see Appendix I), particular attention was drawn to the use of vignettes. Transcripts of

the interviews, and the original tapes were kept securely and confidentially in accordance with the data handling guidelines of the Brunel University Research Ethics Committee.

4.3.1.3 Analysis

The research principle behind grounded theory is neither inductive nor deductive but combines both in abductive reasoning (Miles & Huberman, 1994; Reichertz, 2007). This leads to a research practice where data sampling, data analysis and theory development are not seen as distinct, but as different steps to be repeated until the phenomenon researched can be described and explained. The stopping point is reached when new data no longer changes the emerging theory.

The major analysis tool in grounded theory is coding. Coding is the process of going through the data repeatedly, looking to abstract what is going on through constant comparison. A code “sets up a relationship with your data, and with your respondents.” (Star, 2007 p.80). Coding is abductive because it involves the researcher discovering new specific properties from the data, then merging them or dropping them in the face of comparisons (Reichertz, 2007). This analysis is open-ended, indeterminate and filled with uncertainty. However, writers on the topic (e.g. Dey, 1993; Strauss & Corbin, 1998; Patton, 2002; Charmaz, 2006; Bazeley, 2007; Dey, 2007; Glaser, 2007; Holton, 2007; Kelle, 2007; Reichertz, 2007; Star, 2007; Corbin & Strauss, 2008; Bryman, 2012) agree that there are three phases of coding:

1. Initial coding is used to name each word, line or segment of data.
2. Focused coding is used to identify and develop the most salient categories.
3. Integrative coding is used to reassemble the fractured data to give coherence to the emerging analysis.

The purpose of initial coding, also referred to as open or substantive coding, is to “make fundamental processes explicit, render hidden assumptions visible and give [researchers] new insight” (Charmaz, 2006, p.55). It is conceptualisation on the first level of abstraction. At the beginning of a study everything is coded in order to find out about the problem. Written data from field notes or transcripts

Chapter 4: Iteration One

are coded word-by-word, line-by-line, or incident-to-incident. Line-by-line is the usual coding form for interview data as it gives the researcher ideas that may escape their attention when coding for thematic analysis (Charmaz, 2006). The purpose is to stick closely to the data, using codes that reflect action so the conceptualisation emerges from the data. This phase ensures the grounded theory has fit and relevance.

The purpose of focused coding is to determine the adequacy of the initial codes and check the researchers' preconceptions about the topic. Theoretical integration starts with focused coding. The most significant or frequent initial codes are used to sort, synthesise, integrate and organize large amounts of data. Firstly, data is compared to data to develop the focused codes. Then data is compared to these codes in order to refine them. As more data is coded, codes are merged into new concepts, renamed and modified. The researcher goes back and forth constantly comparing data, modifying and refining the growing theory. This phase ensures the grounded theory has workability.

The purpose of integrative coding, called axial coding by Strauss and Corbin (1998; Corbin & Strauss, 2008), and theoretical coding by Glaser (1992), is to make connections between categories and relate categories to subcategories, thereby weaving the fractured concepts into hypotheses that work together in a theory explaining the main concern of the participants. Strauss and Corbin propose a prescriptive framework and a set of procedures to achieve this. Glaser (1992) proposes an alternative set of procedures to undertake theoretical coding. Charmaz (2006) suggests that integrative coding does not have to be done by following either prescriptive framework, but can be achieved by following the same "simple, flexible guidelines" (p.61) as focused coding.

When comparing many incidents in a certain research area, the emerging concepts and their relationships are probability statements. The result of grounded theory is not a detailed description of the research area, but a set of probability statements about the relationship between concepts, or an integrated set of conceptual hypotheses developed from empirical data (Glaser, 1998). Validity in its traditional sense is consequently not an issue in grounded theory,

which instead should be judged by fit, relevance, workability, and modifiability (Glaser & Strauss, 1967).

- **Fit.** How closely the concepts fit with the incidents they are representing.
- **Relevance.** A relevant study deals with the real concern of participants, evokes "grab" (captures the attention) and is not only of academic interest.
- **Workability.** The theory works when it explains a greatly heterogeneous research area.
- **Modifiability.** A modifiable theory can be altered when new relevant data is compared to existing data.

Grounded theory is never right or wrong, it just has more or less fit, relevance, workability and modifiability.

4.3.2 Development

This section details the design and development of the artefact through the application of the research design from 4.3.1 to the research area.

The 'Case Study' Libraries

This research increment uses a pseudo-case study approach, where data about what constitutes a culture of quality was gathered from UK University LIS. An email was sent to SCONUL Directors list (LIS-SCONUL@JISCMail.ac.uk) requesting participant UK HE LIS to take part in the study (see Appendix G). This is a closed list, and so was sent on behalf of the researcher by Nick Bevan (Director of Brunel University Library). The email elicited positive responses from 10 English university LIS:

- Anglia Ruskin University
- Bristol University
- Goldsmiths, University of London
- Imperial College, London
- Nottingham Trent University
- Sheffield Hallam University
- St. George's, University of London
- University of the West of England
- University of Worcester

- University of York

All ten were used as 'cases' for this research. This was appropriate because, unlike in quantitative research where opportunistic and self-selecting sampling has serious potential drawbacks, both these sampling methods are common in grounded theory research (Charmaz, 2006), where they are the only way of gaining access to participants in order to gather relevant, suitable and sufficient data.

The first four libraries to have data collected were chosen for analysis in this increment of iteration one:

- Imperial College, London
- Nottingham Trent University
- Sheffield Hallam University
- University of Worcester

The Interviewees

The output of increment one indicated that vertical alignment of attitudes, beliefs, behaviours and values is an important component of quality culture. Therefore, it was necessary to conduct semi-structured interviews with LIS staff at five levels:

1. LIS director
2. Member of the Senior Management Team,
3. Member of professional staff,
4. Member of staff at the highest 'para-professional' level (Senior/Principal Library Assistant)
5. Member of staff at the lowest (Library Assistant) level.

Increment one also indicated that horizontal alignment (i.e. how well work units are integrated) is another important component of quality culture. All the 'case study' LIS have a hierarchical structure with fewer staff at the higher level than the one before. In order to draw a sample that respected this (and so the greater opportunity for structural 'silos' at the bottom than the top), one representative was taken for categories 1 and 2; two representatives from categories 3 and 4,

and three representatives from category 5, resulting in nine interviews for each 'case'.

For pragmatic reasons, all interviewees (except the Director) were chosen by the contact for that library (usually the Director) following this schema. It is recognised that this method of selection may result in interviewee bias, but it was necessary to facilitate access. It became clear from the interviews themselves that participants had not been selected to show the Library in only a favourable light.

The Interview Questions

The starting point for the questions on the interview schedule was the identified constructs of quality culture from increment one (Section 4.2.1.3). For example, the property 'who is responsible for quality' became the question "Who is responsible for quality?". The questions were phrased using language familiar to the interviewees. For example, the interpretive synthesis of the literature indicated that one of the properties of a culture of quality is how the organisation obtains customer feedback. The term 'customer' is a controversial term in the LIS community; 'user' is an accepted neutral term with equivalent meaning and so interviewees were asked "How does the library obtain user feedback". The questions were kept as simple as simple as possible. For example, the property 'provision for recognition, reward and progression of staff' became the question "Do you get recognition for doing a good job?".

In order to enable interviewees to interpret the questions against their own underlying mental schema, and so gain insight into the underlying tacit assumptions of the organisational culture (Schein, 2010), the questions were worded in a general, and often ambiguous, way. For example, "How do you work with other teams?" may be answered in terms of how well members of teams get along personally; the procedures by which specific teams interact; the general attitude towards other teams; or how the interviewee views the place of their team within the whole library (systems thinking).

A number of questions were able to act as an interrogative tool for more than one of the properties of a culture of quality indicated by the outcome of increment 1. For example, the question “What changes do you make as a result of user feedback?” may elicit answers relating to the nature of changes made on the basis of user feedback (obviously), and also how problem solving is used; and what the organisation is willing to change of itself (rules, insights, principles). The question “What happens if you make a mistake?” may elicit answers relating to the attitude to failure; the empowerment of decision making; how staff are encouraged to continually improve themselves and their work; the empowerment of individuals; as well as the attitude to mistakes.

Questions were asked appropriate to the interviewee’s position in the hierarchy. For example, only the Head of Service was asked “How do you conduct your strategic planning?”, but they were not asked whether work practices followed documented procedures.

The Interview Schedule

All the interviews began with the interviewer thanking the interviewee for taking part in the research and introducing themselves. The ‘role’ taken by the researcher was that of a PhD student research quality in libraries, who was also a practising professional librarian working in a UK academic library. The interviewee was asked to sign the consent form (see the participant information sheet in Appendix I) and was reassured that there were no right or wrong answers, and that their responses would not be shared with anyone at their institution, except in a general way.

The interviews all started with a general question about the interviewees opinion of the culture of the library and all ended with an invitation to the interviewee to add any further comments. The question order on the schedule was generally followed, but the specific order and follow up questions asked was led by the responses of the interviewee.

The interview schedule for the Directors is presented in Appendix D. The interview schedule for the members of senior management team is presented in

Appendix E. The interview schedule for the professionals, the senior para-professionals, and the lowest level of staff is presented in Appendix F.

All interviews were transcribed by the researcher into MS Word documents.

The Documents

Documents were collected to determine nature of formal policies, procedures and guidelines.

The documents requested were primary sources resulting from recurrent, regular and special administrative routines. Specifically requested were:

- Mission, vision and values statements.
- Strategic and operational plans.
- Annual reports.
- Policy statements.
- Procedural manuals.
- Internal committee documents.
- Liaison/institution interaction documents.
- Staff development/training and induction programme.
- Appraisal/performance management documents.

The contact at the 'case' LIS was asked to provide the documents. It is recognised that this method of selection may result in selection bias, but was necessary to facilitate access. The details of the documents requested are shown in Appendix H.

Analysis

All the transcriptions were initially coded line-by-line (examples of this coding are presented in Appendix J). Following this initial coding, the codes for each question area were compared within each 'case', and between 'cases' (this inter-case comparison sorted the codes by the level of the respondent, e.g. SMT compared to SMT; LA compared to LA). This data-to-data comparison produced a list of focused codes (presented in Appendix K). All the transcripts were coded

again using these focused codes (examples of this coding are presented in Appendix L), in order to refine the codes, and start to integrate and sort them into categories. The final list of categories and sub-categories from this increment of iteration one are presented in the next section.

4.3.3 Output of Increment 2

The categories and sub-categories of a culture of quality, generated via grounded theory from increment two are presented in Figure 4.3.

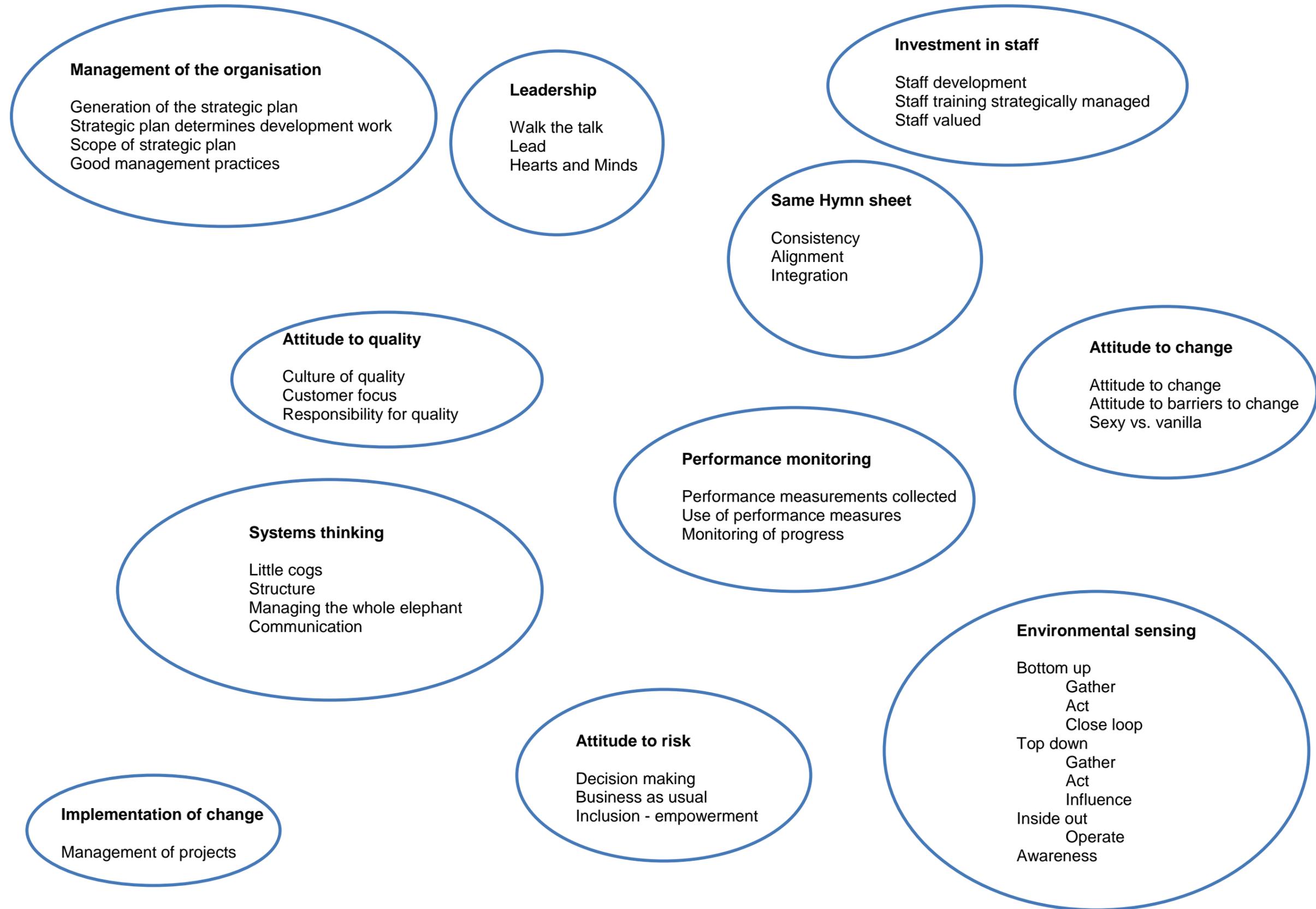


Figure 4.3: Visual representation of the constructs of the QMM from grounded theory

4.4 Increment Three: Assessment of Ubiquity of Constructs

The purpose of this increment is to assess the ubiquity of the output of increment two against novel real world examples.

4.4.1 Design and Development

The design and development in this increment followed the same design and development as that of the second increment (detailed in section 4.3.1).

The libraries not analysed for increment two were used in this increment:

- Anglia Ruskin University
- Bristol University
- Goldsmiths, University of London
- St. George's, University of London
- University of the West of England
- University of York

However, the interviews from St. George's could not be used because the tapes had failed and could not be recovered. This 'case' was therefore excluded from the research.

In accordance with standard grounded theory methodology (e.g. Charmaz, 2006), the transcripts from these five cases were not subjected to line-by-line coding. Focussed coding, using the codes from increment two, was used to sort, organise and integrate the data.

The codes from increment two were both sufficient and necessary to describe the culture of quality in all nine of the 'cases' where data was available. There were no additional codes from 'cases' 5-9 that were not present from the analysis of 'cases' 1-4, showing that the focussed coding had reached saturation point. However, the additional analysis did serve to further refine and synthesise these codes.

A comparison of the initial categorisation of a culture of quality from the synthesis of the literature (Figure 4.2), and from grounded theory (Figure 4.3) produced a

model with eight categories as having the most explanatory power. As would be expected, there are many overlaps between both conceptualisations, but some aspects are derived solely from the synthesis of the literature. Specifically, the category of 'Alignment' from the literature subsumes the categories of 'Same Hymn Sheet' and 'Systems Thinking' from the grounded theory. Similarly, the category of 'Management of the Organisation' subsumes the categories of 'Implementation of Change' and 'Progress Monitoring'. Conversely, 'Leadership' comes through strongly as an independent category from the grounded theory, rather than being distributed across other categories as it was in the synthesis of the literature.

4.4.2 Output of Increment 3

The construct of a quality culture, consistent with both the literature and practice are presented below. There are eight elements, consisting of between three and eight practice areas – 40 practice areas in total.

- Management of the organisation
- Strategic plan generation
- Management alignment (achievement of the strategic plan)
- Progress monitoring
- Performance measurement
- Project management processes
- Environmental sensing
- Customers (bottom up)
 - Gathering feedback
 - Collation of feedback
 - Action as a result of feedback
- Organisation (top down)
 - Gathering feedback
 - Influencing organisational decisions
- Wider context (inside out)
 - Gathering feedback
 - Involvement of staff in profession

Chapter 4: Iteration One

- Contribution to profession
 - Learning organisation
 - Staff empowerment
 - Staff involvement in change
 - Nature / level of learning
 - Attitude to mistakes
 - Attitude to risk
 - Staff encouragement to innovate
 - Attitude to change
 - Attitude to change
 - Perception of drivers for change
 - Attitude to quality
 - Definition of quality (including locus of control)
 - Attitude to quality improvement
 - Perception of responsibility for quality
 - Type of quality improvement initiatives - (“sexy” vs. “vanilla”)
 - Leadership
 - Vision and value setting
 - Trust
 - Inspiration and motivation
 - Investment in staff
 - Attitude to staff (as an asset)
 - Training provision
 - Development of staff
 - Recognition of staff
 - Alignment
 - Vertical alignment
 - Horizontal alignment
 - Consistency
 - Communication flow
 - Staff recognition of where they fit into the overall scheme (“little cogs”)
 - Structure

- Alignment of attitude to quality
- Alignment of attitude to change

4.5 The Artefact, its Demonstration and Evaluation

This section presents the output of Iteration One, drawing together the results of the three increments and applying the reference model. The potential of this artefact as a solution is then demonstrated through its review by an expert community of practice (both researchers and practitioners). The (unsolicited) adoption of the artefact by a consortium of academic LIS is also described. Following this demonstration the solution is evaluated, both in terms of utility of the artefact and the learning that has occurred about the problem space.

4.5.1 The Artefact

A culture of quality is a complex concept, consisting of 40 practice areas, grouped into eight elements. Achievement of a culture of quality is a developmental journey with a number of identifiable checkpoints along the way.

A culture of quality is: doing things right; doing the right things; using learning; suited to the environment (change seeking in an fluid environment); and explicitly and appropriately aiming to improve quality. This culture is created by strong leadership and the people of the organisation; and the amount to which these categories are bound together to form a cohesive culture is determined by organisational alignment.

Applying the reference model, there are five levels on the journey to a culture of quality. These levels are Initial, Repeatable, Defined, Managed, and Continuous. They apply to each element of the concept and, although the score of each element will be related to the others, especially within the same category, they are sufficiently independent that an organisation may have a range of scores on the Quality Maturity Model across different elements.

The skeleton structure of the Quality Maturity Model is presented in Figure 4.4.

	Level 1 Initial	Level 2 Repeatable	Level 3 Defined	Level 4 Managed	Level 5 Continuous
Management of the organisation					
Strategic plan generation					
Management alignment (achievement of the strategic plan)					
Progress monitoring					
Performance measurement					
Project management processes					
Environmental sensing					
Customers (bottom up)					
Customers - Gathering feedback					
Customers - Collation of feedback					
Customers - Action as a result of feedback					
Organisation (top down)					
Organisation - Gathering feedback					
Organisation - Influencing organisational decisions					
Wider context (inside out)					
Wider context - Involvement of staff in profession					
Wider context - Gathering feedback					
Wider context - Contribution to profession					
Learning organisation					
Staff empowerment					
Staff involvement in change					
Nature / level of learning					
Attitude to mistakes					
Attitude to risk					
Staff encouragement to innovate					
Attitude to change					
Attitude to change					
Perception of drivers for change					
Attitude to quality					
Definition of quality (including locus of control)					
Attitude to quality improvement					
Perception of responsibility for quality					
Type of quality improvement initiatives - ("sexy" vs. "vanilla")					
Leadership					
Vision and value setting					
Trust					
Inspiration and motivation					
Investment in staff					
Attitude to staff (as an asset)					
Training provision					
Development of staff					
Recognition of staff					
Alignment					
Vertical alignment					
Horizontal alignment					
Consistency					
Communication flow					
Staff recognition of where they fit into the overall scheme					
Structure					
Alignment of attitude to quality					
Alignment of attitude to change					

Figure 4.4: The Quality Maturity Model Outline

4.5.2 Demonstration

In order to observe and measure how well the artefact (i.e. the representation of a culture of quality in Figure 4.4) supports a solution to the problem of lack of practitioner engagement with issues of quality, it was presented to a self-selecting international group of L&IS researchers and practitioners interested in issues of measurement in LIS. This was achieved via the presentation by the researcher of a paper at the Seventh Northumbria International Conference of Performance Measurement in Library and Information Services, held at Spier Hotel and Conference Centre, Stellenbosch, South Africa, 13-16 August 2007. The paper, as included in the conference proceedings and including details of the open discussion, is presented in Appendix M. This conference was attended by 202 delegates from 19 countries, including those in North America, Europe, Africa, Australasia, Scandinavia, and the Middle East. Most delegates were practitioners working in academic LIS.

The evaluation of Iteration One consists of two parts. Firstly, the evaluation of the solution (i.e. the levels, elements and practice areas of the Quality Maturity Model) for utility. Secondly, the determination of the learning about the problem space that has occurred, and the implications of this for the next iteration.

4.5.3 Utility of the Artefact

In order to evaluate the utility of the artefact, the demonstration was framed in such a way as to gather feedback on the utility of the model. The presentation of the paper by the author was concluded with an open discussion of the attendees, loosely prompted by the following questions to the audience:

1. *Do you agree with the assertion that libraries operate in a rapidly evolving agile environment and that the ability of a library to survive is determined by its culture of quality, specifically its “meta-quality”?*
2. *From your experience, do you agree with the concept of maturity levels in quality culture – or is it binary? Or something else?*
3. *Would you find the completed QMM model useful?*
4. *What metric would you find most useful as a measure of performance – a single number (“3”); a mean average (“3.245”); a mode average (“3”); a median average*

(“3”); a profile (“management of the organisation = 3; attitude to change = 4; alignment = 2” etc); a total out of 40 (8x5)?

5. *What do you think of the 8 categories? Do they ring true in your experience? Have I missed any?*

Details of the discussion were noted on a flipchart by one of the conference organising committee, and written up and included as part of the paper in the conference proceedings.

All the participants in the discussion felt that the key factor in the quality of an organisation was its culture, both formal and informal. Participants felt that the development of a quality culture was a continuous process of maturity. However, a discrete model was useful for the purposes of measurement and assessment. It was felt that the simpler the model was, the better. All participants felt that the Quality Maturity Model, as outlined in the artefact, would be useful to them. A number of participants suggested that the model should not be stand-alone, but should assist in the choice of other quality improvement techniques. Most discussion participants felt that a profile of the LIS would be the most useful metric output of a measure of performance, one attendee commenting: “It is like a personality inventory for the library”. Most felt that a trend of a LIS’s performance over time would be most informative – not a single ‘snapshot’ score. Discussion participants felt that leadership is indeed a key category, with one participant feeling that “the miracle is success despite the leadership”. Akin to this, one participant suggested that public services might be better if they are not closely aligned, as a looser configuration enabled individuals to go beyond their organisational constraints. The ‘Attitude to change’ category was also felt to be important. In particular it was recommended that the model should unpick the complexity and variability of the drivers for change, and not make any absolute assumptions. It was felt by some discussion participants that a key omission was the property ‘selection and induction of staff’, while accepting that one of the key difficulties facing libraries wishing to induce culture change was the low turnover rate of staff.

This evaluation of the artefact from Iteration One shows that the Quality Maturity Model has fit, relevance and workability. It is meaningful and useful to academic LIS practitioners.

Further to the demonstration of the artefact, the researcher was invited, in June 2008, to give a presentation (see Appendix N) to the M25 Consortium of Academic Libraries Quality Working Group. Following this presentation, the M25 Consortium incorporated “some work on the application of the Quality Maturity Model” into its 2008/09 action plan, at the behest of the working group. Up until this point, the M25 Consortium’s focus on quality had included providing workshops on Chartermark; a toolkit of performance measure for space utilisation (costing models, benchmarking Performance Indicators – input, output and ratio, and LibQual+ ‘Library as a place’ scores); and surveys of members’ formal Quality Assurance processes. Although this demonstration was not initiated by the researcher it clearly shows that the artefact from Iteration One, the Quality Maturity Model as shown in Figure 4.4, was successful in prompting academic practitioner LIS engagement with the nature of quality.

4.5.4 Learning About the Problem

The design science paradigm is used in this research in order to explore the problem space – to make known what was previously unknown through a change of representation of the problem. The construction of the artefact and its evaluation as an effective support of a solution provide information about the solution space. In turn, this information about the solution space develops new insights about the problem space. Iteration One has resulted in the following learning about the problem space:

Quality culture is a complex, multi-faceted concept that is made more understandable by teasing out all the dimensions and contributory practice areas. The 40 practice areas detailed in the outline Quality Maturity Model are, in the according to the data collected, sufficient and necessary to describe quality culture at an appropriate level of granularity to be useful to practitioners.

The development of a quality culture is a continuous evolutionary journey, with different Library and Information Services at different points on that journey. Despite its continuous nature, the development of a culture of quality can usefully be split into an arbitrary number of discrete stages. Such partitioning aids practitioners' understanding of the issue of developing a culture of quality by its similarity to existing concepts of measuring LIS.

4.6 Summary

This chapter presented Iteration One of the research – the efforts to impose a framework on the amorphous concept of quality culture. The iteration was developed incrementally in order to produce a framework that is consistent with both existing theory and practice.

Different research methods were used for the increments. The first increment used an interpretive synthesis methodology to interrogate the quality culture literature, because it is an accepted method of developing concepts from qualitative data without losing the richness and thickness of description that such data provides. The literature was drawn from abstracting and indexing databases using a variety of synonyms for TQM, plus a number of documents provided as part of paid for 'consultancy'. The second and third increments used the grounded theory method of Charmaz (2006) to analyse the transcripts of interviews. Nine participants were interviewed, and documents collected, in each of ten case study UK academic LIS. Interviewees represented all levels of the organisational hierarchy in each LIS, and the semi-structured interview questions were drawn from the output of increment one.

Increment two analysed the data from four of the case study LIS by undertaking line-by-line and then focussed coding to produce a set of codes. Increment three analysed data from five of the case study LIS by undertaking focussed coding using the codes from increment two until saturation was reached.

A comparison of the output of increment one and increment three produced a model of quality culture with eight categories and a total of 40 practice areas. The categories were management of the organisation, environmental sensing,

Chapter 4: Iteration One

learning organisation attributes, attitude to change, attitude to quality, leadership, investment in staff, and alignment. This outline of the Quality Maturity Model was demonstrated to Library and Information Science researchers and practitioners at an international conference and evaluated for utility.

Finally, the problem space was explored in light of the research in this Chapter, leading to amended definitions for a solution going into Iteration Two.

CHAPTER FIVE: ITERATION TWO

“Well we know where we’re goin’ but we don’t know where we’ve been. And we know what we’re knowin’ but we can’t say what we’ve seen.”

Road to Nowhere by Talking Heads

The purpose of Iteration Two is to populate the outline Quality Maturity Model produced as the output of Iteration One, in order to produce a ‘roadmap’ to enable practitioners to plan improvement in the quality culture of their library. The QMM is populated by determining the dimensions of the properties of quality culture using the grounded theory technique of axial coding to synthesis the interview, documentary and literature data gathered in Iteration One. The output of Iteration Two, a fully characterised Quality Maturity Model, is demonstrated via presentation at a North American conference of LIS practitioners, and is evaluated for utility. The learning about the problem space that occurs is used to amend the definitions for a solution going in to Iteration Three.

Section 5.1 provides a reminder of the research design used in this iteration. Section 5.2 details the development process, covering the application of the research design. Section 5.3 presents the demonstration and evaluation of the output of Iteration Two, including the communication of the artefact, an evaluation of the artefact in supporting a solution, and the description of the learning that has occurred about the problem space. Finally, section 5.4 summarises the chapter.

Figure 5.1 Illustrates how this iteration relates to the research design as a whole.

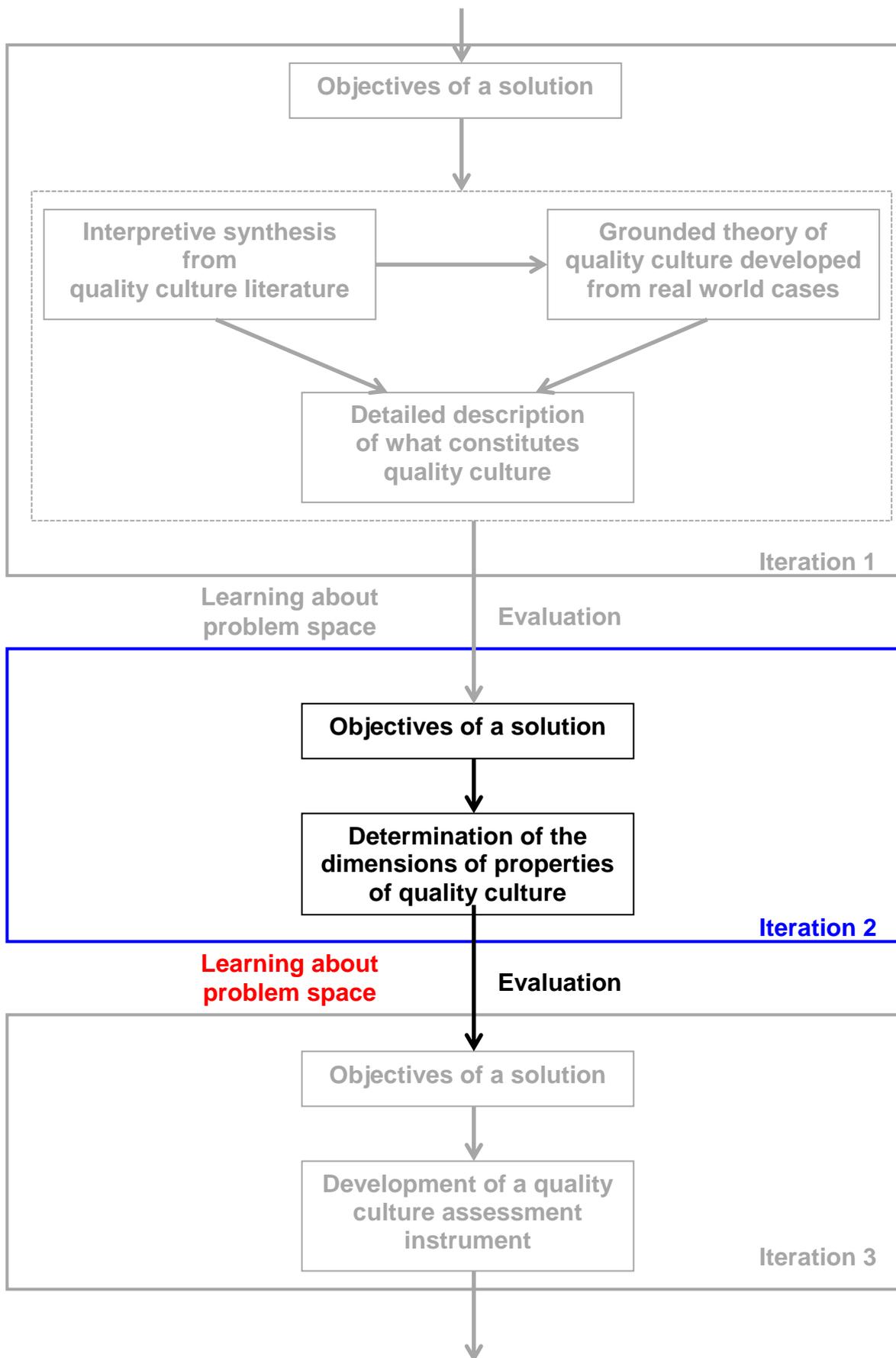


Figure 5.1: Research Iteration Two

5.1 Research Design

The research design for Iteration Two followed the same research design described in section 4.3.1 – Grounded Theory. However, in this iteration the research followed the design beyond focussed coding (the stopping point in Iteration One) on to axial coding (Strauss and Corbin, 1998; Corbin & Strauss, 2008), to elicit the dimensions of the properties that are the specific or general attributes of the categories.

5.2 Development

The post-analysis data from Iteration One was the input data for Iteration Two. Vignettes from all the interviews from each of the usable nine case studies (81 interviews in all) were grouped by the code they had been assigned during Iteration One. These groups were then amalgamated to adhere to the category and sub-category groupings that arose as the output of Iteration One. This resulted in 40 groups of vignettes – one for each sub-category in the Quality Maturity Model.

The vignettes were grouped, sorted and arranged into a hierarchical order via a card sort technique. This involved transferring each vignette onto a card, then bundling together the cards where the vignettes were expressing the same dimension. An example of this is given in Figure 5.2.

Property: Recognition of staff		
INST2	INST8	INST3
“From time to time. HmMMM. It depends who you talk to. Amongst other people in [the team] there is a lot there, not senior management.”	“I would say yes. I have never felt that I haven’t.”	“Probably some of the time, maybe not all of the time because that is the way everything works.”

Figure 5.2: An Example of Vignettes That Express the Same Dimension of a Property

Each of the bundles was then arranged in one of five positions, corresponding to each of the five levels in the Quality Maturity Model: Ad hoc; Repeatable; Defined; Managed; Continuous. The allocation was driven by the underlying description of the culture of quality embodied in these level descriptors. For example, if a bundle of vignettes described a situation that was evidence of policies and processes to try to ensure a culture of quality was present, it was placed under 'Managed'. In the example in Figure 5.2 the bundle was placed under 'Ad hoc'.

Some of the sub-categories required evidence beyond that gained from interviews. Documents analysed included: mission, vision and values statements; strategic and operational plans; policies; procedures; guidelines; manuals; committee minutes; management meeting minutes; internal staff newsletters; Library newsletters; annual reports; and any other documentation provided by the case study library. Such evidence was used for three purposes: (i) to determine what the actual situation was. For example, if individual staff members were spotlighted for praise and / or thanks in the internal staff newsletter; (ii) to determine what the policy was, in order to compare what occurred in practice. For example the annual plan details specific projects that will be undertaken that year, however, the plan is not revisited and so there is no monitoring of whether the projects are completed; and (iii) when there were conflicting views held by interviewees, to determine which, if any, were an accurate reflection of reality. For example, three interviewees believed there was no performance-related pay, three believed there was but it only applied to senior staff, and three knew there was and believed it applied to everyone. An example of documentary evidence included in the card sort is presented in Figure 5.3.

Training provision	
Ad Hoc	There are no policies, documented practices or procedures relating to training of staff. [INST8]
Repeatable	There is a training programme developed by 'the staff development group' (a small group of staff) consisting of core training sessions such as manual handling, disability awareness, customer service skills, and sessions in response to requests from particular groups of staff. [INST5]
Defined	"We do have a fairly generous amount in the [training] budget which we try to protect as much as possible ... And we parcel that out to the teams so ... everyone gets a fair cut. ... Then it is up to the team leader to agree with their staff what they go on. Within reason and if it is work related we will let them go on anything." [INST2]
Managed	There is a training programme comprising training needs assessment, provision, and an assessment of the effectiveness of the training. Training is provided in the tools, techniques and skills for improvement. Data gathering and reflection are encouraged. [INST3]
Continuous	There is a training programme comprising training needs assessment, provision, and an assessment of the effectiveness of the training. Training is related to future necessary skills. Training takes account of succession planning and developing skills required for the future. Training is provided on 'learning how to learn'. Time is built in to work for critical reflection. [INST6]

Figure 5.3: An Example of Using Evidence From Documentary Sources

All the sub-categories are consistent with the theory of what constitutes a quality culture, due to the deliberate incorporation of evidence from literature into Iteration One. As indicated in Chapter Two, the deficiency in the existing literature is not a failure to describe the elements of quality culture, nor a failure to describe the characteristics of an organisation with the highest levels of quality maturity

(the failure is in not recognising or describing the intervening stages between failing and excellent). Therefore, these descriptions from the literature of the ‘Continuous’ level attributes were included in the card sort. An example of this is illustrated in Figure 5.4.

Learning	
Ad Hoc	“We don’t formally require that people who have gone to conferences formally report back to us. There is an assumption that if someone comes back with a bright idea they would make us aware of it.” [INST9]
Repeatable	“The subject librarians recently did a staff development session where they reported back what [courses] they had been on and that was very good as it cascaded down, but that doesn’t happen very often.” [INST2]
Defined	“you have been to that conference come and discuss it with me, come and talk to me about it and then I would say ‘alright, let’s bring this to a team meeting” [INST3]
Managed	“If [staff members] go out to a training event or conference they have to publish a report in [the internal staff newsletter]” [INST6]
Continuous	There is shared learning, information and knowledge throughout the service. [Swieringa & Wierdsma, 1992]

Figure 5.4: An Example Where the Descriptors Came From the Literature.

When the card sort was completed, the evidence for each level of each sub-category was synthesised in order to produce a rubric for the Quality Maturity Model consistent with both theory and practice. In accordance with the principles of Grounded Theory (Charmaz, 2006), the natural language of interviewees was preserved when it served as a symbolic marker of their views. Such *in vivo* codes fall into one of three groups: (i) general terms that everyone knows, which highlight condensed but significant meanings; (ii) an innovative term that vividly captures meaning of experience; and (iii) insider shorthand that reflects a particular group’s perspective. An example of using *in vivo* codes is presented in Figure 5.5.

Attitude to change	
Ad Hoc	"If it ain't broke, don't fix it" [INST1]
Repeatable	"Not for the sake of it" [INST2]
Defined	"Change is good if done well" [INST9]
Managed	"Change is good if it is done to improve things" [INST10]
Continuous	"To stand still is to regress" [INST6]

Figure 5.5: An Example of Preserving the Natural Language of Interviewees

There were some sub-categories where it was not possible to discriminate between the Ad Hoc and Repeatable categories. These sub-categories were properties of quality culture that, by their nature, only appeared positively in higher maturity organisations. The descriptors at the lower levels of maturity were simply the absence of that property. An example of this is presented in Figure 5.6.

Staff recognition of where they fit into the overall scheme	
Ad Hoc	“That is one of the challenges to get people to see [how their job relates to the strategic plan].” [INST2]
Repeatable	
Defined	“We are looking forward to having more [of the content services] team coming and working on the desk, but it is all ‘paying back’ you have to pay back the time. ... And I get tired of all this paying back. ... Ultimately it is the customers at the desk that matter, it can be a little fractured at times.” [INST10]
Managed	“Well, they do a good induction pack, you do get a good overview of all the sections. ... when [new staff] move to the other sections to get their induction to acquisitions, what an academic liaison librarian actually does, then they can see the big picture they can put the pieces together. They understand ‘OK, we at lending services what I do there has an impact on what acquisitions does, or what a subject librarian might need to know’ that kind of thing.” [INST10]
Continuous	“a very robust environment where everyone knows why they are doing what they are doing and how their bit contributes. ... A person should be able to walk out of the building at night and say to themselves ‘I know what I did today contributed to the success of our students’, through some tenuous link, knowing that their bit is important in the whole scheme of things.” The University recognises the Library as a key part of achieving its aims. [INST6]

Figure 5.6: An Example Where Levels One and Two Could Not Be Discriminated

The artefact produced from Iteration Two is presented in Appendix O.

5.3 Demonstration and Evaluation

This section presents the potential of the artefact produced from Iteration Two, a fully populated Quality Maturity Model rubric, as a solution to the problem of lack of practitioner engagement with the concept of quality culture. Following this demonstration the solution is evaluated, both in terms of utility of the artefact and the learning that has occurred about the problem space.

5.3.1 Demonstration

The demonstration of the artefact as a potential solution to the problem of lack of practitioner engagement with issues of 'quality' was twofold. Firstly, the artefact was presented to a self-selecting, mainly North American group of LIS practitioners interested in issues of assessment. This was achieved via the presentation by the researcher of a paper at the fourth ARL Library Assessment Conference: Building Effective, Sustainable, Practical Assessment, held in Charlottesville, Virginia, USA, 29-31 October 2012. The paper, as included in the conference proceedings is presented in Appendix AB. This conference was attended by 540 delegates, mainly from the United States of America and Canada, almost all of whom were practitioners.

Secondly, the artefact was used, in conjunction with the Quality Culture Assessment Instrument (see Chapter 6) to assess the quality culture of two UK university libraries (see Section 6.3). In a practical application it is not possible to use the QMM independently, but in their feedback, the Directors of the libraries were asked specifically to comment on the QMM.

The two UK university library Directors commented that the Quality Maturity Model had changed how they conceived of 'quality': "I guess, whilst we have always obviously had our minds on quality, there are elements in here that we have probably thought of less than some others. Everybody thinks about customer feedback, everybody is looking at how long it takes to do things, everybody is looking at improving processes, but there are bits in here about [e.g.] how structures relate to each other, the impact of passing that on through the service, that maybe we hadn't thought of." "By breaking down quality into

different elements it then gives you a lot of direction into the areas you should focus on. Which might not be the areas you thought you would originally focus on when thinking in the abstract. That's where it is particularly useful." This evidence demonstrates that the artefact from Iteration Two of this research is a tool to help LIS practitioners re-conceive, and so engage with, the issues of 'quality'.

5.3.2 Utility of Artefacts

The paper presentation of the QMM at the Library Assessment Conference received extremely positive feedback, with representatives of thirteen Higher Education libraries approaching the author to "come and assess us". These included Leslie Firth (Assessment Librarian, Carlton University, Canada) and Simon Hart (Policy, Planning & Evaluation Librarian, University of Otago, Dunedi, New Zealand) who particularly wanted to be 'early adopters' and assist with the development of the next iteration. Jon Cawthorne (Associate Dean for Public Services, Florida State University Libraries) also wanted to be an early adopter, and wrote to the author "You probably hear this all the time, but your research is truly, truly exciting. If your research were a TED talk¹, I'd easily describe it as Jaw-dropping, Inspiring, Beautiful and Courageous. Just like you, I believe in libraries and our future, but we agree there is a need for our people to understand the culture and bring about the organizational change we can only get through good and consistent leadership." This evidence demonstrates that the solution has relevance because it deals with real concerns, captures attention, and is not only of academic interest.

The solution has fit, because the analysis shows that the concepts fit with the incidents they are representing to the point of saturation (at least to the limits of the available data). The solution also has workability, because it explains the heterogeneous research area of quality culture both in terms of different constructs and different levels, and encompasses all first-order factors present in the literature or the grounded data.

¹ Series of global conferences under the slogan 'Ideas worth spreading'. See www.ted.com

5.3.3 Learning About the Problem

Iteration Two has resulted in three areas of learning about the problem space. Firstly, LIS practitioners do want to engage with issues of quality and quality culture, and are keen to do so if such issues are brought to them in an accessible and meaningful way.

Secondly, a rubric format rich in detail is a helpful way of making the abstract concepts of quality concrete, and therefore understandable to practitioners.

Finally, a model of quality culture is not sufficient to enable LIS practitioners to self-assess the quality culture of their organisation. The community needs off-the-shelf tools to be provided to enable them to undertake such assessment.

5.4 Summary

This chapter presented Iteration Two of the research, where the outline Quality Maturity Model produced as the output of Iteration One was populated in order to produce a 'roadmap' to enable practitioners to plan improvement in the quality culture of their library.

The grounded theory methodology used in the previous Iteration was developed into axial coding and used to synthesise the interview data, documentary evidence and literature to determine the dimensions of the properties of quality culture. The natural language of interviewees was preserved in the rubric when it vividly captured experience or reflected a particular perspective. The output of this Iteration was a fully characterised Quality Maturity Model.

This QMM was demonstrated to solve the problem of lack of practitioner understanding of the amorphous concept of quality. How the QMM met the evaluation criteria of fit and workability was described, and evidence presented that demonstrated the QMM's relevance. Finally, the learning that occurred about the problem space led to amended definitions for a solution going into Iteration Three.

CHAPTER SIX: ITERATION THREE

“Only mediocre people are always at their best”

Somerset Maugham

The purpose of Iteration Three is to develop a self-assessment instrument to enable an academic LIS to be located on the Quality Maturity Model ‘road map’ without the need for external consultant input. This Iteration uses standard survey design methodology to create and test an instrument ready to be used by LIS for data collection, analysis and reporting of their quality culture. The questionnaire consists of predominately closed questions addressing the attitudes and knowledge of respondents. The questionnaire is conducted as an online web survey as it is easy and cheap to administer. The questionnaire is tested informally, and then formally with two UK academic LIS, and amendments are made to the survey in response to feedback from participants. The artefacts produced in Iteration Three are the Quality Culture Assessment Instrument, QCAI instructions for use, the rubric for mapping the QCAI results onto the QMM, and instructions for reporting the QCAI results.

Section 6.1 describes the research design used in this iteration. Section 6.2 details the development process, covering the application of the research design, the development of the instrument, the informal and formal testing of it, and the artefacts produced. Section 6.3 presents the demonstration and evaluation of the output of Iteration Three, including an evaluation of the artefact produced from this iteration and the artefact produced from Iteration Two. Section 6.4 describes the communication of the research. Finally, section 6.5 summarises the chapter.

Figure 6.1 Illustrates how this iteration relates to the whole research design.

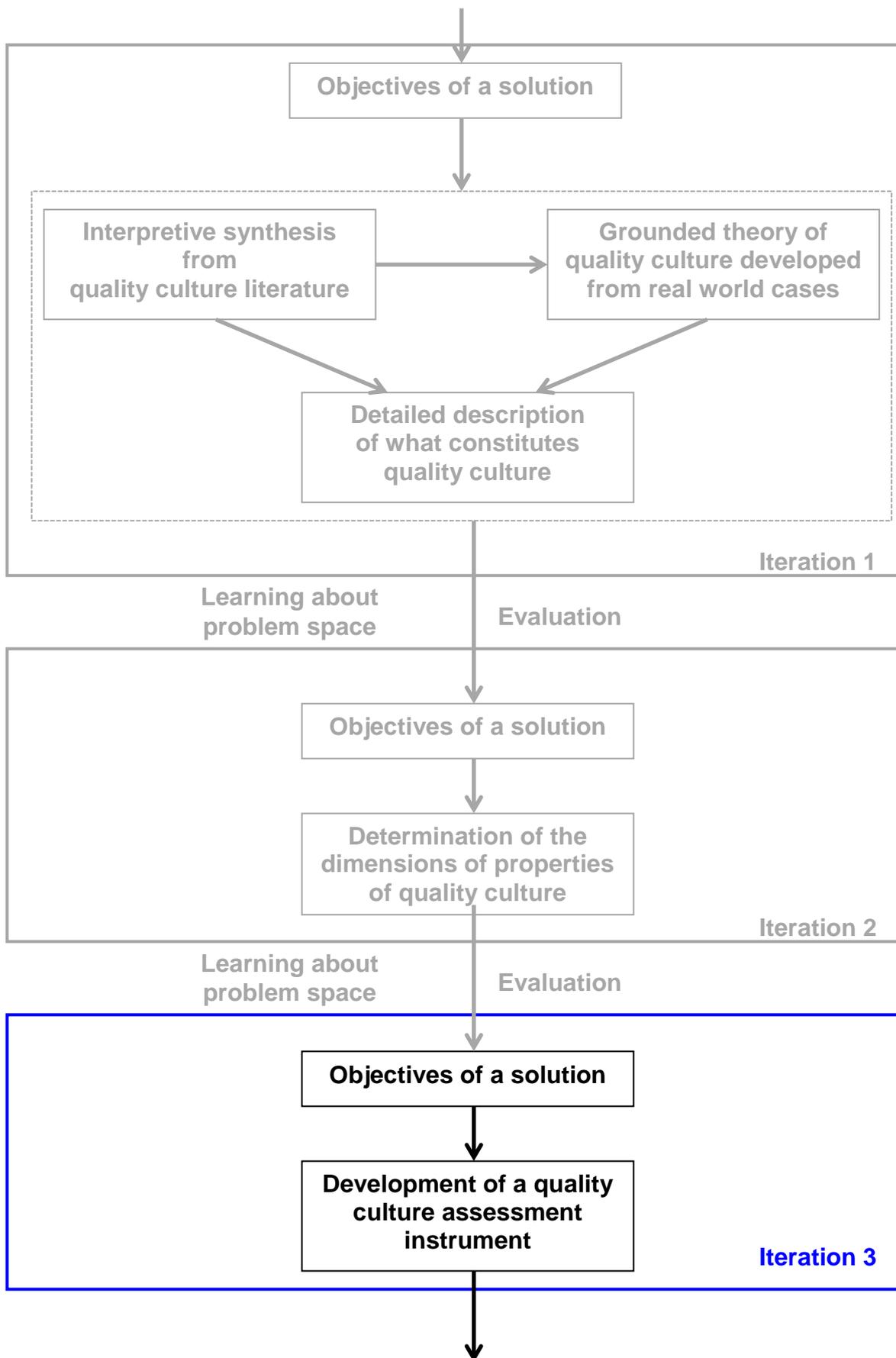


Figure 6.1: Research Iteration Three

6.1 Research Design

The purpose of this iteration is to develop an assessment instrument for quality maturity. In order to fulfil the aim of this research, to facilitate L&IS practitioner engagement with issues of quality, this instrument must be able to:

1. be easily and cheaply administered by a LIS;
2. be easily analysed by a LIS, without specialist statistical knowledge; and
3. locate the LIS on the Quality Maturity Model.

Surveys are “the keystone of contemporary social science” (Foddy, 1993, p.11) and so are a likely candidate for an appropriate instrument to assess quality culture maturity. Surveys usually operate within a positivist methodological framework, using a stimulus-response model where each stimulus is carefully standardised and each respondent only gives a single response to each stimulus (Foddy, 1993; de Vaus, 2002). Forced-choice (or ‘closed’) questions require respondents to choose one response from a pre-set array (Oppenheim, 2000; Bradburn, Sudman & Wansink, 2004). This leads to the assumption that respondents’ responses to each question can be meaningfully compared.

This is the opposite point of view to that which has underpinned the research so far in this thesis, which has been the subjectivist approach of qualitative field research. This approach is interested in how people experience the world, and so data collection is sensitive to actors’ meanings. This leads to the assumption that different respondents give different interpretations to the same question, and therefore the appropriate method of data gathering is an ethnographic study reported as a narrative. This subjectivist approach best addressed the aims of Iterations one and two (Chapters 4 and 5). However, it takes a long time and requires specialist skills in data collection, analysis and reporting. Therefore, it is not an approach that best addresses the aims of this third iteration of the research.

A positivist forced-choice methodology is a methodology that addresses the aims of this iteration – it is quick, cheap and does not require extensive specialist skills to administer. However, a discrepancy between theoretical research framework

Chapter 6: Iteration Three

and methodology is one of the most fundamental errors in the design of research (Bryman, 2012). But, the purpose of the Quality Culture Assessment Instrument (QCAI) is *not* to determine the position of the LIS on the Quality Maturity Model (an absolute statement of the real world), but to position the LIS on the Quality Maturity Model as determined by the attitudes of staff in responding to the QCAI survey. This important, if subtle, distinction enables the conflict between theoretical research framework and methodology to be sufficiently resolved to address the research aims of this iteration.

The research design therefore follows a standard survey design methodology (e.g. Sudman & Bradburn, 1982; Converse & Presser, 1986; Foddy, 1993; Fink, 1995a; Fink, 1995b; Oppenheim, 2000; de Vaus, 2002; Fowler, 2002; Bradburn, Sudman & Wansink, 2004; Czaja & Blair, 2005; Sapsford, 2007), which is illustrated in Figure 6.2. The purpose of this iteration is to produce a survey that is ready to be used by LIS for data collection, analysis and reporting. Therefore, this iteration follows the methodology until the end of Stage 3: Final Survey Design and Planning, where the final questionnaire; analysis plan; report outline; and operations plan form the output of Iteration Three.

Chapter 6: Iteration Three

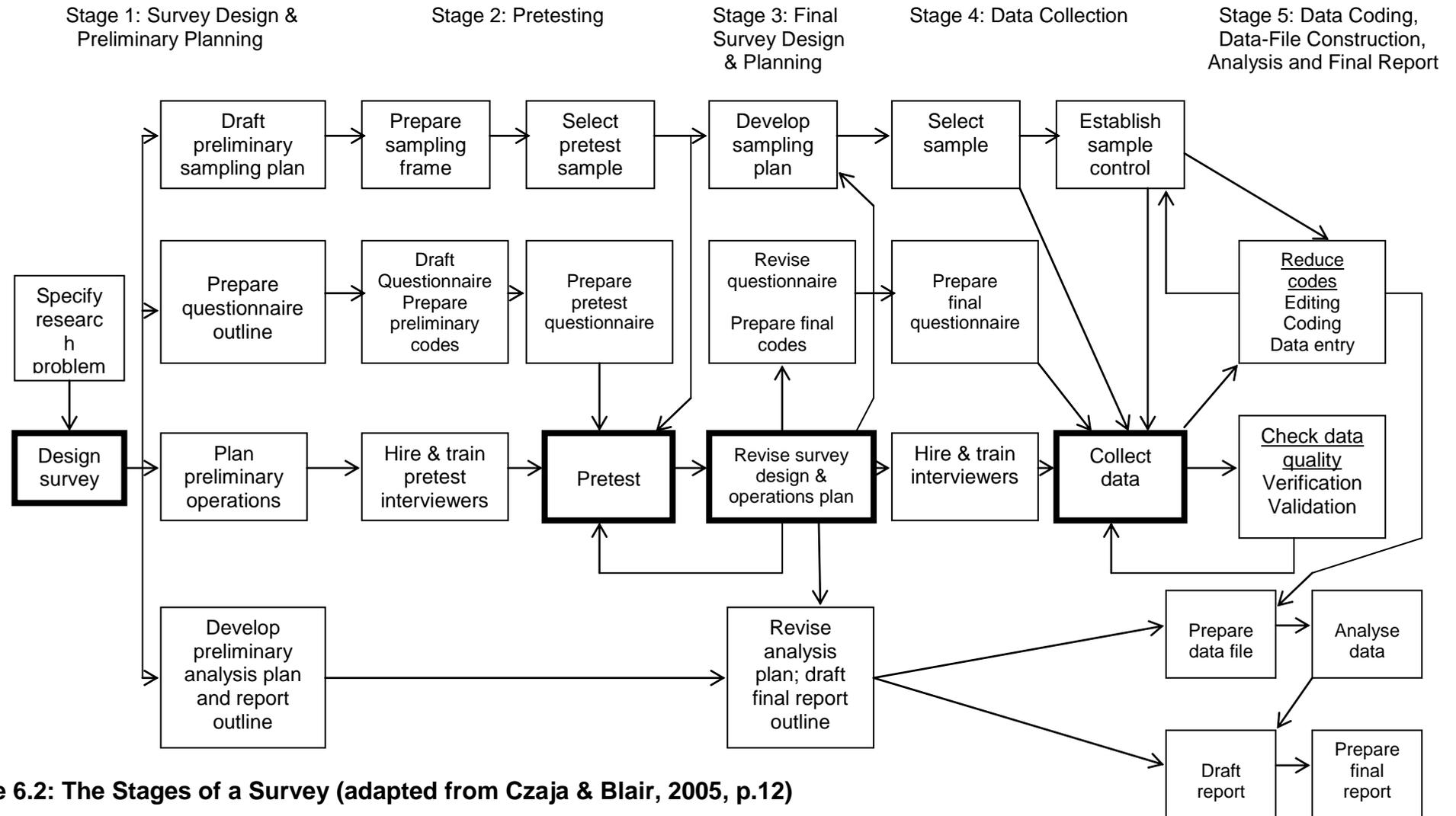


Figure 6.2: The Stages of a Survey (adapted from Czaja & Blair, 2005, p.12)

6.1.1 Survey Design and Preliminary Planning

A good questionnaire “is a valid measure of the factors of interest; it convinces respondents to cooperate; and it elicits acceptably accurate information.” (Czaja & Blair, 2005, p.65). Therefore, a well-designed survey must be derived from a clearly defined research topic that must be carefully thought out before starting to design the questionnaire (Bradburn, Sudman & Wansink, 2004; Foddy, 1993).

Following the specification of the research problem, the first stage in survey design is to design the questionnaire in general terms. According to Czaja & Blair (2005) this involves deciding whether to ask open or closed questions; whether questions need to determine attitude, knowledge or behaviour; and the types of demographic information needed. Open questions produce narratives that then need to be coded and interpreted; closed questions have two parts – the statement of the question and the response categories. When asking attitude questions, researchers need to be aware that respondents’ attitudes, beliefs and opinions have been shown to be unstable; when asking questions about knowledge, care should be taken to ensure that the respondents have the necessary information available to them; and when asking behaviour questions, researchers should be aware that the relationship between what people say they do and what they do is not always strong (Foddy, 1993). The type of demographic information required determines whether the questionnaire can be administered face-to-face or remotely.

The next stage is to draft sampling plan to identify the nature of the sample required. Then it is necessary to plan preliminary operations, specifically determine the available time and money, as this will affect how the questionnaire is conducted – web surveys are fastest and cheapest; face-to-face interviews take longest and are most expensive (Czaja & Blair, 2005). Finally, the preliminary analysis plan and report outline should be drafted, as the nature of the results required can influence the questions asked.

These four planning documents determine the outline design of the survey. This design is fleshed out in the pretesting phase.

6.1.2 Pretesting

The first stage in pretesting is to draft the questionnaire. This includes writing the questions, writing the response categories, and organising the questions.

A good question is “unadorned and uncomplicated, as explicit and single-minded as a lawyer’s interrogation” (Czaja & Blair, 2005, p.72). It is simple, intelligible and clear (Converse & Presser, 1986). Questions should:

- be written using everyday language (Czaja & Blair, 2005);
- ask only a single question at once;
- not contain clauses, double negatives, negative phrasing, or instructions (Converse & Presser, 1986);
- be short;
- be in a single tense; and
- be either single or plural, not both (Foddy, 1993).

Respondents do their best to answer every question put to them, even questions they have difficulty understanding or relating to. They either cognitively adjust the question so they can answer it, or they rely on contextual clues and general attitudes to formulate an appropriate answer (Schuman & Presser, 1981; Strack & Martin, 1987). The question writer must keep in mind potential misunderstandings of the meanings of individual words in the question. Words that have a large number of syllables; a low frequency of occurrence in everyday life; context-specific nuances of meaning; lack of empirical referents; and apparently similar words with related nuances suffer a greater degree of misinterpretation (Foddy, 1993).

Closed questions require the response categories to be written as part of the questionnaire (Foddy, 1993). Respondents should be able to answer in terms of one and only one of the choices provided (Czaja & Blair, 2005). Response categories should be explicit, and ordered relative to each other (e.g. Very Fair / Fair / Unfair / Very Unfair) (Bryman, 2012).

Questions should be organised into sections, grouped according to:

- relevance to the topic;
- ease of answering;
- interest to the respondent;
- available knowledge;
- internal logic; and
- to ensure a smooth progression or flow (Czaja & Blair, 2005).

Researchers must also consider the effects of question order and format – small changes in which can have major changes in respondents' answers (Foddy, 1993). Gallup (1974, cited Foddy, p.61) determined that preceding questions have an impact on the answering of following ones, with the best arrangement to be questions moving from the general to the specific within a section. Also, the act of answering questions can cause some respondents to change their attitudes (Gross, 1964).

The questionnaire should have an introduction stating:

- what the study is about;
- who is conducting the study;
- who the sponsor of the study is;
- why the study is important; and
- what will be done with the results of the study (Czaja & Blair, 2005).

The organisation and presentation of the questionnaire can also affect response rates. The ideal completion time for a self-administered questionnaire is less than 15 minutes, but respondent perception of how long it will take is more important than actual time taken in determining response rates (Czaja & Blair, 2005).

Following the above grouping strategies produces a questionnaire that appears to take the least possible time.

The second stage in pretesting is to test the draft questionnaire, which should be done first informally, then formally. The purpose of testing is to make sure that

respondents understand the questions, and that what the questionnaire is valid and reliable (Czaja & Blair, 2005).

Informal testing uses the researcher themselves, and their friends / family / colleagues to critically evaluate the questionnaire and identify problems with wording, layout, grouping and timing. Bradburn, Sudman & Wansink (2004) suggest the researcher can ensure all questions are necessary by asking 'Why do I want to know this?' and not accepting 'it would be interesting to know' as an answer. Questions that do not discriminate between respondents or that do not appear to provide the specific kind of information required should be eliminated. Each question and the questionnaire as a whole should be assessed against the conditions described above. For closed questions, response categories can provide clues to the respondents about how to interpret the question (Foddy, 1993), so they should be viewed in conjunction with the question when assessing the questionnaire.

Formal testing tests the questionnaire on real respondents, representative of the final survey sample. It follows four steps, repeated until the researcher is satisfied with the survey (Czaja & Blair, 2005). Where new questions are used (rather than questions taken from an existing question bank) this will require many repetitions. The four steps are:

1. prepare the pretest questionnaire;
2. recruit the pretest sample (around 20 respondents is satisfactory);
3. analyse the pretest feedback;
4. revise questions, answers and procedures in light of feedback.

When the pretesting is complete, the survey design can be finalised.

6.1.3 Final Survey Design and Planning

The final survey design consists of:

- the questionnaire from pretesting;
- a sampling plan to ensure an appropriate sample is obtained;
- training procedures and materials for interviewers (unless self administered);

- data-coding plans;
- plans for analysing the data; and
- a report outline.

6.2 Development

This section describes how the research design detailed in section 6.1 was applied to develop the Quality Culture Assessment Instrument.

6.2.1 Survey Design and Preliminary Planning

The research problem underlying the survey was locating a LIS on the QMM through the opinion of staff responding to the questionnaire.

The questionnaire consisted of predominantly closed questions, with a single open question - it is not possible to produce a meaningful response set *a priori* for the element of the QMM corresponding to that question. The questions addressed attitudes and knowledge of respondents, with two demographic questions to enable cross-tabulation of results by team and by level in the LIS hierarchy.

The sampling plan was for all staff within a LIS to complete the questionnaire. This is crucial in order to provide a true, balanced picture of the opinions of LIS staff about the LIS. Most academic LIS are small services, with only a few people undertaking each role. A sample less than all LIS staff risks producing an unrepresentative picture; this is particularly the case when cross tabulating the results by the demographic questions.

The preliminary operations plan was to conduct the questionnaire as an online web survey. Web surveys fit the requirements that the questionnaire be easily and cheaply administered by a LIS, and, if the correct web survey tool is used, also easily analysed by a LIS, without specialist statistical knowledge. The pros and cons of online web surveys are shown in Figure 6.3.

Administration issues	
Cost	Very low
Length of data collection period	Very short / short
Geographic distribution	May be wide
Questionnaire issues	
Length of questionnaire	Short (<15 mins)
Complexity of questionnaire	May be complex
Complexity of questions	Simple / moderate
Respondent control of question order	Poor / fair
Use of open ended questions	Fair / good
*Use of visual aids	Very good
*Use of personal records	Very good
Rapport	Poor / fair
*Ability to handle sensitive topics	Poor / fair
Non-threatening questions	Good
Data quality issues	
*Sampling frame bias	Low / high
Response rate	Poor / good
*Response bias	Medium / high (favours more educated people, who would have internet access)
Knowledge about refusals or non-contacts	Fair
Control of response situation	Poor
Quality of recorded response	Fair / good

Figure 6.3: Pros and Cons of Online Web Surveys (adapted from Czaja & Blair, 2005, p.35)

Some of these issues (asterisked) are not applicable to this research, e.g. response bias – all LIS staff would have internet access. Some of these issues, particularly rapport and respondent control of the question order, have implications for the questionnaire design. To address these issues:

- humanising cues were added to the initial welcome / instructions to build rapport (Tourangeau, Couper & Steiger, 2001);
- questions have a ‘Don’t know’ response category, because the online survey tool used (Bristol Online Surveys²) requires that all questions receive a response (Czaja & Blair, 2005); and
- all questions are presented on a single page, so that respondents are able to control the order in which they answer them (Czaja & Blair, 2005).

In addition, care was taken to ensure that the questionnaire is be completely self-explanatory (as is standard practice for any self-administered questionnaire), and

² www.survey.bris.ac.uk

data protection issues were explicitly addressed at the start of the questionnaire, because respondents usually have concerns about the security of information on the internet (Bryant, 2012).

The preliminary analysis plan has, where possible, a one-to-one correspondence between an element of the QMM and a question; and between an answer choice and the level achieved on that element. The preliminary report is the QMM, with the level achieved highlighted.

6.2.2 Pretesting – Draft Questionnaire

The draft questionnaire, showing the questions, response categories, and organisation, is presented in Appendix R. The questionnaire was built using Bristol Online Surveys³, a not-for-profit online survey support tool for UK HE institutions, to which Brunel University subscribes. Screenshots of the presentation of the questionnaire are shown in Appendix S.

6.2.3 Informal Testing

As part of the informal testing, the researcher cross-checked the questionnaire against the checklist of best practice listed in sections 6.1.2 and 6.2.2. The researcher also recruited five colleagues, each from a different university LIS (one administrator, one quality officer, two faculty librarians, and one information assistant). Each informal tester was sent a link to the pretest questionnaire and asked to complete it as if it was being run by their own LIS. They were asked to provide detailed feedback about any issues they discovered while completing it (either in the feedback box, or via email).

The informal testers provided the following feedback:

- i. The wording in Q19, Q38A4, Q39 is confusing.
- ii. I don't know some of the answers.
- iii. I can only give my opinion, it might be different from reality.

³ www.survey.bris.ac.uk

Chapter 6: Iteration Three

- iv. The introductory text stating that you cannot return to previous pages, combined with 40 questions on the first page, gave the impression that the questionnaire would be very long.
- v. Our LIS is operating below the lowest level for some questions (Q3b, Q6, Q9, Q10, Q23).
- vi. The order of the responses increasing in maturity aided understanding of the questions.

The following changes were made in response to this feedback (numbers correspond):

- i. Changed the wording in the following questions:
 - a. Q19 “What happens if you make a mistake?” to “What happens if someone (Library staff) makes a mistake?”.
 - b. Q38A4 “... go directly.” to “... find a way round them.”.
 - c. Q39 “How does the structure of the Library staff work?” To “How does the staffing structure of the Library work?”.
- ii. Added a “Don’t know” option to Q5, Q7, Q8, Q9, Q10, Q11, Q14, Q15.
- iii. Emphasised that questions Q16 – Q39 are looking for the respondent’s opinion by:
 - a. Adding the following to the Welcome page (page 1) “Please answer the questions based on your opinion or how you feel. You should answer them quickly as I am looking for your 'gut feeling' reaction.”
 - b. Adding the following to the introduction (before the About You section on the third page) “I am looking for your opinions and feelings. Please give your initial 'gut feeling' answer.”
 - c. Changing the wording in the following questions:
 - i. Q23 “Where does ...” to “Where do you think...”.
 - ii. Q24 “What is the main barrier ...” to “In your opinion, what is the main barrier ...”.
 - iii. Q26 “How does the Library...” to “How do you feel the Library ...”.
 - iv. Q27 “How does the Library try to improve...” to “How do you feel the Library tries to improve ...”.

- iv. Added the following to the Welcome page (page one) “The survey is anonymous, contains 40 multiple-choice questions and takes around 15 minutes to complete. There is also a question asking for your feedback on the questionnaire itself.”
- v. [addressed in Chapter 7]

In addition, in order to improve rapport with respondents, the Welcome, Data Protection and Final pages were personalised by writing in the first person, adding the name of the researcher, and adding the researcher’s email address.

6.2.4 Formal Testing 1

The researcher’s former employer, Middlesex University Library and Student Support, was recruited as pretest sample 1. This LIS is a large multi-functional service, comprising a Library, student services (online, face-to-face, and remote student support), a museum, study skills support, disability & dyslexia support, student welfare, and pre-sessional and in-sessional English As An Additional Language courses. It is based in a single ‘Library’ building, with outposts in other buildings on the main campus, and on the small health campus. The service has 157.41 FTE staff. The study skills support, disability & dyslexia support, and student welfare staff have only recently been incorporated into the service. Because of this, and as it was unclear if the QMM would apply to a museum and English language teaching, the researcher and the Director of Library & Student Support (Nick Bevan) decided to administer the questionnaire to only the following teams within LSS: Administration, IT support, Library teaching & research support, Library bibliographic services, Library operations, LSS executive, and Unihelp (student services). This was a sample of 110 staff.

The questionnaire was once again delivered via Bristol Online Surveys using the output of the informal testing. This questionnaire is presented in Appendix T. Respondents were recruited via an email (presented in Appendix U) from the Director of Library & Student Support. The questionnaire ran for one working week.

Chapter 6: Iteration Three

23% of the sample completed the questionnaire and provided the following feedback:

- i. I don't know the answers to some questions, but 'Don't know' was not an option.
- ii. Q20A4 and Q22A1 contain emotive language.
- iii. Q19A1 is confusing – who is 'they'?
- iv. I wanted to select more than one answer for some questions, or part of one answer and part of another.
- v. I wanted a free text option for some of the questions, as none of the given answers was appropriate.

Some feedback about specific questions was uninterpretable, as respondents did not note the number of question.

The following changes were made in response to this feedback (numbers correspond):

- i. Clarified the nature of the information sought by the questions by adding the following wording to the introduction (before the About You section on page three): "Questions that ask for information have a DON'T KNOW option; questions that ask about your opinions do not."
- ii. Removed the phrases "no-one will die" from Q20A4 and "If it ain't broke don't fix it" from Q22A1.
- iii. Q19A1 "We try to make up for it. If they find out ..." to "We try to make up for it. If management find out ...".

Respondents were also reminded to note the details of specific questions they had issues with through adding the following to the end of page three: "Note The next page asks for your feedback on this questionnaire. When you click CONTINUE you will not be able to return to this page, so if you have any problems with, or comments on, any of the above questions, please note the numbers down now."

Points (iv) and (v) refer to the intrinsic nature of the instrument, i.e. a forced-choice set of answers to closed questions.

6.2.5 Formal Testing 2

Brunel University Library (also a former employer of the researcher) was recruited as pretest sample 2. This LIS is a traditional academic library occupying a single 'Library' building. There are 67 staff members in four teams: Academic Services, Collection Services, Content services, and Customer Services. Academic services incorporates study skills support (academic writing, statistics).

The questionnaire was again delivered via Bristol Online Surveys using the output of the first formal testing. This questionnaire is presented in Appendix V. Respondents were recruited via an email (presented in Appendix W) from the Director of the Library.

25% of the sample completed the questionnaire, and provided the following feedback: I would have liked to be able to select more than one answer, as no single answer was an exact match, my ideal answer would have combined parts from two or more answers (Q18, Q27, Q34, Q37).

In the initial design of the response set, the wording of each answer was kept as short as possible (i.e. so it fitted on a single line in the online presentation) in order to try to keep the questionnaire as simple as possible. This meant that some repetition of earlier answers within later answers was removed. For example, instead of:

A1 I use it.

A2 I use it and share it with my team.

A3 I use it and share it with my team and other teams.

The responses were presented as:

A1 I use it.

A2 I share it with my team.

A3 I share it with my and other teams.

The feedback from the second formal pretest indicates that this brevity is unhelpful because it makes the possible answers not mutually exclusive. Therefore, all the response sets were reviewed to ensure that the selection of answers offered are mutually exclusive (except Q24, where this is not possible,

and respondents are asked to indicate the main reason). The following question answers were changed: Q3A2, Q6, Q3, Q8, Q9A3-A5, Q11A3, Q14A4, Q18A4, Q27A2, Q34A3, Q36A5, Q37A1-A2. Q28 had an additional answer added to the response set: A4 “Quality is the responsibility of the Quality Officer” which maps onto Level Three of element 5.3 of the QMM. In addition to these changes, the following wording was added to the introduction (before the About You section): “You may only select one answer for each question. If no answer exactly matches your opinion, please select the closest one.”.

Analysis of the results from this second pretest revealed that in Q16 A3 professional staff who, to an outsider would be considered at the middle management level, do not consider themselves as such (because they do not actually manage people). Therefore, Q16A3 was amended to “Managers / Librarians / professional staff.” And the QMM element 3.1 Level Three changed to “There is limited middle management level / professional staff decision making.”

To ensure that the questionnaire elicits acceptably accurate information, these changes should be tested with a third formal pretest. Unfortunately, the LIS that had been recruited withdrew. Other potential pretesters were unsuitable because they were in the USA (it was not known that UK the terminology would apply); they had provided data for the development of the QMM (and so had staff members who had already answered the questions via interviews); or they had recently run ClimateQUAL⁴ (an online LIS staff survey from the Association of Research Libraries that, while measuring different attributes to the QCAI, is sufficiently similar to provide a conflict). Therefore, pragmatically, the testing of the questionnaire ended after the second formal test.

6.2.6 The Artefacts

The artefacts developed in Iteration Three consists of the Quality Culture Assessment Instrument, QCAI instructions for use, the rubric for mapping the QCAI results onto the QMM, and instructions for reporting the QCAI results.

⁴ www.climatequal.org

The Quality Culture Assessment Instrument is presented in Appendix X. It is an online questionnaire of 43 questions, three of which are sub-questions depending on the answer of the previous question. The first two questions are attribute questions; the other 41 are attitude questions. All but one of the questions requires the respondent to select an answer from a multiple-choice list. All questions are mandatory.

The questionnaire must be personalised for the LIS undertaking it, in order to ensure the results are meaningful and the respondents are able to answer the questions. Questions that are relevant to respondents are more likely to trigger an attitude response and so are completed more easily.

The instrument must be administered using an online survey tool, such as Survey Monkey⁵, Bristol Online Surveys⁶, or an in-house application. Care must be taken to ensure that the data provided by respondents is held anonymously and securely, in accordance with data protection rules. Care must also be taken to ensure that the minimum number of people have access to the raw data, as it would be possible in most LIS (unless very large) to determine who had provided a particular response by combining the responses to the attribute questions. Data should be aggregated and analysed by the survey administrator before being reported.

The responses to each question on the instrument should be aggregated. The mode average response (i.e. most frequent) is taken. The rubric for mapping answers on to the level of an element of the QMM is presented in Appendix Y.

Three of the elements of quality culture (8.1, 8.7, 8.8) do not have questions on the instrument. Instead, these are assessed by cross tabulating the answers to specific other questions by team membership and/or level within the organisational hierarchy.

⁵ www.surveymonkey.com

⁶ www.survey.bris.ac.uk

Chapter 6: Iteration Three

If the responses are spread over a number of answers, the results should be cross-tabulated against team membership and level in the hierarchy to see if this produces different responses between groups and the same responses within groups. If so, these differences should be reported. If no groupings can be determined, then the main modal responses should be reported. An example of this is presented in Figure 6.4.

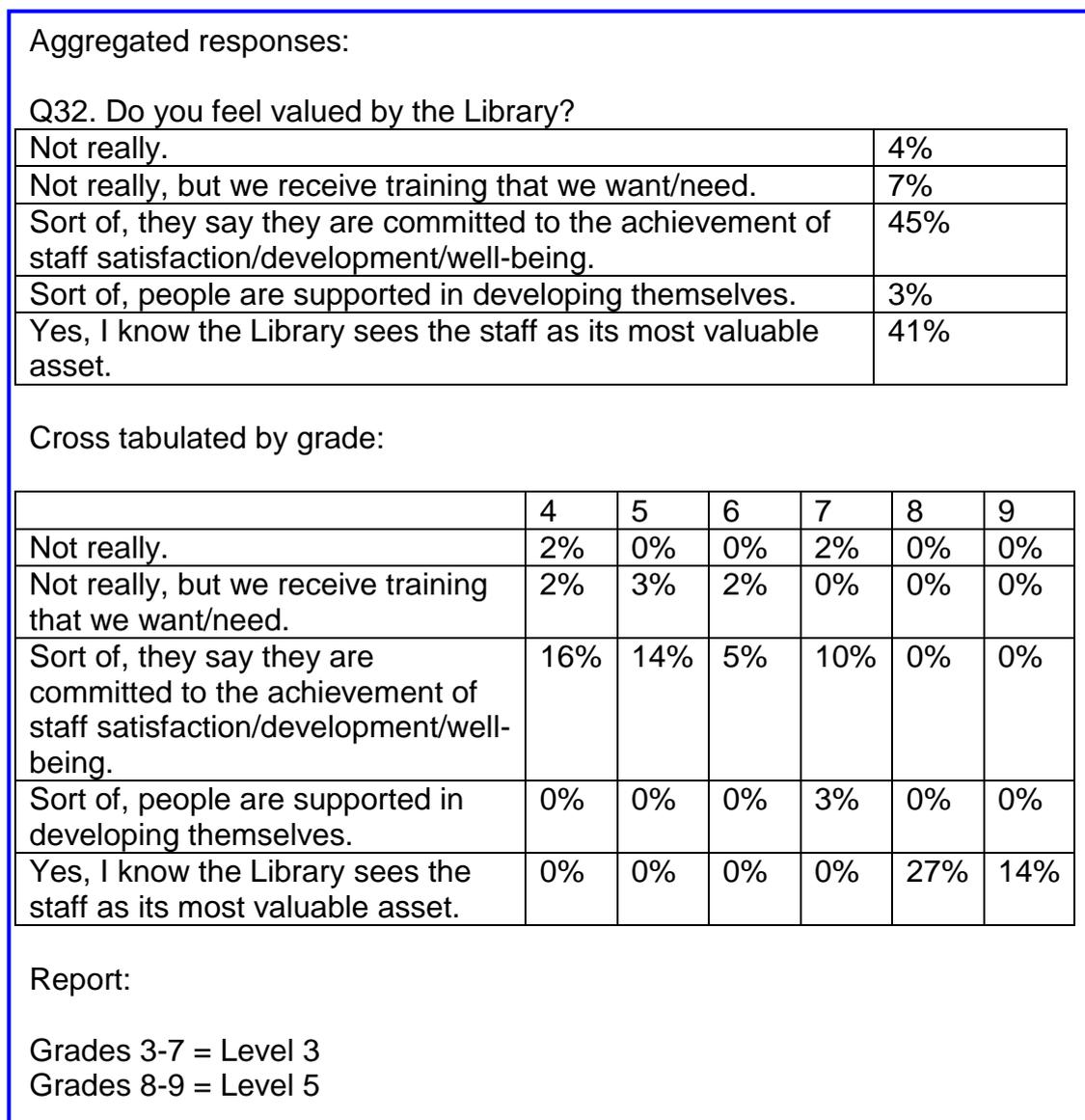


Figure 6.4: Example of Result Cross-tabulation and Presentation Where There are Two Modal Answers

The results should be presented as locating the LIS on the QMM. This enables the LIS to see both where they are on the road to a culture of quality, and the next stage forwards. An example is presented in Figure 6.5.

3.4 Attitude to mistakes	Mistakes are hidden due to a blame culture.	Mistakes are fixed – they are viewed as result of the person not following procedure.	Mistakes are fixed – they are viewed as faulty processes (especially not enough training).	Mistakes are viewed as opportunities for learning	Mistakes are viewed as opportunities for learning and are accepted as inevitable if trying new things.
3.5 Attitude to risk	The library is risk averse – it refuses to take risks.	The library is risk averse – it may occasionally take what it views as risks, but only if they are virtually guaranteed to work.	The library is risk averse – it employs checks and balances to minimise risks.	The library is risk tolerant – willing to accept risk taking behaviour (“It is OK to take risks, no-one will die!”).	The library is risk seeking – encourage risk taking behaviour (“It is better to do something and fail than to wait to be certain it will work and do nothing”).

Figure 6.5: Example of Presentation of Results

Instructions for LIS wishing to use the Quality Culture Assessment Instrument are presented in Appendix Z.

6.3 Demonstration and Evaluation

This section presents the potential of the artefacts produced from Iterations Two and Three as a solution to the problem of lack of practitioner engagement with the concept of quality culture. Following this demonstration the solution is evaluated, both in terms of utility of the artefact and the learning that has occurred about the problem space.

6.3.1 Demonstration

Two UK academic LIS, Middlesex University Library and Student Support and Brunel University Library, undertook an assessment of their culture of quality using the QCAI (output from Iteration Three) and the QMM (output from Iteration Two). The characteristics of these LIS are described in Sections 6.2.4 and 6.2.5. As described in those sections, each questionnaire was run online using the Bristol Online Survey platform, ran for one week, and received a 23% and 25% response rate respectively, which is standard for such a survey (Hamilton, 2009).

The responses were analysed by the researcher following the rubric and instructions detailed in Section 6.2.6. The results were presented to each director as locating the LIS on the QMM (as in Figure 6.5). The directors had not instigated the assessment of the quality culture in their LIS and so were not familiar with the context behind the QMM, so the researcher talked through the results with each of them.

Following the presentation of the results, the directors were interviewed, using the semi-structured interview schedule presented in Appendix AA. These interviews formed the basis of the evaluation of the artefacts and the solution.

Finally, one of the attendees at the Library Assessment Conference, where the output of Iteration Two was demonstrated (see section 5.3) was very keen to see all of the artefacts produced from this research as soon as they were finished, and in return provided his feedback on their utility.

6.3.2 Utility of Artefacts

The assessment was easy and cheap to administer, with no specialist analysis tools or knowledge required, and it was quick for participants to complete (around 15 minutes). There was no negative feedback about the QCAI from participants (excluding the requested constructive criticism of individual questions), though both response rates were low. This issue was addressed by one of the Directors: "I guess the difficulty with this as with anything you try to do, is engaging all staff to do it. Because you don't want to force people to do it because that will skew the results, but it is providing them with a climate, with an environment, with the

time, with the desire to want to do it because they can see that it is going to be used, it is not just another tick box exercise.” Both Directors felt the presentation of the results was clear, and liked that it located the LIS on the QMM. In particular they appreciated the details of the ‘next level up’. One Director found it confusing that the results for some facets were not a single or two adjacent result, but postulated that this may change if the response rate was higher because it would be clearer whether there was an overall majority opinion or a genuine split.

Both Directors stated that the availability of a free, off-the-shelf yet customisable assessment instrument made it more likely that they would assess the quality culture of their service in the future: “The fact that someone has gone off and done all this and put it together. And yes, the fact that it is free, because that is the big turn off from the ones that are currently out there, LibQual, ClimateQual, whatever, is that I can’t justify the expense of doing that.” “If there is something there for you to use then I think you would be much more likely to use it in whole or in part than if you were starting from scratch.”

Both Directors were very positive about the QCAI and QMM as tools to assess the quality culture of their LIS: “I thought it was very useful, and I can see it being very useful going forward. ... it will help us to do the things we are looking to do ... I can see that there are different things that are coming together [in the QMM] that will help us to be much better about monitoring this and doing stuff about it ... there are some areas where we have already started to put things in place to move it on, and what I would quite like to do is to do it again, to demonstrate that we have done something that moves it on.”

The Directors found that the most useful result was that it challenged their assumptions and perceptions of how their staff feel about the quality of the service: “One thing it has highlighted is the difference between my perception of how staff think of the quality of the service and how staff really feel. To me that’s one of the most interesting things because I like to think I am a reasonable judge of how people think, and in some respects I was reasonably right and in some respects it was quite different. I think that has been the best part. It’s really useful. ... There are some areas where the staff perception was better than I would have

expected it to be.” “there are times where I have gone ‘really?!?’ because I didn’t know they thought about it that positively, which is nice. And there are places where I have gone ‘really?!?’ because I have banged on and on about that, how come it is still an issue. And that is a bit more troubling for me, why that is still the way they feel and is there anything we can do about it”.

Related to this was the insight it gave into the internal variations in culture across the service: “[it is valuable] when you start to get different results from different teams. That indicates that perhaps there is something which is not necessarily in the culture generally, but is specific to the teams.”

A particular area of interest was apparent inconsistencies in answers: “how they have answered the question in one place as opposed to how they have answered the question in another place gets me thinking about ... does the one influence the other, is there a matched pair, or is there something contradictory going on there that you then need to delve into more deeply.” “What was interesting was the apparent inconsistency between some of the responses, Which may have a number of explanations. It may be that the questions are not quite interpreted the way you want them to be. I am not quite sure about that. It might simply be that sometimes we can accommodate contradictory thoughts.”

Both Directors took away positives from the experience as well as areas to focus on: “I guess there is quite a lot of pressure on me to maintain some of these good results.” “It gives me reassurance in some areas that what we are doing seems to be working so we should keep doing it.”

Finally, there is evidence that simply by administering the QCAI the culture of quality was improved, through the Hawthorn effect: Test respondent A7 “This questionnaire makes me realise that I don’t know what really goes on in some aspects of the library and the University.” Test respondent A12 “makes you think about what you're doing”. Test respondent B5 “the questions themselves start a thought process”.

Jon Cawthorne (Associate Dean for Public Services, Florida State University Libraries) sent the author the following feedback after he had received the QMM, QCAI and associated instructions: “I wanted to get back with you and give my initial reaction. In a word, WOW! The assessment librarians and I are so impressed with the comprehensiveness and dynamism of your Quality Maturity Model. What a wonderful instrument. First, we would like to use your Quality Culture Assessment Instrument in the United States to assess the quality of our culture at Florida State University Libraries. The QMM along with the QCAI integrates so many facets of organizational culture so thoroughly and soundly and libraries are in desperate need for this perspective and measure in order to, as you aptly wrote, “adapt to meet the needs of future customers”! Therefore, with your permission, we would like to use QCAI at FSU Libraries this summer 2013”

This evidence has demonstrated the utility of the QCAI and QMM as tools to address the problem of the lack of practitioner engagement with the concept of quality culture.

6.3.3 Learning About the Artefacts

Through the process of demonstration of the utility of the artefacts, both Library Directors provided feedback about the Quality Maturity Model as a roadmap for documenting and improving the quality culture of their libraries. As a result, some of the terminology in the rubric was changed. The final Quality Maturity Model is presented in Appendix AC.

6.3.4 Learning About the Problem

The development of the artefacts in Iteration Three have illuminated two things about the problem space. Firstly, assessment of quality culture does not need the input of an ‘expert’ - it can be assessed using the opinions of members of staff in the organisation. Secondly, the lack of availability of funds is a barrier to LIS practitioners wishing to implement quality culture assessment tools.

What this solution does not indicate is how many, if any, stages there are on the developmental road towards a mature quality culture of continuous improvement

focussed on the needs of the customer. It does not indicate whether the concept of quality does split into 42 sub-facets, nor if the most efficient and elegant way of describing quality culture is through the eight facets described in the QMM. It does not infer that the definitions of quality developed through this research can be generalised beyond UK Higher Education LIS, to other countries, other LIS sectors, or other service sectors.

In summary, the Quality Maturity Model and associated Quality Culture Assessment Instrument provide a useful, but not necessarily accurate or definitive, roadmap to help LIS practitioners engage with the concept of quality culture.

6.4 Communication

Communication is the final stage in the Design Science Research Methodology, which occurs when the researcher decides, based on the evaluation of the final iteration, that any further iterations will not improve the effectiveness of the solution. The purpose of its inclusion is to ‘close the loop’ – to ensure that the learning that has occurred about the problem space is shared throughout the discipline.

The communication of this research takes three forms. Firstly, this thesis forms one channel of communication of the problem, its importance, the artefacts, their utility and novelty, the rigor of the design, and their effectiveness. The thesis will be freely available to all on the internet via the University research repository. It will be indexed on the British Library open access EThOS database⁷ and searchable via Google etc.

Secondly, the research has been presented as a paper at the 10th Northumbria International Conference on Performance Measurement in Libraries and Information Services, held at the University of York 22nd – 26th July 2013⁸. It has also been presented at two previous conferences, as noted on p.ix.

⁷ <http://ethos.bl.uk/Home.do>

⁸ See <http://www.york.ac.uk/about/departments/support-and-admin/information-directorate/events/northumbria-conference/>

Finally, the artefacts and the background to their use will be publically and freely available on the internet via the SCONUL Performance Portal⁹. This will be advertised to the discipline communities internationally via relevant mailing lists and publications.

6.5 Summary

This chapter presented Iteration Three of the research – the development of an instrument to assess quality culture to enable a LIS to collect data, analyse it and use it to locate themselves on the QMM ‘roadmap’ without the need for external support.

The standard method for constructing surveys was detailed, and its application to this research was described. The questionnaire consisted of predominately closed questions addressing the attitudes and knowledge of respondents and was conducted as an online web survey because this is the easiest and cheapest way to administer a survey.

The survey was formally tested on two UK academic LIS and actions were taken to improve the instrument in response to feedback from the participants. In addition to the Quality Culture Assessment Instrument (presented in Appendix X) the other artefacts that comprise the survey are: instructions for using the QCAI, including instructions for reporting the QCAI results (Appendix Z); and the rubric for mapping the QCAI results onto the QMM (Appendix Y).

The use of these artefacts to address the research problem was demonstrated in the two UK Higher Education LIS used for testing. This demonstration produced feedback on the QMM and an evaluation of the QMM and QCAI. The final QMM was presented in Appendix AC.

The development of the QCAI illuminated two things about the problem space: quality culture can be self assessed using the opinions of members of library

⁹ <http://vamp.diglib.shrivenham.cranfield.ac.uk/>

Chapter 6: Iteration Three

staff; and Directors of LIS who wish to engage in quality culture assessment find the cost of existing tools prohibitive.

Finally, the routes to communicating the research and its results were detailed.

CHAPTER SEVEN: CONCLUSIONS

"I love deadlines. I love the whooshing noise they make as they go by"

Douglas Adams

This chapter draws together the research presented in this thesis, providing a summation and some conclusions. This chapter also includes reflections on: how well the research achieved the stated objectives; the limitations of the research and how they may be addressed; and the research methodology used. The Chapter concludes with some reflections on the author's personal research journey.

Section 7.1 provides a summary overview of the research. Section 7.2 presents the conclusions of the research, both for the solution space and for the problem space. Section 7.3 reflects on the research overall, and whether it has achieved the objectives. Section 7.4 explores the limitations of the research, and sets some themes for further research. Section 4.5 reflects on the design research paradigm. Finally, Section 7.5 concludes the chapter with some personal reflections on the doctoral research process.

7.1 Research Summary

This thesis mirrored the research paradigm used, design science, to the structure the presentation of the research.

Chapter Two presented the problem identification and motivation through a review of the relevant literature as it stood at the start of the research. Three bodies of literature were presented: Total Quality Management; quality culture; and the application of TQM and performance measures in LIS. This chapter demonstrated that libraries thrive on comparing their performance with that of others, but find it difficult to use quality assessment measures. This is a problem because quality assessment techniques have the potential to change the culture of an organisation to one of TQM - customer-focussed learning organisation. The chapter concluded that a model that converts measures of quality into a format similar to existing performance measurement techniques is needed, which may

enable the sector as a whole to come to terms with measures of quality, rather than just the enthusiastic few.

Chapter Three detailed the design science research methodology and its application in the research being undertaken. The aim of this chapter was to provide a mental model to enable the reader to assess the rigor of the research. The chapter presented the design science research paradigm as a novel framework for conducting Library and Information Science research in order to close the research-practice gap. It stated the principles of the paradigm, and summarised the debate in the literature concerning the purpose of design science research. The author stated her research perspective regarding these issues. The Design Science Research Methodology developed by Peffers *et al.* (2008) was presented as the framework used to plan, undertake, evaluate and refine the research.

The chapter defined the objectives of a solution to the problem detailed in chapter two by identifying three constraining criteria. The solution must:

1. Tease out the individual first-order factors of quality;
2. Act as a roadmap; and
3. Be useful to practitioners and be consistent with existing theory.

A review of maturity models as a reference model and a pilot study demonstrated that a Quality Maturity Model has the potential to fulfil all three of these criteria, and so provide a solution to the problem of practitioner engagement with issues of quality culture.

Chapter Four presented the first design iteration, where the individual elements of quality culture were explicated from both existing literature and current practice in UK academic LIS in an effort to impose a framework on the amorphous concept of quality culture. This iteration was developed incrementally, first using the interpretative synthesis method to analyse the literature, then the grounded theory method to analyse interviews with staff from ten 'case studies'. Finally the grounded theory method was used to integrate the outputs from these two increments, and the reference model was applied. The output of Iteration One, an outline of the Quality Maturity Model, was presented and evaluation of the

demonstration of this artefact confirms the utility and effectiveness of the outline Quality Maturity Model and provides additional objectives for a solution going into Iteration Two.

Chapter Five presented the second design iteration, which used the grounded theory method of Charmaz (2006) to populate the Quality Maturity Model produced as the output of Iteration One in order to produce a 'roadmap' to enable practitioners to plan improvement in the quality culture of their library. The development of the Grounded Theory methodology into axial coding was explained, and its use to synthesise the interview data, documentary evidence and literature and so determine the dimensions of the properties of quality culture was described. Evaluation of the demonstration of the resulting artefact confirmed the utility and effectiveness of the Quality Maturity Model and provided additional objectives for a solution, leading to amended definitions for a solution going into Iteration Three.

Chapter Six presented the third design iteration, which developed an assessment instrument to enable an academic LIS to self-assess their location on the Quality Maturity Model. The standard survey design method was detailed, and its application to this research described. The three iterations of testing the instrument (pretesting, informal testing and formal testing) were documented and the Quality Maturity Model and Quality Culture Assessment Instrument were applied to two UK academic LIS. The evaluation of these demonstrations indicated that the solution developed through this research is successful in achieving the research aims. Finally, the artefacts were communicated to the practitioner and research communities.

7.2 Research Conclusions

The outputs of this research are the learning that occurred as part of the Design Science research process – learning about the solution space and learning about the problem space. The learning about the solution space is demonstrated in the two artefacts: The Quality Maturity Model; and the Quality Culture Assessment Instrument (and associated instructions for use).

This research has provided initial indications that the QMM has fit, relevance and workability; and that it is meaningful, useful and attractive to LIS practitioners and its use helps them re-conceive, and so engage with, the issues of 'quality'. The 42 practice areas detailed in the outline Quality Maturity Model are, in the face of the data collected, sufficient and necessary to describe quality culture at an appropriate level of granularity to be useful to practitioners. This data set consisted of 12 UK HE LIS (ten from iterations 1 and 2; two from iteration 3) that were (it turned out) heterogeneous in quality culture. This is support for the applicability of the QMM, however, neither design science nor grounded theory are intended to produce a result with generalisability. The evaluation of the modifiability of the theory comes from how well it can be altered when relevant new data is compared to existing data. This is an area for further research. The preliminary findings of this research suggest that the QCAI is easy and cheap to administer, with no specialist analysis tools or knowledge required, and it is quick for participants to complete (around 15 minutes). The presentation of the results in locating the LIS on the QMM was clear to the two Directors interviewed.

This learning and these outputs, though useful, are a means to an end. They are part of the solution space and as such they have been developed to illuminate the problem space, which in this research is the lack of engagement by L&IS practitioners with issues of quality.

The learning about the problem space that has occurred throughout the research process enable a number of sketches to be drawn about the problem space. Firstly, quality appears to be a complex, multi-faceted concept consisting of intertwined and inter-related strands. However, it is not necessarily an amorphous concept, but one that can be explicated. This is not to state that the elements of quality are as described in the QMM, merely that it is possible to be specific in response to the question 'what is quality?'. Not only that, but it appears helpful to practitioners to do so – quality is one area where the most elegant solution is not optimal in terms of utility.

Secondly, quality culture can be 'measured' – not in an absolute way (the researcher does not propose there are units of 'quality culture'), but in order to

aid understanding and stimulate practitioner engagement. The development of a culture of quality **can** usefully be split into an arbitrary number of discrete stages so that it looks and feels like the performance measures that L&IS practitioners are familiar with. The research does not indicate that the number of levels in the QMM is correct, merely that it is both possible and useful to have staging posts on the road to a culture of quality.

Thirdly, if L&IS practitioners are presented with a free, easy-to-use, off-the-shelf, appropriate set of tools with which to assess the quality culture of their LIS then they are keen to do so. The failure of more than the enthusiastic few to engage with concepts of quality appears not to be due to something fundamental in the nature of the concept, nor in L&IS practitioners in general, but due to the lack of utility of the previous representation of quality and its assessment tools.

This research has **not** concluded that the Quality Maturity Model is *the* solution to the problem, merely *a* solution. Similarly, the research has not concluded that the QCAI is *the* tool to assess the quality culture of a LIS, merely *a* potential tool, and the beginnings of one at that.

The QMM and QCAI are solutions to a problem where no solutions previously existed. They are a starting point on the exploration of the development of a quality culture in library and information services. The design science research process takes a 'wicked problem' and by producing a solution, improves the scoping of the problem so that it can then be addressed through theory development or testing in the quantitative or qualitative paradigms. Design science outcomes are a method of changing the representation of the concepts to make evident what was previously obscure, and to stimulate new ways of thinking. It is the job of others to follow with studies into how well such representations perform. It is analogous to the difficulties felt when faced with a blank sheet of paper when creating a document; it is much easier to be presented with a draft and wield a red pen. Through the development of the artefacts in this research, the previously unknown and unexplored country called 'quality culture' now has documented features and described paths. If some of those features

turn out to be akin to 'Here be Dragons', then at least this first map gave future explorers a starting point.

7.3 Reflections on the Research

The aim of this research was to produce a new representation of the concept of quality culture that facilitated engagement by directors of academic LIS. In particular the new representation would: enable the director of any academic LIS to assess their location on a roadmap to a culture of quality; guide them as to the next step forwards; enable them to measure their progress over time; and enable them to compare themselves to others and so learn from each other. This research has achieved these aims through the fulfilment of the objectives.

The objectives of this research are to:

1. Develop and characterise a model of the evolution of a culture of quality.
2. Produce an instrument to enable an academic LIS to self-assess their quality maturity level.
3. Evaluate the research in order to demonstrate that the artefacts produced have helped directors of academic LIS engage with the idea of developing a quality culture.

The first of these objectives has been achieved through the production of the Quality Maturity Model, which characterises a culture of quality as comprising eight facets made up of 42 practice areas, and evolving through five levels of maturity. The QMM consists of a rubric for each of the practice areas at each of the maturity levels.

The second objective has been achieved through the production of the Quality Culture Assessment Instrument and associated instructions and guidance. The QCAI is a self-assessment tool that is freely available to any LIS and can be implemented using any online survey tool. It uses an aggregation of responses from LIS staff to determine the LIS' location on the QMM without the need for 'expert' intervention.

The third objective has been partially achieved. Interviews with the two directors of academic LIS where the QMM and QCAI were demonstrated provided evidence that these artefacts had helped them engage with the idea of quality culture. The QMM changed how they conceived of 'quality', introducing the idea that elements such as the organisational structure have an impact. The existence of the QCAI as a free off-the-shelf yet customisable tool meant that they were now planning to undertake an assessment of their quality culture where before they had dismissed such an assessment as unjustifiably expensive. Undertaking the assessment challenged the assumption and perceptions of the directors about how their staff feel about the quality of the LIS. It also brought insight into the internal variations in culture across the service. Undertaking the assessment also had an impact on the respondents' engagement with the idea of quality culture "the questions themselves start a thought process". These last three points were not envisaged at the inception of this research.

There is also unsolicited evidence from other academic LIS that they wish to use the QMM and QCAI to assess their quality culture.

However, such an evaluation is neither comprehensive nor robust in demonstrating that the QMM and QCAI help academic LIS directors engage with quality culture concepts. To demonstrate this it would be necessary to determine a LIS director's level of engagement with quality culture before they had interacted with the QMM, and then again after they had undertaken an assessment of their LIS. However, this requires a method of assessing the level of engagement with quality issues; such a method does not exist. It is actually a similar 'wheel within a wheel' that instigated the current research in the first place – trying to determine whether benchmarking has improved the quality culture of a library required a method of assessing the quality culture, and there was no such method. There is now.

To demonstrate the same effect on the whole L&IS community there should have been a 'before and after' assessment of the level of engagement with issues of quality culture. However, this is not possible as it would necessitate going back in

time to the very start of this PhD research in order to make the 'before' assessment.

7.4 Limitations and Further Research

As would be expected at the beginning of exploration in a research area, there are a large number of areas for further research on this topic.

As was touched upon in the informal testing of the QCAI (section 6.2.3), some organisations may be operating below the base level (Level 1) of the QMM. This is consistent with anecdotal evidence from a number of researchers in the field of performance measurement and assessment in libraries, including the author. It is also the case in other business areas, as described in Tom Schorsch's tongue-in-cheek article about maturity levels 0 to -3. The existence, nature and usefulness of Level 0 require further research.

Further research is needed into the application of the QMM and QCAI to large multi-functional services incorporating more than the traditional LIS. Although the 'case study' LIS included two converged services, incorporating Library and computing functions, the artefacts were only tested on a traditional library services. In addition, between the initial data collection at case study LIS and the testing of the artefacts seven years elapsed. During this time the landscape of HE LIS has changed, with a significant number now incorporating services such as study skills and language support, disability support, wider (non-student-facing) IT services and other 'odds and ends' that have been gathered under a broad 'learning and research support' umbrella. It is not know whether the QMM and QCAI will broadly apply to such non-LIS services, but at the very least the language and concepts used would need to be amended.

As the QCAI has only been demonstrated in two LIS there are no data on the psychometric properties, such as reliability, construct validity and content validity. Further research is necessary to demonstrate that the instrument is reliable and valid. The author does not recommend that factor analysis be undertaken, as the whole purpose of the instrument is to locate a LIS on the QMM where the factors of quality are expanded rather than reduced.

Research is also needed into which quality improvement tools help a LIS move from one level to the next in a particular practice area. The pilot project for this research suggested that some tools were suited for LIS at a particular maturity stage, but not those below. Such a menu of improvement tools is very high up the wish list from practitioners who have been exposed to the QMM. Related to this, although this research has demonstrated that the QMM, in conjunction with the QCAI, functions as a roadmap to enable practitioners to assess where they are, it has not been demonstrated that it helps practitioners to identify where they should be heading.

Finally, the ultimate output of this research would be an increase in the number of LIS directors who are actively engaging with issues of the quality of their service and how they can improve it. Further research is necessary in order to demonstrate this has occurred and so prove the QMM and QCAI have provided a solution to the research problem. As indicated in Section 7.3, such research is non-trivial as it requires the creation of an assessment tool to measure levels of engagement. As such is outside the scope of this PhD and it is left to future researchers.

7.5 Final Thoughts

Undertaking a PhD is a journey, a learning process about what it means to be a researcher in your chosen field. Much of my learning is documented in this thesis, both directly as learning about the research area, and indirectly, as evidenced by appropriate application of research tools and techniques.

I have also learnt a great many things during the course of this PhD that are not documented in this thesis. In no particular order, I have learnt that transcribing interviews takes a very, very long time; that working at the university you are studying at means that work always eats into research time; that working fulltime while undertaking a PhD is difficult; and that working fulltime with a small child while undertaking a PhD is impossible.

Chapter 7: Conclusions

I have learnt that the L&IS community are extremely generous with their time, interest and enthusiasm; that quality is of interest to everyone in whatever industry; and that sometimes it really is the case that no-one has done it before.

I have learnt that the epistemology and ontology of research methods are fascinating, and that to be conversant with qualitative, quantitative and design research paradigms is unusual.

Finally, I have learnt that I love being a practising Librarian, and that undertaking research is all consuming, but worth it.

REFERENCES

- Ahern, D.M., Clouse, A. and Turner, R. (2001) *CMMI Distilled: A Practical Introduction to Integrated Process Improvement*, Boston: Addison-Wesley Professional.
- Atkinson, P.E. (1990) *Creating Culture Change: The Key to Successful Total Quality Management*, Kempston: IFS.
- Bazeley, P. (2007) *Qualitative Data Analysis with NVivo*, 2ed ed., London: Sage.
- Barroso, J., Gollop, C.J., Sandelowski, M., Meynell, J., Pearce, P.F. and Collins, L.J. (2003) 'The Challenges of Searching for and Retrieving Qualitative Studies', *Western Journal of Nursing Research*, 25(2), pp.153-178.
- Beckford, J. (1998) *Quality: A Critical Introduction*, London: Routledge.
- Beckford, J.L.W. (2010) *Quality: A Critical Introduction*, 3rd ed., London: Routledge.
- Bertziss, A.T. (2002) 'Capability Maturity For Knowledge Management', *Proceedings of the 13th International Workshop on Database and Expert Systems Applications, 2-6 Sept. 2002*, IEEE, pp.162-166.
- Bevan, N. (2005) Conversation with Frankie Wilson, 12th October.
- Brown, J.D. (1903) *Manual of Library Economy*, 6th ed. by W.C. Berwick Sayers (1949). London: Grafton.
- Birmingham, R., Cleland, G., Driver, R. and Maffin, D. (1997) *Understanding Engineering Design: Context, Theory and Practice*, London: Prentice Hall.
- Blumer, H. (1960) *Symbolic Interactionism: Perspective and Method*, Englewood Cliffs, NJ: Prentice-Hall.

Booth, A. (2003) 'Bridging the Research-Practice Gap? The Role of Evidence Based Librarianship', *The New Review of Information and Library Research*, 9(1), pp.3-23.

Booth, A. and Brice, A., (eds.) (2004) *Evidence-Based Practice for Information Professionals: A Handbook*. London: Facet Publishing.

Bradburn, N., Sudman, S. and Wansink, B. (2004) *Asking Questions: The Definitive Guide to Questionnaire Design – For Market Research, Political Polls, and Social and Health Questionnaires*, rev. ed., San Francisco: Jossey-Bass.

Broady-Preston, J., Felice, J. and Marshall, S. (2006) 'Building Better Customer Relationships: Case Studies From Malta and the UK', *Library Management*, 27(6/7), pp.430-445.

Broady-Preston, J. and Preston, H. (1999) 'Demonstrating Quality in Academic Libraries', *New Library World*, 100(3), pp.124-129.

Brockman, J.R. (1992) 'Just Another Management Fad? The Implications of TQM for Library and Information Services'. *ASLIB Proceedings*, 44(7/8), pp. 283-288.

Brophy, P. and Coulling, K. (1996) *Quality Management for Information and Library Managers*. Aldershot: Aslib Gower.

Bryant, A. and Charmaz, K. (2007a) 'Grounded Theory in Historical Perspective: An Epistemological Account', In A. Bryant & K. Charmaz (Eds) *The Sage Handbook of Grounded Theory*. London: Sage.

Bryant, A. and Charmaz, K. (Eds) (2007b) *The Sage Handbook of Grounded Theory*. London: Sage.

Bryman, A. (2012) *Social Methods Research*, 4th ed., Oxford: Oxford University Press.

Burnett, S. (2001) 'Why I Quit The NHS ... Continued', *Daily Mail* (London), 19th December. Available from: <http://www.dailymail.co.uk/health/article-90793/Why-I-quit-NHS--continued.html> (Accessed 22 January 2013).

Butler, L.P. (1933) *An Introduction to Library Science*. Chicago: University of Chicago Press.

Camp, R.C. (1989) *Benchmarking: The Search for Industry Best Practices That Lead to Superior Performance*. Milwaukee, Ill.: American Society for Quality Control Press.

Cao, J., Crews, J.M., Lin, M., Deokar, A., Burgoon, J.K. and Nunamaker, J.F. (2006) 'Interactions Between System Evaluation and Theory Testing: A Demonstration of the Power of a Multifaceted Approach to Information Systems Research', *Journal of Management Information Systems*, 22(4), pp. 207-235.

Capers Jones, T. (1993) *Assessment and Control of Software Risks*, New Jersey: Prentice Hall.

Ceynowa, K. (2000) 'Managing Academic Information Provision with the Balanced Scorecard: A Project of the German Research Association', *Performance Measurement and Metrics*, 1(3), pp.157-164.

Charmaz, K. (2006) *Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis*, London: Sage.

Childs, S. and Dobbins, S. (2003) 'The Research-Practice Spiral', *VINE*, 33(2), pp.51-64.

Chua, W.F. (1986) 'Radical Developments in Accounting Thought', *The Accounting Review*, 61(4), pp.601-632.

Clutterbuck, D. and Crainer, S. (1990) *Makers of Management: Men and Women who Changed the Business World*, London: Macmillan.

Clyde, L.A. (2006) 'The Basis for Evidence-Based Practice: Evaluating the Research Evidence', *New Library World*, 107(5/6), pp.180-192.

Converse, J.M. and Presser, S. (1986) *Survey Questions: Handcrafting the Standardized Questionnaire*, Thousand Oaks, CA: Sage.

Conyers, A. and Payne, P. (2004) 'Making and Impact: The SCOUNL/LIRG Measuring Impact Initiative', *SCOUNL Focus*, 31, pp.24-25.

Cook, C. and Heath, F. (2002) 'The ARL "LibQUAL+" Pilot Project', *Journal of Library Administration*, 35(4), pp.47-53.

Cook, C., Heath, F. and Thompson, B. (2002) 'Libqual+', *Journal of Library Administration*, 35(4), pp.41-46.

Cook, C. and Thompson, B. (2000) 'Higher-Order Factor Analytic Perspectives on Users' Perceptions of Library Service Quality', *Library & Information Science Research*, 22(4), p.393-404.

Corbin, J. and Strauss, A. (2008) *Basics of Qualitative Research*, 3rd ed., Thousand Oaks, CA: Sage.

Corrall, S. (1996) 'Total Quality Management (TQM)', in: B. Knowles, ed, *Routes to Quality: Proceedings of the Conference held at Bournemouth University 29-31 August 1995*. Bournemouth: Bournemouth University Library & Information Services, pp.42-54.

Cotta-Schonberg, M. (1995) 'Performance Measurement in the Context of Quality Management', *Proceedings of the Northumbria International Conference on Performance Measurement in Libraries and Information Services*. Newcastle-upon-Tyne: Information North, pp.51-62.

Craghill, D. and Wilson, T.D. (1987) *The Impact of Information Research*. British Library Research Paper 20. Sheffield: Department of Information Studies, University of Sheffield.

Crosby, P. (1979) *Quality is Free*, New York: Mentor.

Cross, N. (1994) *Engineering Design Methods: Strategies for Product Design*, 2nd ed., Chichester: Wiley.

Cullen, R. (1999) 'Does Performance Measurement Improve Organizational Effectiveness? A Postmodern Analysis. *Performance Measurement and Metrics*, 1(1), pp.9-30.

Cullen, R. and Calvert, P. (1996) 'New Zealand University Libraries Effectiveness Project: Dimensions and Concepts of Organizational Effectiveness', *Library & Information Science Research*, 18, pp.99-119.

Curtis, B., Hefley, W.E. and Miller, S. (2002) *The People Capability Maturity Model: Guidelines for Improving the Workforce*, London: Addison-Wesley.

Curtis, B and Paulk, M. (1993) 'Creating a software process improvement program', *Information and Software Technology*, 35(6/7), pp.381-386.

Czaja, R. and Blair, J. (2005) *Designing Surveys: A Guide to Decisions and Procedures*, 2nd ed., Thousand Oaks, CA: Pine Forge Press

Deal T. E. and Kennedy, A. A. (2000) *Corporate Cultures: The Rites and Rituals of Corporate Life*, Cambridge, Mass., Perseus Books.

Deming, W.E. (1986) *Out of the Crisis: Quality, Productivity and Competitive Position*, Cambridge: Cambridge University Press.

Deming, W.E. (2000) *Out of the Crisis*, Cambridge, Mass.: MIT Press.

De Vaus, D. (2002) *Surveys in Social Research*, 5th ed., London: Routledge.

Dey, I. (1993) *Qualitative Data Analysis: A User Friendly Guide for Social Scientists*. London: Routledge.

Dey, I. (2007) 'Grounding Categories'. In A. Bryant and C. Charmaz, *The Sage Handbook of Grounded Theory*, London: Sage, pp.167-190.

Dieter, G.E. (2000) *Engineering Design: A Materials and Processing Approach*, 3rd ed., Boston: McGraw-Hill.

Dixon-Woods, M., Cavers, D., Agarwal, S., Annandale, E., Arthur, A., Harvey, J., Hsu, R., Katbamna, S., Olsen, R., Smith, L., Riley, R., and Sutton, A.J. (2006) 'Conducting a Critical Interpretive Synthesis of the Literature on Access to Healthcare by Vulnerable Groups', *BMC Medical Research Methodology*, 6, pp. 35-47.

Dixon-Woods, M., Shaw, R.L., Agarwal, S. and Smith, J.A. (2004) 'The Problem of Appraising Qualitative Research', *Quality & Safety in Health Care*, 13, pp.223-225.

Dhillon, B.S. (1996) *Engineering Design: A Modern Approach*, Chicago: Irwin.

Drucker, P. F. (1985) *Innovation and Entrepreneurship: Practice and Principles*, London: Heinemann□

Durrance, J.C. and Fisher-Pettigrew, K.E. (2002) 'Towards Developing Measures of the Impact of Library and Information Services', *Reference & User Services Quarterly*, 42(1), pp.43-53.

Dykstra Lynch, M. and Wilson, T. (1997) *The Impact of Doctoral Research in Information Science and Librarianship*. British Library Research and Innovation Report 61. London: British Library Research and Innovation Centre.

Eekels, J. and Roozenburg, N.F.M. (1991) 'A Methodological Comparison of the Structures of Scientific Research and Engineering Design: Their Similarities and Differences', *Design Studies*, 12(4), pp.197-203.

Eldredge, J. (2004) 'How good is the Evidence Base? In: A. Booth and A. Brice (eds.) *Evidence-Based Practice for Information Professionals: A Handbook*. London: Facet Publishing, pp.36-48.

Encyclopædia Britannica Online. Melvil Dewey 2012. Available at: <http://www.britannica.com/EBchecked/topic/160471/Melvil-Dewey> [Accessed: 9th February 2012].

Eve, J. and Schenk, N. (2006) 'Research and Practice: Findings from the Interactions Project', *Library and Information Research*, 30(96), pp.36-46.

Feather, J. and Sturges, P. (2003) 'Preface'. In: J Feather and P. Sturges (eds.) *International Encyclopedia of Information and Library Science*. 2nd ed. London: Routledge, pp.XVII- XX.

Feigenbaum, A.V. (1961) *Total Quality Control*, New York: McGraw-Hill.

Fink, A. (1995) *How To Design Surveys*, Thousand Oaks, CA: Sage.

Fink, A. (1995) *The Survey Handbook*, Thousand Oaks, CA: Sage.

Foddy, W. (1993) *Constructing Questions for Interviews and Questionnaires: Theory and Practice in Social Research*, Cambridge: Cambridge University Press.

Follett, B. (1993) *Joint Funding Councils' Libraries Review Group: Report*. Bristol: Higher Education Funding Council for England.

Ford, G. (1989) 'A Perspective on Performance Measurement', *International Journal of Information and Library Research*, 1(1), pp.12-23.

Fowler, F.J. (2002) *Survey Research Methods*, 3rd ed., Thousand Oaks, CA: Sage.

Garrod, P. and Kinnell, M. (1997) Benchmarking development needs in the LIS sector, *Journal of Information Science*, 23(2), p.111-118.

Genoni, P., Haddow, G., and Ritchie, A. (2004) 'Why don't Librarians Use Research?', in Booth, A. and Brice, A. (eds.) *Evidence-based Practice for Information Professionals: A Handbook*, London: Facet Publishing.

Glaser, B. (1992). *Emergence vs Forcing: Basics of grounded theory analysis*. Mill Valley, CA: Sociology Press.

Glaser, B.G. (1998) *Doing Grounded Theory: Issues and Discussions*. Mill Valley, CA: Sociology Press.

Glaser, B. (2007) 'Doing Formal Theory'. In A. Bryant and C. Charmaz, *The Sage Handbook of Grounded Theory*, London: Sage, pp.97-113.

Glaser, B.G. and Strauss, A.L. (1967) *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Chicago: Aldine

Glaser, B.G. and Strauss, A.L. (1971) *Status Passage*. London: Routledge and Kegan Paul.

Glass, R.L. (1999) 'The Loyal Opposition: On Design', *IEEE Software*, 16(2), pp.104-103.

Goodall, D. (1988) 'Performance Measurement: A Historical Perspective', *Journal of librarianship*, 20(2), pp.128-144.

Gregg, D.G., Kulkarni, U.R. and Vinze, A.S. (2001) 'Understanding the Philosophical Underpinnings of Software Engineering Research in Information Systems', *Information Systems Frontiers*, 3(2), pp. 169-183.

Gregor, S. (2006) 'The Nature of Theory in Information Systems', *MIS Quarterly*, 30(3), pp.611-642.

Gregory, S.A. (1966) *The Design Method*. London: Butterworths.

Gross, E. J. (1964) 'The effect of question sequence on measures of buying interest', *Journal of Advertising Research*, 4, pp.40-41.

Haddow, G. and Klobas, J.E. (2003) 'Communication of Research to Practice in Library and Information Science: Closing the Gap', *Library and Information Science Research*, 26, pp.29-43.

Hakim, C. (1983) 'Research Based on Administrative Records', *Sociological Review*, 31(3), pp.489-519.

Hamilton, M.B. (2009) *Online Survey Response Rates and Times: Background and Guidance for Industry*. Available from:
www.supersurvey.com/papers/supersurvey_white_paper_response_rates.pdf
Accessed 15 July 2013.

Harris, M.H. (1995) *History of Libraries in the Western World*. 4th ed. Metuchen, N.J.: The Scarecrow Press.

Hendrick, C. and Hendrick, S. (1986) 'A Theory and Method of Love', *Journal of Personality and Social Psychology*, 50(2), pp.392-402.

Hevner, A.R. and Chatterjee, S. (2010) *Design Science Research in Information Systems*, New York, NY: Springer.

Hevner, A.R., March, S.T., Park, J. and Ram, S. (2004) 'Design Science in Information Systems Research', *MIS Quarterly*, 28(1), pp. 75-105.

Higgins, J.P.T. and Green, S. (eds.) (2011) *Cochrane Handbook for Systematic Reviews of Interventions*, version 5.1.0 [updated March 2011]. The Cochrane Collaboration. Available from: <http://www.cochrane-handbook.org> (Accessed 12 September 2012).

Hiller, S. and Self, J. (2004) *Making Library Assessment Work: Practical Approaches for Developing and Sustaining Effective Assessment*. Proposal for ARL Visiting Program Officers. Available from: <http://www.libqual.org/documents/admin/VPOHillerSelf.pdf> (Accessed 20 December 2012).

Holton, J.A. (2007) 'The Coding Process and its Challenges'. In A. Bryant and C. Charmaz, *The Sage Handbook of Grounded Theory*, London: Sage, pp.265-290.

Holzner, B. and Marx, J.H. (1979) *Knowledge Application: The Knowledge System in Society*. Boston: Allyn and Bacon Inc.

Hoyle, D. (1998) *ISO 9000: Quality Systems Handbook*, 3rd ed. Oxford: Butterworth-Heinemann.

Hradsky, J. (1995) *Total Quality Management Handbook*, New York: McGraw-Hill.

Humphrey, W.S. (1989) *Managing the Software Process*, Reading, Mass: Addison-Wesley.

Hutchins, D. (1992) *Achieve Total Quality*, Hemel Hempstead: Director books.

Jarratt, A. (1985) Report of the Steering Committee for Efficiency Studies in Universities. London: Committee of Vice-Chancellors and Principals.

Jarvinen, P. (2007) 'Action Research is Similar to Design Science', *Quality & Quantity*, 41(1), pp.37-54.

Jefferies, D., Reynolds, P. and Evans, B. (1996) *Training for Total Quality Management*. 2nd ed. London: Kogan Page.

Joint Funding Councils (1995) *The Effective Academic Library : A Framework for Evaluating the Performance of UK Academic Libraries : A Consultative Report to the HEFCE, SHEFC, HEFCW and DENI by the Joint Funding Councils' Ad-hoc Group on Performance Indicators for Libraries*. Bristol: HEFCE.

Jubb, M. (2010) *Review of the Work of the LIS Research Coalition*. Presentation at LISRC10. Available at: <http://lisresearch.org/conference-2010/review-of-the-work-of-the-lis-research-coalition-presentation-at-lisrc10-by-michael-jubb/> [Accessed 8th October 2010].

Juran, J.M. (1988) *Juran on Planning for Quality*, New York: Free Press.

Johnson, G. and Scholes, K. (2002) *Exploring Corporate Strategy: Text and Cases*, 6th ed., Harlow: Financial Times Prentice Hall.

Jurow, S. and Barnard, S. (1993) *Integrating Total Quality Management in a Library Setting*. New York: Haworth Press.

Kaplan, R.S. and Norton, D.P. (1996) *The Balanced Scorecard*. Boston, Mass: Harvard Business School.

Karloff, B. and Ostblom, S. (1993) *Benchmarking: A Signpost to Excellence in Quality and Productivity*. Chichester: Wiley.

Kelle, U. (2007) 'The Development of Categories: Different Approaches in Grounded Theory'. In A. Bryant and C. Charmaz, *The Sage Handbook of Grounded Theory*, London: Sage, pp.191-213.

Kerzner, H. (2005) *Using The Project Management Maturity Model: Strategic Planning for Project Management*, 2nd ed., Hoboken, N.J.: Wiley.

Kinnell, M. and Garrod, P. (1995) 'Benchmarking and its Relevance to the Library and Information Sector: Interim Findings of 'Best Practice Benchmarking in the Library and Information Sector', a British Library Research and Development Department Project', *Proceedings of the Northumbria International Conference on Performance Measurement in Libraries and Information Services*. Newcastle-upon-Tyne: Information North, pp.159-171.

Koch, R. (1991) *The Natural Laws of Business: How to Harness the Power of Evolution, Physics, and Economics to Achieve Business Success*, New York: Doubleday.

Kvale, S. and Brinkmann, S. (2009) *Interviews: Learning the Craft of Qualitative Research Interviewing*, 2nd ed. Thousand Oaks, Ca: Sage.

Kyrillidou, M. (1998) *An Overview of Performance Measurement in Higher Education and Libraries*. [online]. Available at: <http://www.arl.org/newsltr/197/overview.html> [Accessed 26 September 2002].

Lancour, H. (1951) 'Training for Librarianship in North America', *Library Association Record*, (Sept.), pp.280-284.

Lincoln, Y.S. and Guba, E.G. (1985) *Naturalistic Inquiry*. London: Sage.

Lock, S.A. (2004) 'Update on LibQUAL+ 2004: The International Satisfaction Survey Instrument', *SCONUL Focus*, 31, pp.22-23.

Lock, S.A. and Town, J.S. (2005) 'LibQUAL+ in the UK and Ireland: Three Years Findings and Experience', *SCONUL Focus*, 35, pp.41-44.

Lynam, P., Slater, M. and Walker, R. (1982) *Research and the Practitioner: Dissemination of Research Results Within the Library-Information Profession*. Aslib Occasional Publication 27. London: Aslib.

M25 Consortium of Academic Libraries (2007) *Mission, Strategic Objectives and Action Plan 2007/08*, Available from:
www.m25lib.ac.uk/documents/m25...action_plan/download.html [Accessed 23rd February 2008].

March, S.T. (1984) 'The Logic of Design' in N. Cross, ed., *Developments in Design Methodology*, Chichester: Wiley.

March, S.T. and Smith, G.F. (1995) 'Design and Natural Science Research on Information Technology', *Decision Support Systems*, 15, pp. 251-266.

Markless, S. and Streatfield, D. (2006) *Evaluating the Impact of Your Library*, London: Facet Publishing.

Markus, M.L., Majchrzak, A. and Gasser, L. (2002) 'A Design Theory for Systems That Support Emergent Knowledge Processes', *MIS Quarterly*, 26(3), pp.179-212.

Martin, L.A. (1974) 'Commentary', *Library Trends*, 22(3), pp.403-413.

Martyn, J. and Cronin, B. (1983) 'Assessing the Impact and Benefits of Information and Library Research', *Journal of Documentation*, 39(3), pp.171-191.

May, K.M. (1994) 'Abstract Knowing: The Case for Magic in Method', in: J.M. Morse (ed.) *Critical Issues in Qualitative Research Methods*. Thousand Oaks, CA: Sage, pp. 11-21.

May, T. (2011) *Social Research: Issues, Methods and Process*. 4th edn. Buckingham: Open University Press.

McClure, C. and Bishop, A. (1989) 'The Status of Research in Library/Information Science: Guarded Optimism', *College and Research Libraries*, 50(2), pp.127-143.

McKnight, S. (2009) 'Bridging the Gap Between Service Provision and Customer Expectations', *Performance Measurement and Metrics*, 10(2), pp.79-93.

McMenemy, D. (2010) 'Fostering a Research Culture in UK Library Practice: Barriers and Solutions', *Library Review*, 59(5), pp.321-324.

McNicol, S. and Nankivell, C. (2003) *The LIS Research Landscape: A review and Prognosis*, Birmingham: Centre for Information Research. Available from: http://www.ebase.bcu.ac.uk/cirtarchive/projects/past/LISlandscape_final%20report.pdf [Accessed 7th October 2010].

Miles, M.B. and Huberman, A.M. (1994) *Qualitative Data Analysis: An Expanded Sourcebook*. 2nd ed, Thousand Oaks, Ca: Sage.

Morgan, S. (1995) *Performance Assessment in Academic Libraries*. London: Mansell.

Noblit, G., and Hare, R. (1988) *Meta-Ethnography: Synthesising Qualitative Studies*. Newbury Park, CA: Sage.

Oakland, J.S. (1989) *Total Quality Management: Text With Cases*, Oxford: Heinemann Professional.

Oakland, J.S. (1993) *Total Quality Management: The route to Improving Performance*. 2nd ed. Oxford: Butterworth Heinemann.

Oakland, J.S. (1995) *Total Quality Management: Text With Cases*, 2nd ed. Oxford: Butterworth Heinemann.

Oakland, J.S. (2003) *Total Quality Management: Text With Cases*, 3rd ed. Oxford: Butterworth Heinemann.

Oakleaf, M. (2010) *The Value of Academic Libraries: A Comprehensive Research Review and Report*, Chicago: Association of College and Research Libraries. Available from www.acrl.ala.org/value.

Ohno, T. (1988) *Toyota Production Systems: Beyond Large-Scale Production*, Cambridge, Mass: Productivity Press.

Oppenheim, A. (1992) *Questionnaire design, interviewing and attitude measurement*. London: Cassell.

Oppenheim, C. (1995) 'The Correlation Between Citation Counts and the 1992 Research Assessment Exercise Ratings for British Library and Information Science Departments', *Journal of Documentation*, 51(1), pp. 18-27.

Orlikowski, W.J. and Baroudi, J. (1991) 'Studying Information Technology in Organizations: Research Approaches and Assumptions', *Information Systems Research*, 2(1), pp.1-28.

Orr, R.H. (1973) 'Measuring the Goodness of Library Services: A General Framework for Considering Quantitative Measures', *Journal of Documentation*, 29(3), pp.315-332.

Oxford English Dictionary (1989) Oxford: Clarendon.

Pahl, G. and Beitz, W. (1996) *Engineering Design: A Systematic Approach*, 2nd ed., London: Springer.

Parasuraman, A., Berry, L.L. and Zeithaml, V.A. (1988) 'SERVQUAL: A Multiple-Item Scale for Measuring Customer Perceptions of Service Quality', *Journal of Retailing*, 64(1), pp.12-40.

Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1985) 'A Conceptual Model of Service Quality and its Implications for Future Research', *Journal of Marketing*, 49, pp.41-50.

Patton, M.Q. (2002) *Qualitative Research and Evaluation Methods*, 3rd ed., Thousand Oaks, CA: Sage.

Paulk, M.C. (1999) 'Practices of high maturity organizations', *Proceedings of the 1999 Software Engineering Process Group (SEPG) Conference, Atlanta, Georgia, 8-11 March 1999*.

Paulk, M.C., Weber, C.V., Garcia, S.M., Chrissis, M.B. and Bush, M. (1993) *Key Practices of the Capability Maturity Model, Version 1.1*, CMU/SEI-93-TR-025, Pittsburgh: Software Engineering Institute.

Peppers, K., Tuunanen, T., Rothenberger, M.A., and Chatterjee, S. (2008) 'A Design Science Research Methodology for Information Systems Research', *Journal of Management Information Systems*, 24(3), pp.45-77.

Perkins, D. (1981) *The Mind's Best Work*. Cambridge, MA: Harvard University Press.

Pienaar, H. and Penzhorn, C. (2000) 'Using the Balanced Scorecard to Facilitate Strategic Management at an Academic Information Service', *Libri*, 50(3), pp.202-209.

Pike, J. and Barnes, R. (1994) *TQM In Action: A Practical Approach To Continuous Performance Improvement*, London: Chapman & Hall.

Pizer, I.M. and Cain, A.M. (1968) 'Objective Tests of Library Performance', *Special Libraries*, 59, pp.704-711.

Poll, R. (2001) 'Performance, Processes and Costs: Managing Service Quality with the Balanced Scorecard', *Library Trends*, 49(4), pp.709-717.

Poll, R. and Payne, P. (2006) 'Impact Measures for Libraries and Information Services', *Library Hi Tech*, 24(4), pp.547-562.

Ponti, M. (2008) 'A LIS Collaboratory to Bridge the Research-Practice Gap', *Library Management*, 29(4/5), pp.265-277.

Pors, N.O. (2003) 'Library Education' in: J Feather and P. Sturges (eds.) *International Encyclopedia of Information and Library Science*. 2nd ed. London: Routledge, pp.381-383.

Pors, N.O., Dixon, P. and Robson, H. (2004) 'The Employment of Quality Measures in Libraries: Cultural Differences, Institutional Imperatives and Managerial Profiles', *Performance Measurement and Metrics*, 5(1), pp.20-27.

Purao, S. (2002) *Design Research in the Technology of Information Systems: Truth or Dare*, GSU Department of CIS Working Paper. Available from: purao.ist.psu.edu/working-papers/dare-purao.pdf [Accessed 24 February 2007].

Queioz, G. and Bruno, N. (1995) 'Building a Culture of Continuous Improvement', *Proceedings of the Northumbria International Conference on Performance Measurement in Libraries and Information Services*. Newcastle-upon-Tyne: Information North, pp.147-151.

Radice, R.A., Harding, J.T., Munnis, P.E. and Phillips, R.W. (1985) 'A Programming Process Study', *IBM Systems Journal*, 24(2), pp.91-101.

Reichertz, J. (2007) 'Abduction: The Logic of Discovery of Grounded Theory'. In A. Bryant and C. Charmaz, *The Sage Handbook of Grounded Theory*, London: Sage, pp.214-228.

Research Information Network and SCONUL (2010) *Challenges for Academic Libraries in Difficult Economic Times: A Guide for Senior Institutional Managers and Policy Makers*. Available from www.rin.ac.uk/challenges-for-libraries.

Accessed 28 May 2011.

Richardson, J. (2010) 'History of American Library Science: Its Origins and Early Development', in Maack, M.N. and Bates, M. (eds.) *Encyclopedia of Library and Information Science*, 3rd ed. New York: CRC Press. vol. 5, pp 3440-3448.

Rittel, H.W. and Webber, M.M. (1973) 'Dilemmas in a General Theory of Planning', *Policy Sciences*, 4(2), pp. 155-169.

Roberts, S. and Rowley, J. (2004) *Management Concepts for Information Professionals*, London: Facet Publishing.

Rothstein, S. (1964) 'The Measurement and Evaluation of Reference Services', *Library Trends*, 12(3), pp.456-472.

Rubin, R.J. (2006) *Demonstrating Result: Using Outcome Measurement in Your Library*, Chicago: American Library Association.

Rubin, H.J. and Rubin, I.S. (2012) *Qualitative Interviewing: The Art of Hearing Data*, 3rd ed. Thousand Oaks, Ca: Sage.

Sandelowski, M., Docherty, S. and Emden, C. (1997) 'Qualitative Metasynthesis: Issues and Techniques', *Research in Nursing and Health*, 20, pp.365-371.

Sapp, G., and Gilmour, R. (2003). 'A Brief History of the Future of Academic Libraries: Predictions and Speculations from the Literature of the Profession, 1975 to 2000--part two, 1990 to 2000', *portal: Libraries and the Academy*, 3(1), pp.13-34.

Sapsford, R. (2007) *Survey Research*, 2nd ed., London: Sage.

Schein, E. H. (2010) *Organizational Culture and Leadership*, 4th ed., San Francisco: Jossey-Bass.

Schorsch, T. (1996) 'The Capability Im-Maturity Model (CIMM)', *US Air Force CrossTalk Magazine*. Available from: <http://www.grisha.ru/cmm/cimm.htm>
Accessed 18th October 2012.

Schuman, H. and Presser, S. (1981) *Questions and answers in attitude surveys*, New York: Academic Press.

Schwandt, T.A. (1996) 'Farewell to Criteriology', *Qualitative Inquiry*, 2(1), pp.58-72.

Scott, J. (1990) *A Matter of Record: Documentary Sources in Social Research*. Cambridge: Polity Press.

Seale, C. (2002) 'Quality Issues in Qualitative Inquiry', *Qualitative Social Work*, 1(1), pp.97-110.

Self, J. (2003) 'From Values to Metrics: Implementation of the Balanced Scorecard at a University Library', *Performance Measurement and Metrics*, 4(2), pp.57-63.

Self, J. (2004) 'Metrics and Management: Applying the Results of the Balanced Scorecard', *Performance Measurement and Metrics*, 5(3), pp.101-105.

Shaughnessy, T.W. (1993) 'Benchmarking, total quality management and libraries', *Library administration and management*, 7(1), pp. 7-12.

Shingo, S. (1987) *The Sayings of Shingo Shingo*, Translated by A.P. Dillon, Portland, OR : Productivity Press.

Sila, I. and Ebrahimpour, M. (2002) 'An investigation of the total quality

management survey based research published between 1989 and 2000', *International Journal of Quality & Reliability Management*, 19(7), pp. 902-970.

Simon, H.A. (1969) *The Sciences of the Artificial*, Cambridge. Mass: MIT Press.

Simon, H.A. (1996) *The Sciences of the Artificial*, 3rd ed. Cambridge, Mass: MIT Press.

Software Engineering Institute (2003) *Capability Maturity Model (SW-CMM) for software*. Available from <http://www.sei.cmu.edu/cmm/cmm.sum.html> [Accessed 22 September 2003].

St. Clair, G. (1997) *Total Quality Management in Services*. London: Bowker Saur.

Strauss, A.L. and Corbin, J. (1998) *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. 2nd ed. Thousand Oaks, Ca: Sage.

Strack, F., & Martin, L. (1987) 'Thinking, judging, and communicating: A process account of context effects in attitude surveys.' In: H. J. Hippler, N. Schwarz, and S. Sudman (Eds.) *Social information processing and survey methodology*, New York: Springer Verlag, pp.123–148.

Streatfield, D. (2000) *Metamorphosis: Transferring Research into Library and Information, Museums and Archive Practice*, Library and Information Commission Report 66. London: Library and Information Commission.

Stuart, C. and Drake, M.A. (1993) 'TQM in Research Libraries', *Special Libraries*, 84(2), pp.131-136.

Sudman, S. and Bradburn, N. (1982) *Asking questions: a practical guide to questionnaire design*. San Francisco: Jossey-Bass.

Sykes, J. (1996) 'Quality Issues in Higher Education: The Library Perspective', in: B. Knowles, ed, *Routes to Quality: Proceedings of the Conference held at Bournemouth University 29-31 August 1995*. Bournemouth: Bournemouth University library & information services, pp.1-14.

Taguchi, G. (1987) *Systems of Experimental Design: Engineering Methods to Optimize Quality and Minimize Costs*, New York: Unipub/Kraus International Publications.

Tan, C., Sim, Y. and Yeoh, W. (2011) 'A Maturity Model of Enterprise Business Intelligenc□□□□ *Communications of the IBIMA*, available from: <http://www.ibimapublishing.com/journals/CIBIMA/2011/417812/a417812.html> [accessed 21st December 2012].

Tang, K. (2012) 'Quality Assurance Improvements in Australian University Libraries', *Proceedings of the 9th Northumbria International Conference of Performance Measurement in Libraries and Information Services: Proving Value in Challenging Times*. York: University of York, pp.91-396.

Tanur, J.M. (1994) *Questions about questions: inquiries into the cognitive bases of surveys*. New York: Russell Sage Foundation.

Tappinos, E., Dyson, R.G. and Meadows, M. (2005) 'The Impact of Performance Measurement Systems in Setting the 'Direction' of the University of Warwick', *Production Planning & Control*, 16(2), pp.189-198.

Tenner, A.R. and De Torro, I.J. (1992) *Total Quality Management: Three Steps To Continuous Improvement*, Wokingham: Addison-Wesley.

Thompson, J. (1991) *Redirection in Academic Library Management*. London: Library Association.

Thompson, B., Cook, C. and Heath, F. (2003) 'Two Short Forms of the LibQUAL+ Survey: Assessing Users' Perceptions of Library Service Quality', *Library Quarterly*, 73(4), pp.453-465.

Totterdell, B. and Bird, J. (1976) *The Effective Library: Report of the Hillingdon Project on Public Library Effectiveness*. London: The Library Association.

Town, J.S. (1995) 'Benchmarking and Performance Measurement', *Proceedings of the Northumbria International Conference on Performance Measurement in Libraries and Information Services*. Newcastle-upon-Tyne: Information North, pp.83-88.

Town, J.S. (1998) 'Performance or Measurement?' *Proceedings of the Northumbria International Conference on Performance Measurement in Libraries and Information Services*. Newcastle-upon-Tyne: Information North, pp.81-88.

Town, J.S. (2000a) 'Benchmarking: Strife, Theft or Communion?' *Proceedings of the Northumbria International Conference on Performance Measurement in Libraries and Information Services*. Newcastle-upon-Tyne: Information North, pp.53-59.

Town, J.S., ed. (2000b) *SCONUL Benchmarking Manual*. London: SCONUL.

Town, J.S. and Kyrillidou, M. (2013) 'Developing a Values Scorecard', *Performance Measurement and Metrics*, 14(1), pp.7-16.

Town, J. S. and Lock, S. (2007) 'LibQUAL+ in the UK and Ireland: five years experience', *Proceedings of the 7th Northumbria International Conference on Performance Measurement in Libraries and Information Services, Stellenbosch, South Africa, CD-ROM*.

Turner, K. (2002) 'The Use of Applied Library and Information Studies (LIS) Research in New Zealand Libraries', *Library Review*, 51(5), pp.230-240

Unknown (1980) 'Corporate Culture: The Hard-To-Change Values That Spell Success Or Failure', *Business Week*, October 27 1980, pp.148-160.

Vaishnavi, V. and Kuechler, W. (2009) *Design Research in Information Systems*, Available from:

<http://ais.affiniscape.com/displaycommon.cfm?an=1&subarticlenbr=279>

[Accessed 14th October 2010].

Venable, J.R. (2006) 'The Role of Theory and Theorising in Design Science Research', *DESRIST 2006, February 24-25, 2006, Claremont, CACGU*.

Venable, J.R. (2010) Design Science Research Post Hevner et al.: Criteria, Standards, Guidelines, and Expectations. In: R. Winter, J.L. Zhao and S. Aier (Eds.) *DESRIST 2010, LNCS 6105*, pp.109-123.

Walls, J.G., Widmeyer, G.R. and El Sawy, O.A. (1992) 'Building an Information System Design Theory for Vigilant EIS', *Information Systems Research*, 3(1), pp.36-59.

Walsh, D. and Downe, S. (2005) 'Meta-Synthesis Method for Qualitative Research', *Journal of Advanced Nursing*, 50(2), pp.204-211.

Warren, C.A.B. (2002) Qualitative Interviewing. In: J.F. Gubrium and J.A. Holstein (Eds.) *Handbook of Interview Research: Context & Method*. Thousand Oaks, Ca: Sage, pp.83-101.

Weinberg, G.M. (1991) *Quality Software Management: Systems Thinking*, New York: Dorset House.

Whitehall, T. (1992) 'Quality in Library and Information Services: a review', *Library Management*, 13(5), pp.23-35.

Williams, D., McConnell, M. and Wilson, K. (1997) *Is There Any Knowledge Out There? The Impact of Research Information on Practitioners*. British Library

Research and Innovation Report 62. London: British Library Research and Innovation Centre.

Williamson, C.C. (1923) *Training for Library Services: A Report Prepared for the Carnegie Corporation of New York*. New York: Merrymount Press.

Williamson, C.C. (1931) 'The Place of Research in Library Service', *Library Quarterly*, 1(1), pp.1-17.

Willis, A. (2004) 'Using the Balanced Scorecard at the University of Virginia Library', *Library Administration and Management*, 18(2), pp.64-67.

Wilson, F. (2004) *The Long-Term Effects of Benchmarking in Academic Library and Information Services*, Unpublished Masters Thesis. University of Bristol.

Wilson, F. (2006) 'What is the Meta Quality of Your Library?' *SCONUL Focus*, 38, pp.85-88.

Wilson, F. and Town, J.S. (2006) 'Benchmarking and Library Quality Maturity'. *Performance Measurement and Metrics*, 7(2), pp.75-82.

Wilson, T.D. (1997) 'Research and Research Strategies in Schools and Departments of Library and Information Studies.' In: J. Elkin and T. Wilson (Eds.) *The Education of Library and Information Professionals in the United Kingdom*. London: Mansell, pp.143-174.

Wood, K. (1997) 'Professional Education: A Historical Overview.' In: J. Elkin and T. Wilson (eds.) *The Education of Library and Information Professionals in the United Kingdom*. London: Mansell, pp.1-30.

Wright, I.C. (1998) *Design Methods in Engineering and Product Design*. London: McGraw-Hill.

Yelland, M. (1972) 'Research in Librarianship.' In: H. Whatley (ed.) *British Librarianship and Information Science, 1966-1970*. London: The Library Association, pp.309-19.

Zeithaml, V.A., Parasuraman, A. and Berry, L.L. (1990) *Delivering Quality Service: Balancing Customers Perceptions and Expectations*, New York: Free Press.

APPENDIX A: Examples of search strategy for Interpretive Synthesis – iteration 1, increment 1.

Database	Web of Knowledge
Accessed via	Brunel University Library
Date searched	17 January 2007
Search string	(Quality OR TQM OR “Total quality management”) = Topic AND (Culture) = Topic
Date range	All years
Output	43,130 results
Refined by	Research Domains = Social Sciences; Arts Humanities.
Output	5,634 results
Refined by	Research Areas = Psychology; Business Economics; Behavioral Sciences; Computer Science; Education Educational Research; Public Administration; Information Science Library Science; Arts Humanities Other Topics; Social Sciences Other Topics; Operations Research Research Management; Social Work; Engineering.
Output	4,339 results
Refined by	Reviewing the title and journal of each reference and excluding those that were irrelevant. ¹
Output	263 results
Results input into RefWorks, where de-duplicated with output of other searches.	

¹ Examples of exclusions:

- MILLER, D.K. and COE, R.M., 2000, ‘Physician participation in TQM in geriatric medicine.’ *The Joint Commission journal on quality improvement*, 26(8) pp. 466-475.
- MARTIN, N., 2004, ‘Corporatization as a means of improving water quality: The experience in Victoria, Australia.’ *Journal of Toxicology and Environmental Health - Part A – Current Issues*, 67(20-22), pp. 1889-1899.
- ROLLINS, G., 2002, ‘The digital hospital: looking before you leap.’ *Healthcare Executive*, 17(5), pp.24-27.

Database	Web of Knowledge
Accessed via	Brunel University Library
Date searched	17 January 2007
Search string	("Learning organi?ation" OR "Business excellence") = Topic AND (Culture) = Topic
Date range	All years
Output	101 results
Refined by	Reviewing the title and journal of each reference and excluding those that were irrelevant. ²
Output	20 results
Results input into RefWorks, where de-duplicated with output of other searches.	

² Examples of exclusions:

- BORUM, R, and GELLES, M., 2005, 'Al-Qaeda's operational evolution: Behavioral and organizational perspectives.' *Behavioral Sciences & The Law*, 23(4), pp.467-483.
- GAN, D.A. and ZHANG, S.S., 2005, Influences of Chinese traditional culture on new enterprise paradigm: Obstacles and solutions.' *Proceedings of the 2005 International Conference on Management Science & Engineering (12th)*, pp. 1672-1679.
- LAVIE, J.M., 2006, 'Academic discourses on school-based teacher collaboration: Revisiting the arguments.' *Educational Administration Quarterly*, 42(5), pp.773-805.

RefWorks

Number unique references identified	433
Refined by	Reading abstract or whole paper or skimming book and excluding those that did not make a statement about what constitutes a 'quality culture'. ^{3, 4}
Output	117

³ Examples of exclusions:

- AL-KHALIFA, K.N. and ASPINWALL, E.M., 2001. 'Using the competing values framework to investigate the culture of Qatar industries.' *Total Quality Management*, 12(4), pp. 417-428.
- HERSEY, P., BLANCHARD, K.H. and JOHNSON, D.E., 2001. *Management of Organizational Behavior: Leading Human Resources*. 8th edn. London: Prentice Hall.
- RUNY, L.A., 2005. 'Cultural transformation. Changing your organization's mind-set by identifying the root causes.' *Hospitals & health networks / AHA*, 79(4), pp. 65-70.

⁴ The following article was excluded as it was not possible to obtain it in the UK:

- MAUER, B. (1997) 'Creating a Culture to Support Learning.' *Behavioral Healthcare Tomorrow*, 6(5), pp. 49-51.

APPENDIX B: Complete list of literature items included in the Interpretive Synthesis (Iteration 1, increment 1).

Books

- ALDRICH, H.E., 2006. *Organizations Evolving*. 2nd edn. London: Sage.
- ALVESSON, M., 2002. *Understanding Organizational Culture*. London: Sage.
- APOSTOLOU, A. and RONIPOGIANNAKIS, I., 2004. *Developing a quality management system under ISO 9001 : 2000 for an academic library*.
- ASHKANASY, N.M., WILDEROM, C.P.M. and PETERSON, M.F., eds, 2000. *Handbook of Organizational Culture & Climate*. Thousand Oaks, Calif.: Sage.
- ATKINSON, P.E., 1990. *Creating Culture Change : The Key to Successful Total Quality Management*. Bedford: IFS Publications.
- BATE, P., 1994. *Strategies for Cultural Change*. Oxford: Butterworth-Heinemann.
- BECKFORD, J., 1998. *Quality: A Critical Introduction*. London: Routledge.
- BENNETT, R., 1997. *Organisational Behaviour*. 3rd edn. London: Pitman.
- BOWDITCH, J.L., 2001. *A Primer on Organizational Behavior*. 5th edn. New York: Wiley.
- CASEY, D., 1993. *Managing Learning in Organizations*. Buckingham: Open University Press.
- COLE, G.A., 2000. *Organisational Behaviour: Theory and Practice*. London: Continuum.
- CROSBY, P.B., 1979. *Quality is Free: The Art of Making Quality Certain*. New York: McGraw-Hill.
- DEAL, T.E. and KENNEDY, A.A., 1988. *Corporate Cultures: The Rites and Rituals of Corporate Life*. Harmondsworth: Penguin.
- DEMING, W.E., 1986. *Out of the Crisis*. Cambridge, Mass.: MIT Press.
- DRUMMOND, H., 2000. *Introduction to Organizational Behaviour*. Oxford: Oxford University Press.
- ENOS, D.D., 2001. *Performance Improvement: Making it Happen*. Boca Raton: St. Lucie Press.
- FAIRFIELD-SONN, J.W., 2001. *Corporate Culture and the Quality Organization*. Westport, Connecticut: Quorum Books.
- FROST, P.J., ed, 1985. *Organizational Culture*. London: Sage.
- GAO HUA and XU XUSONG, 2006. *Building a learning organization: An integrative framework*.
- GARRATT, B., 2001. *The Learning Organization: Developing Democracy At Work*. New edn. London: HarperCollinsBusiness.
- GEORGE, J.M. and JONES, G.R., 1999. *Understanding and Managing Organisational Behavior*. 2nd edn. Reading, Mass.: Addison-Wesley.
- GODDARD, D. and LEASK, M., 1992. *The Search for Quality: Planning for Improvement and Managing Change*. London: Paul Chapman.
- HAMADA, T. and SIBLEY, W.E., eds, 1994. *Anthropological Perspectives on Organizational Culture* Lanham, Md: University Press of America.
- HANDY, C.B., 1999. *Understanding Organizations*. 4th edn. Harmondsworth: Penguin.

- HERBERT, T.T., 1981. *Dimensions of Organizational Behavior*. 2nd edn. New York: Macmillan.
- HOLBECH, L., 2005. *The high performance organization : creating dynamic stability and sustainable success*. Oxford: Butterworth-Heinemann.
- HUCZYNSKI, A.A. and BUCHANAN, D.A., 2007. *Organizational Behaviour: An Introductory Text*. 6th edn. Harlow: Financial Times/Prentice Hall.
- HUTCHINS, D., 1992. *Achieve Total Quality*. Cambridge: Director in association with the Institute of Directors.
- KAPLAN, R.S. and NORTON, D.P., 2006. *Alignment: Using the Balanced Scorecard To Create Corporate Synergies*. Boston, Mass.: Harvard Business School.
- KAPLAN, R.S. and NORTON, D.P., 1996. *The Balanced Scorecard: Translating Strategy Into Action*. Boston, Mass.: Harvard Business School.
- KOTTER, J.P. and HESKETT, J.L., 1992. *Corporate Culture and Performance*. Oxford: Macmillan International.
- LESSEM, R., 1991. *Total Quality Learning: Building a Learning Organization*. London: Blackwell.
- OAKLAND, J.S., 2003. *Total Quality Management: Text with Cases*. 3rd edn. London: Butterworths.
- PASCALE, R.T. and ATHOS, A.G., 1982. *The Art of Japanese Management*. London: Penguin.
- PETERS, T.J. and WATERMAN, R.H., 2004. *In Search of Excellence: Lessons From America's Best-run Companies*. London: Profile.
- PHEYSEY, D.C., 1993. *Organizational Cultures: Types and Transformations*. London: Routledge.
- PIETERS, G.R., and YOUNG, D.W., 2000. *The Ever-Changing Organization: Creating the Capacity for Continuous Change, Learning, and Improvement*. Boca Raton, Fla.: St. Lucie Press.
- ROBBINS, S.P., 2001. *Organizational Behavior*. 9th edn. London: Prentice Hall.
- SCHEIN, E.H., 2004. *Organizational Culture and Leadership*. 3rd edn. San Francisco, Calif.: Jossey-Bass.
- SCHEIN, E.H., 1999. *The Corporate Culture Survival Guide: Sense and Nonsense About Culture Change*. San Francisco: Jossey-Bass.
- SCHERMERHORN, J.R., JR., HUNT, J.G. and OSBORN, R.N., 2005. *Organizational Behavior*. 9th edn. New York: Wiley.
- SCHNEIDER, B., ed, 1990. *Organizational Climate and Culture*. San Francisco: Jossey-Bass.
- SENGE, P.M., 2006. *The Fifth Discipline: The Art and Practice of the Learning Organization*. Rev. and updated ed. edn. London: Random House Business.
- SMITH, D., 1998. *Developing People and Organisations*. London: Chartered Institute of Management Accountants.
- SMITH, M., 1991. *Analysing Organizational Behaviour*. Basingstoke: Macmillan Education.

- SORENSON, C.W., FURST-BOWE, J.A. and MOEN, D.M., eds, 2005. *Quality and Performance Excellence in Higher Education: Baldrige on Campus*. Bolton, Mass.: Anker Publishing company, Inc.
- SWIERINGA, J. and WIERDSMA, A., 1992. *Becoming a learning organization : beyond the learning curve*. Wokingham: Addison-Wesley.
- SZILAGYI, A.D. and WALLACE, M.J., 1990. *Organizational Behavior and Performance*. 5th edn. New York: HarperCollins.

Journal Articles

- ADEBANJO, D. and KEHOE, D., 1999. An investigation of quality culture development in UK industry. *International Journal of Operations & Production Management*, **19**(7), pp. 633-649.
- AGGESTAM, L., 2006. Towards a maturity model for learning organizations - the role of knowledge management. *Seventeenth International Conference on Database and Expert Systems Applications*, .
- ANDERS ÖRTENBLAD, 2004. The learning organization: towards an integrated model. *Learning Organization*, **11**(2), pp. 129-144.
- ARMSTRONG and FOLEY, P., 2003. Foundations for a learning organization: organization learning mechanisms. *Learning Organization*, **10**(2), pp. 74-82.
- ATKINSON, P.E., 1990. Creating Cultural Change. *Management Services*, **34**(11), pp. 6-10.
- BARKUR, G., VARAMBALLY, K.V.M. and RODRIGUES, L.L.R., 2007. Insurance sector dynamics: towards transformation into learning organization. *Learning Organization*, **14**(6),.
- BITITCI, U.S., MENDIBIL, K., NUDURUPATI, S., GARENGO, P. and TURNER, T., 2006. Dynamics of performance measurement and organisational culture. *International Journal of Operations & Production Management*, **26**(12), pp. 1325-1350.
- CAMPBELL, T. and CAIRNS, H., 1994. Developing and Measuring the Learning Organization. *Industrial & Commercial Training*, **26**(7), pp. 10-15.
- CHANG, D. and SUN, K., 2007. Exploring the Correspondence between Total Quality Management and Peter Senge's Disciplines of a Learning Organization: A Taiwan Perspective. *Total Quality Management & Business Excellence*, **18**(7), pp. 807-822.
- CHANG, S.-. and LEE, M.-., 2007. A study on relationship among leadership, organizational culture, the operation of learning organization and employees' job satisfaction. *Learning Organization*, **14**(2), pp. 155-185.
- CULLEN, R., 2006. Operationalising the Focus/Values/Purpose Matrix: A tool for libraries to measure their ability to deliver service quality. *Performance Measurement and Metrics*, **7**(2), pp. 83-99.
- DALE, B.G., 1996. Sustaining a process of continuous improvement: definition and key factors. *The TQM Magazine*, **8**(2), pp. 49.
- DAVISON, L. and AL-SHAGHANA, K., 2007. The Link between Six Sigma and Quality Culture - An Empirical Study. *Total Quality Management & Business Excellence*, **18**(3), pp. 249-265.

- DOMBROWSKI, C., KIM, J.Y., DESOUZA, K.C., BRAGANZA, A., PAPAGARI, S., BALOH, P. and JHA, S., 2007. Elements of innovative cultures. *Knowledge & Process Management*, **14**(3), pp. 190-202.
- FERGUSON-AMORES, M., GARCÍA-RODRÍGUEZ, M. and RUIZ-NAVARRO, J., 2005. Strategies of Renewal: The Transition from 'Total Quality Management' to the 'Learning Organization'. *Management Learning*, **36**(2), pp. 149-180.
- FULMER, R.M. and KEYS, J.B., 1998. A Conversation with Peter Senge: New Developments in Organizational Learning. *Organizational dynamics*, **27**(2), pp. 33-42.
- GALLEAR, D. and GHOBADIAN, A., 2004. An Empirical Investigation of the Channels that Facilitate a Total Quality Culture. *Total Quality Management & Business Excellence*, **15**(8), pp. 1043-1067.
- GARVIN, D.A., 1993. Building a learning organization. *Harvard business review*, **71**(4), pp. 78-91.
- GOH, S.C., 1998. Toward a learning organization: The strategic building blocks. *SAM Advanced Management Journal (07497075)*, **63**(2), pp. 15.
- HAFEEZ, K., MALAK, N. and ABDELMEGUID, H., 2006. A framework for TQM to achieve business excellence. *Total Quality Management & Business Excellence*, **17**(9),.
- HANDFIELD, R. and GHOSH, S., 1994. Creating a Quality Culture through Organizational Change: A Case Analysis. *Journal of International Marketing*, **2**(3), pp. 7-36.
- HILL, R., 1996. A measure of the learning organization. *Industrial & Commercial Training*, **28**(1), pp. 19.
- IRANI, Z., BESKESE, A. and LOVE, P.E.D., 2004. Total quality management and corporate culture: constructs of organisational excellence. *Technovation*, **24**(8), pp. 643-650.
- JAMES, C.R., 2003. Designing Learning Organizations. *Organizational dynamics*, **32**(1), pp. 46.
- JENS J. DAHLGAARD and SU MI DAHLGAARD-PARK, 2006. Lean production, six sigma quality, TQM and company culture. *TQM Magazine*, **18**(3), pp. 263-281.
- KANJI, G.K. and YUI, H., 1997. Total Quality Culture. *Total Quality Management*, **8**(6), pp. 417.
- KEITH THOMAS and STEPHEN ALLEN, 2006. The learning organisation: a meta-analysis of themes in literature. *Learning Organization*, **13**(2), pp. 123-139.
- KIRBY, J., 2005. Toward a theory of high performance. *Harvard business review*, **83**(7-8), pp. 30-39+190.
- KONTOGHIORGHES, C., AWBRE, S.M. and FEURIG, P.L., 2005. Examining the relationship between learning organization characteristics and change adaptation, innovation, and organizational performance. *Human Resource Development Quarterly*, **16**(2), pp. 183-211.
- KUJALA, J. and LILLRANK, P., 2004. Total Quality Management as a Cultural Phenomenon. *Quality Management Journal*, **11**(4), pp. 43-55.
- LAKOS, A. and PHIPPS, S., 2004. Creating a culture of assessment: A catalyst for organizational change. *Portal*, **4**(3), pp. 345-361.

- LEONARD, D. and MCADAM, R., 2003. An evaluative framework for TQM dynamics in organisations. *International Journal of Operations & Production Management*, **23**(6), pp. 652.
- MARTELL, C., 1989. Achieving high performance in library work. *Library Trends*, **38**(1), pp. 73-91.
- MAULL, R., BROWN, P. and CLIFFE, R., 2001. Organisational culture and quality improvement. *International Journal of Operations and Production Management*, **21**(3), pp. 302-326.
- MAYO, A., 2007. Q: What are the characteristics of a true learning organization? *Strategic HR Review*, **6**(2), pp. 4-4.
- MILLER, T., 2004. 5 Steps to Creating a Winning Culture. *Healthcare financial management : journal of the Healthcare Financial Management Association*, **58**(9),.
- OAKLAND, J., 2005. From quality to excellence in the 21st century. *Total Quality Management & Business Excellence*, **16**(8), pp. 1053-1060.
- ÖRTENBLAD, A., 2007. Senge's many faces: problem or opportunity? *Learning Organization*, **14**(2), pp. 108-122.
- OWEN, K., MUNDY, R., GUILD, W. and GUILD, R., 2001. Creating and sustaining the high performance organization. *Managing Service Quality*, **11**(1), pp. 10-21.
- PAK, T.N., 2004. The learning organisation and the innovative organisation. *Human Systems Management*, **23**(2), pp. 93-100.
- POOL, S.W., 2000. The learning organization: motivating employees by integrating TQM philosophy in a supportive organizational culture. *Leadership & Organization Development Journal*, **21**(8), pp. 373-378.
- PRAJOGO, D.I. and SOHAL, A.S., 2001. TQM and innovation: a literature review and research framework. *Technovation*, **21**(9),.
- RAMPERSAND, H.K., 2005. Total performance scorecard: the way to personal integrity and organizational effectiveness. *Measuring Business Excellence*, **9**(3), pp. 21-35.
- ROBINSON, E., 1997. A method for imaginative measurement and development of quality culture. *Total Quality Management*, **8**(2), pp. 262-267.
- RODRIGUES, C.A., 2007. The Quality Organization: A Conceptual Framework. *Total Quality Management & Business Excellence*, **18**(7), pp. 697-713.
- RUNY, L.A., 2007. Attributes of a high-performing culture. *Hospitals & health networks / AHA*, **81**(4), pp. 59, 61-64, 2.
- SALTMARSHE, D., IRELAND, M. and MCGREGOR, J.A., 2003. The performance framework: A systems approach to understanding performance management. *Public Administration and Development*, **23**(5), pp. 445-456.
- SCHNEIDER, B., GUNNARSON, S.K. and NILES-JOLLY, K., 1994. Creating the Climate and Culture of Success. *Organizational dynamics*, **23**(1), pp. 17-29.
- SHARMA, B., 2006. Quality management dimensions, contextual factors and performance: An empirical investigation. *Total Quality Management & Business Excellence*, **17**(9),.

- SILA, I. and EBRAHIMPOUR, M., 2002. An investigation of the total quality management survey based research published between 1989 and 2000 *International Journal of Quality & Reliability Management*, **19**(7), pp. 902-970.
- SWAFFIN-SMITH, C., BARNES, R. and TOWNSEND, M.C., 2002. Culture surveys: monitoring and enhancing the impact of change programmes (Reprinted). *Total Quality Management*, **13**(6),.
- TRIBUS, M., 1997. Transforming an enterprise to make quality a way of life. *Total Quality Management*, **8**(2), pp. 44-53.
- WICK, C.W. and LEÓN, L.S., 1995. From Ideas to Action: Creating a Learning Organization. *Human resource management*, **34**(2), pp. 299-311.
- YANG, B., 2003. Identifying Valid and Reliable Measures for Dimensions of a Learning Culture. *Advances in Developing Human Resources*, **5**(2), pp. 152.
- YANG, B., WATKINS, K.E. and MARSICK, V.J., 2004. The Construct of the Learning Organization: Dimensions, Measurement, and Validation. *Human Resource Development Quarterly*, **15**(1), pp. 31-55.
- YEO, R.K., 2005. Revisiting the roots of learning organization: A synthesis of the learning organization literature. *Learning Organization*, **12**(4), pp. 368-382.

Consultancy Documents

Baldrige

- BALDRIDGE NATIONAL QUALITY PROGRAM, 2007. *Criteria for Performance Excellence*. Gaithersburg, MD: Baldrige National Quality Program.
- BALDRIDGE NATIONAL QUALITY PROGRAM, 2007. *Education Criteria for Performance Excellence*. Gaithersburg, MD: Baldrige National Quality Program.
- BROWN, M.G., 2001. *The Pocket Guide to the Baldrige Award Criteria*. 8th edn. Portland, Or.: Productivity, Inc.

EFQM

- EFQM, 2003. *Assessing for Excellence: A Practical Guide for Successfully Developing, Executing and Reviewing a Self-Assessment Strategy For Your Organisation*. Brussels: European Foundation for Quality Excellence.
- EFQM, 2003. *EFQM Excellence Model: Public and Voluntary Sector Version*. Brussels: European Foundation for Quality Excellence.
- EFQM, 2003. *Introducing Excellence*. Brussels: European Foundation for Quality Excellence.
- EFQM, 1999. *Determining Excellence: Taking the First Steps - A Questionnaire Approach*. Brussels: European Foundation for Quality Management.

HELICON

- FOWLER, C. and TRINDER, V., 2002. *Accreditation of Library and Information Services in the Health Sector: A Checklist to Support Assessment. Outline Structure*. 2nd edn. NHS Library and Knowledge Development Network.
- THE QUALITY ASSURANCE AGENCY FOR HIGHER EDUCATION, 2005. *The Partnership Quality Assurance Framework for Healthcare Education in England: Approval of Healthcare Education in England*. The Quality Assurance Agency for Higher Education.

Investors in People

- INVESTORS IN PEOPLE, 2004. *The Investors In People Profile*. version 17 edn. London: TSO.
- INVESTORS IN PEOPLE, 2004. *Unlock Your Organisation's Potential: An Overview of the Standard Framework*. London: TSO.

Tricordant

- TRICORDANT, 2006-last update, The Tricordant Approach. Available: <http://www.tricordant.com/emb02.htm> [July/20, 2006].
- TRICORDANT, 15 July 2005, 2005-last update, Organisational Identity. Available: <http://www.tricordant.com/conc03.htm> [20 July 2006, 2006].

APPENDIX C: Ten examples of information derived from sources of interpretive analysis.

Author	Aggestam, L.
Title	Towards a Maturity Model for Learning Organizations – the Role of Knowledge Management
Reference	Seventeenth International Conference on Database and Expert Systems Applications, 2006.
Concepts	<ul style="list-style-type: none"> • Environment promotes a community of learners. • Culture begins with leader who inspires the vision. • Must be linked to organizational aims.

Author	Baldrige
Title	Criteria for Performance Excellence
Reference	Gaithersburg, MD: Baldrige National Quality Program, 2007.
Concepts	<ul style="list-style-type: none"> • Visionary leadership. • Customer driven excellence. • Organisational and personal learning. • Valuing employees and partners. • Agility. • Focus on the future. • Managing for innovation. • Management by fact. • Social responsibility. • Focus on results and creating value. • Systems perspective.

Author	Dale, B.G.
Title	Sustaining a Process of Continuous Improvement: Definition and Key Factors
Reference	The TQM Magazine 8(2), 2006, pp. 49 – 51
Concepts	<ul style="list-style-type: none"> • Quality improvement projects aligned to strategy & policy. • KPIs • Effective cross-silo working. • Some element important at start, some need to be always in place, some need continuous improvement.

Author	Deming
Title	Out of the Crisis
Reference	Camb, Mass; MIT Press.
Concepts	<ul style="list-style-type: none"> • Consistency of purpose towards improvement. • Philosophy awake to challenges and lead for change. • Prevention better than cure. • Strive to continuously improve. • On the job training. • Leadership. • Drive out fear. • Breakdown barriers between departments. • Empower staff. • Education and self-improvement of staff. • It's everybody's job.

Author	Irani, Z., Beskese, A., Love, P.E.D.
Title	Total quality management and corporate culture: constructs of organisational excellence
Reference	Technovation 24, 2004, pp. 643–650
Concepts	<ul style="list-style-type: none"> • Employee empowerment. • Sense of mission. • React positively to change. • Strong leadership commitment. • Policies, procedures & processes emphasise quality. • Everyone know importance of quality. • Customer focus – employees, planning, performance measures. • Communication.

Author	Peters, T.J. & Waterman, R.H.
Title	In Search of Excellence: Lessons From America's Best-run Companies
Reference	London: Profile, 2004.
Concepts	<ul style="list-style-type: none"> • Structures. • Systems. • Staff – utilisation of human capital. • Skills (providing people with). • Style (leadership). • Shared values. • Strategy.

Author	Mayo, A.
Title	What Are the Characteristics of a True Learning Organisation?
Reference	Strategic HR Review 6(2), 2007, p.4.
Concepts	<ul style="list-style-type: none"> • Consistent direction & leadership from top. • Learning – personal, team, organisation. • External scanning. • Cross internal boundaries. • Trusting, open, curious environment.

Author	Oakland, J.S.
Title	Total Quality Management: Text with Cases
Reference	London: Butterworths, 2003.
Concepts	<ul style="list-style-type: none"> • Planning – strategy; policy; partnerships. “design in quality”. • Performance – assessment of performance. • Processes – Quality management systems; continuous improvement; understand, manage, design & change processes. • People – human capital; culture change; teamwork; innovation; learning. • Culture – beliefs, behaviours, norms, values, rules; internal locus of control; climate; alignment. • Communication. • Commitment – leadership ‘walk the talk’.

Author	Swieringa, J. & Wierdsma, A.
Title	Becoming A Learning Organisation: Beyond the Learning Curve
Reference	Wokingham: Addison-Wesley, 1992.
Concepts	<ul style="list-style-type: none"> • Strategy. • Structure. • Culture. • Systems. • Learn about learning.

Author	Tricordant
Title	The Tricordant Approach
Reference	www.tricordant.com
Concepts	<ul style="list-style-type: none"> • Clear structure, targets, responsibility, ownership. • Quality embedded into processes. • Continuous improvement. • Vision, values, practices. • Personal development training. • Purpose, aims, plan, strategy, ethics, values. • Process, syntax, technology, communication, people structure, roles, measurement. • Spirit, language, motivation, ethos, leadership, evaluation, teamworking.

APPENDIX D: Interview schedule for Director

1. How do you conduct your strategic planning?
2. How do you achieve your key strategic objectives? Do you use action plans? How do you develop them? How do you deploy them?
3. How do work processes relate to the strategic objectives?
4. How do you set the vision and values for your library?
5. How do you promote these values to your staff?
6. How do you assess the performance of your library? What performance measurement do you do?
7. Where does the impetus to change come from?
8. How does the library respond?
9. What are the barriers to change? How do you remove them?
10. Who has responsibility for quality?
11. How does your library improve quality?
12. What is **your** vision with regard to quality?
13. How do you manage your staff, their needs, and the library's needs to ensure continuity and the ability to meet future needs?
14. How do you communicate with and engage your staff?
15. How do you share learning and knowledge throughout the library?
16. How does the library / information service obtain user feedback?
17. What do you do with this feedback? Is it passed on to anyone? Do you collate it? How do you use it? What changes do you make as a result of this feedback?
18. Do you involve users in decision making? How?

APPENDIX E: Interview schedule for Library Management Team

1. What do you feel is the philosophy or culture of the library? What are its key values?
2. How does (Director) communicate his/her ideas to the staff?
3. How do you communicate with your staff?
4. How do they communicate with you?
5. Do work processes follow a manual?
6. Are there goals or targets for work?
7. How do the teams interact?
8. Who has responsibility for quality?
9. How does your library improve quality?
10. Are you encouraged and supported in trying to improve your work?
11. What happens if someone makes a mistake? (you, or a member of your staff)
12. Who is allowed to make decisions?
13. How does the library obtain user feedback?
14. What do you do with this feedback? Is it passed on to anyone? Do you collate it? How do you use it? What changes do you make as a result of this feedback?
15. Do you involve users in decision making? How?
16. Do you feel supported in your learning and development?
17. What training and development is provided?
18. Do you get recognition for doing a good job?
19. Are you encouraged to try out new things?
20. Where does the impetus to change come from?
21. What are the barriers to making changes?
22. Is change a good thing?

APPENDIX G: E-mail sent to LIS-SCONUL requesting participants

Subject: Libraries needed for PhD research
From: Nick Bevan <Nick.Bevan@BRUNEL.AC.UK>
Reply-To: Nick Bevan <Nick.Bevan@BRUNEL.AC.UK>
Date: Mon, 23 Apr 2007 08:19:02 +0100

Dear colleagues

I am forwarding an email on behalf of one of my staff who, as you will see, is looking for libraries to participate in her PhD research. There is nothing I need to add to Frankie's email - which is self-explanatory - other than to say that I am personally very supportive and enthusiastic about this practitioner-oriented research which I am sure will lead to a number of practical outcomes of benefit to all of us - so I encourage as many of you as possible to participate!

Best wishes

Nick

My name is Frankie Wilson. I am a Subject Liaison Librarian at Brunel University Library, and I am also undertaking a PhD in the area of performance measurement in libraries. Specifically, I am developing a framework for assessing the quality culture of an academic library, that is, the attitude of the library as a whole organisation towards assessing / improving quality.

It is regarding my PhD that I am writing to you to ask for your help. I have now completed the second iteration of the design of the framework and need to test it. To do this I need 'subjects' (academic libraries) to assess against the framework and so determine what improvements to the framework are needed.

My testing will involve 1 day in your Library. I will need access to all your strategic documents; all other internal policy documents (especially staff development / training); annual reports; a list of all internal committees, plus the latest minutes from these committees; procedural manuals (e.g. Issue Desk manual, acquisitions manual etc); documents relating to how the Library interacts with the HE institution; details of the appraisal / performance management system (though NOT specifics relating to any staff member); and other similar documents.

I will also need to interview a cross-section of library staff - director or deputy director; senior management; middle management / professional; PLA/SLA; library assistant. Interviews will last 15-30 minutes (usually the higher the level, the longer the interview).

All data will be anonymous and I am happy to report back to you on the findings at your Library if you wish (subject to the caveat of an imperfect instrument).

Are you the director of a UK HE library? Will you allow me to use your library as a 'subject' to test my framework? If the answer to both these questions is "yes", I will be very grateful if you contact me at frankie.wilson@brunel.ac.uk
If the answer to the second question is "maybe" please do contact me at the same e-mail address for a discussion.

Further information

You can read about the background to my research in this article:

Wilson, F. (2006) What is the meta quality of your Library? SCONUL Focus, 38, pp.85-88 Available from <http://www.sconul.ac.uk/publications/newsletter/>

The outcome of the first iteration of the development of the framework is described in this article: Wilson, F. and Town, J.S. (2006) Benchmarking and library quality maturity. Performance Measurement and Metrics, 7(2), pp.75-82 Available from the Brunel University Research Archive (<http://hdl.handle.net/2438/408>)

Many kind regards,

frankie

Frankie Wilson
Subject Liaison Librarian (School of Information Systems, Computing, and Mathematics)
The Library
Brunel University
Uxbridge
UB8 3PH
01895 266160

APPENDIX H: Checklist for Data Gathering Visit

University

Date:

Address:

Phone:

How to get there:

Cost of travel:

Contact Name:

LIS known as:

Interview Schedule for Director	
Interview Schedule for SMT	
Interview Schedule for staff	
Consent Forms	
Vision statement	
Mission statement	
Strategic plan	
Operational plan	
Annual report (2006)	
Annual report (2005)	
Staff development policy	
Collection management policy	
Liaison policy	
List of internal committees	
Minutes of internal committees	
Procedural manuals	
Library – HEI interaction	
Appraisal / performance management system	
Induction programme	

APPENDIX I: Participant information and consent sheet

Thank you for volunteering to participate in this research. My name is Frankie Wilson and I am a PhD student at Brunel University, where I am also a member of library staff. This study forms part of my PhD.

For my PhD I have developed a framework for measuring an organisation's attitude to quality. The aim of this study is to test this framework by investigating the attitude to quality of a number of HE libraries.

I am investigating this library's attitude to quality through analysis of documents (such as the annual report) and interviews with a number of staff members from all levels of the library. You have been selected as a representative of your job role.

You do not have to have any knowledge about "quality" to take part in this study, and there are no right or wrong answers to the questions.

I will tape record this interview. I will be analysing your answers for my study, but all data will be kept and analysed anonymously. I may use quotes of what you have said in my PhD thesis, but any quotes will be anonymous.

You have the right to withdraw from this study at any time.

My framework scores an organisation from 1 to 5 in a number of areas. I will report back the scores this study gave your library but the report will consist only of the score. It will not include what anyone has said and will not include any quotes. Your library will not be able to tell what you say in this interview.

I have read and understood the above information

I agree to participate in this study

Signed:

Date:

APPENDIX J: Examples of line-by-line coding of interviews for iteration 1, increment 2

INST2PRO1

	<i>Do you feel you can feed in your voice, all the voices of your users, up to SMT?</i>
<p>Single method of obtaining feedback. Formal. Specific team collect feedback</p> <p>Users=students</p> <p>Two way communication with students Pass feedback on</p> <p>Pass feedback to relevant senior managers Pass feedback to quality officer Often pass feedback to subject librarians Responding to feedback not a must do</p> <p>Feedback to SSLC chair</p> <p>‘Close the loop’</p> <p>Not make changes based on feedback Show have passed feedback on More organised approach than last year ‘sent off into the ether’</p> <p>‘close the loop’ in theory</p> <p>whether feedback answered depends on manager</p>	<p>Yes, we do that through course committee meetings. The liaison librarians go out to them, and that is where the students feedback all their issues with ILS and I will communicate to them.</p> <p>And I think the system works relatively well – we feedback any comments to the relevant senior manager, copied into ***** (for quality) and often the subject librarians so they know what is going on. Usually the senior managers are quite good. They come back with the feedback and I get them to cc in the chair of the meeting – we try and close that loop. It doesn’t work in practice, but at least it shows, at least it gets minuted next time. We have tried to be a bit more organised since last year because we realised things were just being sent off into the ether, but now we do try to close that loop in theory. Then again some managers are better at it than others.</p>

INST1LA2

	<i>How does the SMT communicate their ideas to staff?</i>
<p>Away day</p> <p>SMT communicate ideas at away day</p> <p>Staff asked for feedback</p> <p>Senior staff visit campuses to communicate (one way) 'latest developments and schemes'</p>	<p>We have our away day, and I'm sure they transmit some of the ideas through that. As well as asking for feedback from us. We have regular ***** and ***** come round to the campuses and tell us the latest developments and schemes.</p>
	<i>So do you feel you know what is going on?</i>
<p>Lack of trust of SMT</p> <p>Conspiracy</p> <p>Secret issues</p> <p>HR issues confidential</p> <p>SMT decide what to pass on</p> <p>Some info does not cascade downwards</p> <p>Trust SMT</p> <p>Pass on what needs to know</p> <p>Don't need to know everything that is going on</p>	<p>[pause] I'm sure I know what they want me to know is going on. There may well be issues that are secret – especially things that affect staff working conditions and practices. I am not sure secret is the right word – they feel that certain information doesn't need to cascade downwards. When you have a management team you have to trust that they do cascade what we do need to know and what they don't tell us we don't need to know.</p>
	<i>Do you follow a manual in your work?</i>
<p>Operational actions derived from policies</p>	<p>Yes there are policies behind our actions.</p>
	<i>So if you won the lottery and had to be replaced tomorrow they could do exactly what you do on a daily basis?</i>
<p>Not all work circumstances covered by manuals</p>	<p>Yes, largely. There are circumstances which are</p>

INST6SMT

	<i>Where does the impetus for change come from?</i>
<p>Impetus for change from individual SMT member Not 'change for change's sake'</p> <p>Change a tool</p> <p>Efficiency of resource use</p> <p>Looking to future</p> <p>'Not stagnating' continuing to exist 'Keeping a weather eye'</p> <p>Exploiting technologies</p> <p>Efficient use of systems. Future planning of staffing requirements</p> <p>Impetus for change in team top down from manager Changing a culture</p> <p>Change is viewed as acceptable Specific issue</p> <p>Post cut</p> <p>Specific post not in structure</p> <p>Post not filled. Manager leave of absence Post cut</p> <p>Difficulty with lack of post</p> <p>Strategic management of work</p> <p>Discuss within team operational problems</p>	<p>Very much from me, as you can probably guess from the things I say, but it is not change for change's sake, it is very much making sure we are exploiting the systems that we have got to the full. That we have got an eye to the future that we are not stagnating, that we are looking to keep the service going. So it is about keeping a weather eye and making sure we are exploiting the technologies, the systems that we have got, and for staff to take that forward. So anyone who works in information resources, they would probably say from me. But I hope that I am bringing in the culture where change is acceptable, where people can go away and ... I think we have a particular issue with a post that has been cut, though actually we have never had it. We never had a post of serials librarian, I put one together, it was never filled while I was away, and now I find out it has been cut, which is very annoying but now I have a serious issues about dealing with it because it can't keep limping along. So we started a discussion</p>

INST4PLA2

	<i>How do you work with other teams?</i>
Variable workflow	<p>Errm. Document supply the workflow comes and goes. October to January is our busy time, so we have more scope to do training, and we would also offer our services to cataloguing acquisitions, we always help out with acquisitions with reading list there are piles and piles. I have always tried to instil in my team that we should offer help. On a goodwill basis in the last couple of years, but more recently it is more of an acceptance of the nature of the role.</p> <p>If we have enough work we will carry on with that, so it is an ad hoc arrangement. So we do have times when there aren't as many requests, so each of the information assistant in my team have got a secondary job. It is something we set up from appraisal to give them variety so they are not just doing a banal task. I am very pro, I would hate to think they are sat at the desk with nothing to do. I want them to come to work and enjoy the work that they do. Easier said than done sometimes, but I do try. We will help out with cataloguing tasks, or we have got a little task at the moment to weed out the</p>
Work varies thru year	
Training only in non-busy time	
Offer to help adjacent team	
Share workload of other team, but still <i>their</i> work	
Appreciation of workload of others	
Lead culture of inter-team support	
From ad hoc to established part of culture	
Own work has priority	
Ad hoc arrangement	
Variable workload	
Individual assigned tasks	
'Secondary job'	
Response to staff feedback about their job	
Develop staff	
Assigned jobs by manager	
Staff satisfaction – keep them busy	
Not all staff will enjoy all parts of the job	
Share workload of other team, but still <i>their</i> work	
Unimportant task to keep busy	

APPENDIX K: Focused coding for analysis of interviews for iteration 1, increment 2

Generation of the strategic plan
Strategic plan determines development work
Scope of strategic plan
Good management practices
Walk the talk
Lead
Hearts and minds
Staff development
Staff training strategically managed
Staff valued
Same Hymn sheet
Consistency
Alignment
Integration
Little cogs
Structure
Managing the whole elephant
Communication
Attitude to change
Attitude to barriers to change
Flashy vs vanilla
Bottom up gather
Bottom up act
Close loop
Top down gather
Top down act
Influence organisation
Operate within wider profession
Awareness of professional issues
Culture of quality
Customer focus
Responsibility for quality
Management of projects
Decision making
'Business as usual'
Inclusion – empowerment
Performance measurements collected
Use of performance measures
Monitoring of progress

APPENDIX L

Examples of focused coding of interviews for iteration 1, increment 2.

INST3PLA1

	<i>How does your team work with the other teams?</i>
Integration	Umm, they do work fairly separate but they do overlap when there are tasks, such as lots of things with the desks involve us and acquisitions ordering books and things and there there are training sessions with all the staff got together. I think quite separate but there is overlap and communication when there needs to be. And a lot of the staff from acquisitions and customer services work on the service points together so there is a mixture and contact there so you can just informally mention things there.
Communication	
Communication	
Structure	
Communication	
	<i>Who has responsibility for quality?</i>
	Within the team or ?
	<i>Anything you like!</i>
Customer service	Um, I think lots of persons have good customer care, the quality of the service being provided, lots of people have pride in the service being provided so you can measure the quality of the work that way [pause]
Culture of quality	
	<i>So how does the library try to improve its quality?</i>

INST8SMT

	<i>So how do you communicate with your staff?</i>
Communication	I run lending services, but in the office there about 3 or 4 people – the people who work at the issue desk is all junior staff.
	<i>When they are on the ID are you their line manager when they are on there?</i>
Good management practices Hearts and minds Lead Managing the whole elephant Environmental sensing top down gather Staff valued	<p>There is a senior library assistant who is in the lending services and she deals with any day to day, though since <HoS> came she has reorganised it, to her credit, and she is making us take more managerial role. <HoS> has got us out of our comfort zones, which is a good thing. But it is very difficult to quantify – so when you are filling out an appraisal form, as I am going to have to do the rest of today and tomorrow, you think ‘how can I justify spending 2 1/2 hours reading a document that is in the end irrelevant to us, or an afternoon at a meeting when we don’t even offer that service. I find that very difficult, I always have. But that may just be me.</p> <p>Appraisals here – library assistants have in the past misunderstood what they were for, some way of getting a bonus or getting a promotion. There are some people who do not like</p>

INST9DOL

	<i>From what you have said, it seems the hierarchy flows upwards?</i>
<p>Generation of strategic plan</p> <p>Environmental sensing top down act</p> <p>Generation of strategic plan</p> <p>Environmental sensing top down gather</p> <p>Environmental sensing top down act</p> <p>Scope of strategic plan</p>	<p>It is fair to say that the actions are inserted into the bottom and go up to the appropriate level, however the plans themselves are top down, in that there is no point us writing a library plan that is out of step with information services overall plan and likewise that has to be in step with the university overall plan. So um, the full structure of the strategy is in many ways top down, we are setting out to deliver services that are in line with what the university wants and requires. And to do that within the context of the university's overall strategies. There is no point for example in us saying we are going to build a research library here if the university's main priorities are teaching. And vice versa.. So in many ways the strategy is top down, but the implementation of the strategy, the actions, is bottom up.</p>
	<i>So how do you go on with that and achieve your key objectives? Do you have individual team plans within the library?</i>

INST5LA1

	<i>Who has responsibility for quality?</i>
<p>Attitude to quality</p> <p>Responsibility for quality</p> <p>Culture of quality</p> <p>Responsibility for quality</p> <p>Responsibility for quality</p> <p>Decision making</p> <p>Attitude to risk</p> <p>Empowerment</p>	<p>Quality of service? Well I suppose the quality of our work is checked, spot checked, so that would be my line manager. We all take individual pride for all that we do. We all want the book to be right on the shelf, especially now that we are, before the book would go to a librarian. And we are not trained librarians, though we are doing now quite a lot of what the librarians do, and the checking side of things, so we are the last point of contact now, so we are pretty much responsible for our own. Obviously it is spot check to pick up. And I presume, I don't know I presume the librarians wander round and look for themselves how the shelf-ready is going. I presume they would because librarians like to keep an eye on things don't they, to make sure it is all how they want it. I don't know if it is, whether that is our fault I don't know. It may not be shelved exactly where they want it to be shelved, but our suppliers, we follow what they say, because we are not trained we wouldn't know what number it was meant to be at anyway. So the quality of that is</p>

APPENDIX M: Paper presented at 7th Northumbria International Conference on Performance Measurement in Libraries and Information Services.

Wilson, F. (2007) 'The Quality Maturity Model: The story so far', *Proceedings of the 7th Northumbria International Conference on Performance Measurement in Libraries and Information Services. Measuring Library Performance and Organizational Effectiveness: From Research to Practice*. Available on CD-ROM.

Keywords

Quality, Culture, Library, Quality Maturity Model, Performance Measurement

Libraries operate in an agile environment where survival depends on their culture of quality. Long-standing performance measures assess the quality of products or services not the organisational culture. However such assessment is difficult because quality culture is not a clearly defined concept, and existing 'soft' measures have not been widely adopted by libraries due to their 'fuzzy' nature - librarians like to count and compare. The research presented in this paper aims to produce a full characterisation of the Quality Maturity Model – a five level scale to quantitatively assess the quality culture of libraries. This paper presents research results and the characterisation of the QMM so far. The key test of this research is its utility to the library community in making the difficult-to-measure more easily measurable. Therefore, this paper also presents the feedback by the presentation audience about the QMM.

Background

In the Library world, change is the only constant. New technologies; changes to user needs and expectations; different economic situations; and the introduction of assessment regimes have resulted in radical changes to the operating environments for every library – often year-on-year. To survive in such an agile environment it is necessary to “keep the institution tuned to the winds of change and actively engaged in the major upheavals affecting the library and information world.” (Cotta-Schonberg, 1995, p.55). The literature (e.g. Brockman, 1992; Shaughnessy, 1993; Brophy & Coulling, 1996; St. Clair, 1997) suggests that the way to achieve this is to implement a Total Quality Management (TQM) approach.

“If you don't know where you are, a map won't help” (Watt S. Humphrey)

So, the literature advocates developing a TQM approach, but in order to determine how close you are to achieving this goal it is necessary to measure your position on the road to achieving TQM. Libraries have a long history of performance measurement (Goodall, 1988; Morgan, 1995). However, despite the advocacy of the enthusiastic few (see, for example, the third Northumbria conference) libraries have not engaged with measures of quality, such as benchmarking or the balanced scorecard, but have continued with measures of inputs and outputs. The standard set of statistics collected by SCONUL in the UK

has remained broadly the same over the last 13 years and exemplifies this. This is understandable because measures of quality are 'soft' – they are 'fuzzy' and difficult to pin down, very different from 'hard' measures such as loan statistics which are easily collectable and able to be manipulated. Libraries thrive on comparing their performance with that of others, but they find it difficult to use 'soft' measures and so revert to easy-to-collect 'hard' measures such as inputs and outputs. In order to facilitate general engagement with measures of quality, the library sector needs a method of quantitatively assessing these fuzzy concepts.

"If you don't know where you are going, any road will do" (Chinese proverb)

An additional reason for the failure of the wider library community to engage with measures of quality is the multitude of quality improvement processes available, and the confusion about which one to choose. This is exacerbated by finding that what works for one library does not work in another apparently very similar one (Wilson, 2004). One of the underlying assertions of this research is that TQM cannot be achieved all-at-once but instead requires a step-wise implementation. Achieving TQM is like building a house: you start with foundations, then build the ground floor walls, then first floor walls, then the roof. If you try to go straight to the roof without the preceding stages you will find yourself surrounded by rubble. Similarly, if you try to implement a quality improvement process when you are not at an appropriate stage to do so, then it will fail (Kinnell & Garrod, 1995). This is because improved quality practices will not survive unless an organisation's behaviour changes to support them (Fairfield-Sonn, 2001). So the key to achieving TQM is to change the organisational culture of quality in a step-wise manner. Therefore, the proposed quantitative assessment tool must assess quality culture, and also be a roadmap for improvement - it must not only determine 'where we are' but also indicate 'where we are going'.

The literature contains many frameworks for measuring the quality of product, process or service (e.g. Tenner & De Torro, 1992; Oakland, 1993; Hradesky, 1995; Oakland, 2003). This research does not propose an alternative to these measures, but instead is concerned with the next level of abstraction. Quality culture: underpins the quality management processes; drives the selection of performance measures; and influences the attitude of library management, library staff (at all levels) and the 'parent' organisation towards these measures. Measuring quality culture requires the assessment of "meta-quality" - the quality of quality processes (Wilson, 2006).

At the 6th Northumbria International Conference of Performance Measurement, the author presented the Quality Maturity Model (Wilson & Town, 2006). This model is a five level scale that attempted to quantitatively assess the quality culture of libraries. The current research, still in progress, extends, develops and further characterises the Quality Maturity Model (QMM) with the aim of making the important-but-difficult-to-measure aspects of performance measurement more easily measurable. Such development of appropriate metrics may mean that these 'soft' measures are incorporated into the normal lexicon of all libraries, and are used for internal monitoring of progress, a focus for improvement efforts, and for comparison with others through standard performance reporting mechanisms.

The test of this research is therefore not whether the QMM is an accurate representation of the quality cultures operating in libraries (“the truth”), but whether the model is a useful representation in enabling the library community’s engagement with meta-quality.

Research design

There is no universal definition of organisational culture in the literature. Even “the critical elements or factors that constitute TQM are not completely agreed upon” (Sila & Ebrahimpour, 2002, p.903). Therefore the measurement of meta-quality is a ‘wicked problem’ (Rittel & Webber, 1973) – it has incomplete, possibly contradictory, and changing requirements and a variety of potential solutions characterised by complex interdependencies. In addition, the key outcome is utility, specifically the utility of the model in enabling the quality culture to be measured for development and comparison purposes. Therefore this research takes a Design Science approach.

Design Science is an alternative to a Qualitative or Quantitative approach and is used in design, engineering, architecture and information systems research when dealing with ‘wicked problems’ where there is no ‘truth’ to be discovered, either absolutely, or triangulated from multiple socially constructed ‘truths’. Design Science research consists of iterations of development where the solution produced is assessed for utility. A variety of methods, qualitative or quantitative, may be used to produce each solution, with the acceptance that the methods chosen will determine the nature of the solution produced.

This research consists of four iterations:

Phase 1: Characterisation of the QMM from the literature = QMMa;

Phase 2: Characterisation of the QMM from data collected from HE LIS = QMMb;

Phase 3: Amalgamation of QMMa and QMMb to produce an model consistent with both the literature and practice = QMMbeta;

Phase 4: Test QMMbeta for validity and utility = QMM.

So far the first phase has been completed, and the second phase is underway.

Phase 1 methodology

Phase one deduced the characterisation of the QMM from published theory of organisational quality, TQM, and organisational culture. The determinants of organisational quality culture described in the literature were used to generate the underlying constructs of the model. The descriptions of high and low achieving organisations were synthesised to produce the elements that make up these constructs.

Literature included, but is not limited to, the work of:

- Atkinson
- Baldrige
- Crosby
- Deming
- EFQM

- Garratt
- Handy
- Juran
- McKinsey
- Oakland
- Peters & Young
- Senge

Phase 2 methodology

Phase two induces the characterisation of the QMM from observation of practice using a grounded theory approach. Data was gathered using semi-structured interviews with nine members of staff in HE libraries along with documentary analysis of strategic, policy, process and procedural documents. The interview questions were developed from areas of interest suggested by published theory (from phase one), and interviewees were selected to represent a 'vertical' slice through the organisation – from the director of service to library assistants.

Data has so far been gathered from 10 HE libraries (nine in the UK and one in South Africa). This phase is not yet completed as further data gathering is in progress. The results presented below are therefore only interim, and are incomplete.

The data so far gathered was analysed following a standard grounded theory methodology (Strauss & Corbin, 1998) to elicit: the categories that make up the facets of the underlying construct of 'quality culture'; the properties that are the specific or general attributes of these categories; and the dimensions of these properties.

Findings

The initial analysis indicates that there are 35 stable properties that make up 'quality culture', which consistently group into seven categories. However, there is a slight difference in how the properties group between QMMa and QMMb. Six of the categories are present in both QMMa and QMMb – they arise from both the literature and the data. They are: management of the organisation; environmental sensing; attitude to change; attitude to quality; investment in staff; and alignment. In addition, one category (learning organisation) arises from the literature but does arise as a grouping from the data; and one category (leadership) arises from the data but does not arise in the literature as an explanatory grouping. This produces eight categories in total. In all the category groupings the properties remain stable – it is only how they group together that varies.

The findings from the literature and the data together indicate that a culture of quality is:

- Doing things right;
- Doing the right things;
- Using learning;

- Suited to the 'business' environment (change seeking in an agile environment); and
 - Explicitly and appropriately aiming to improve quality;
- and that this culture is created by:
- Strong leadership; and
 - The people of the organisation

The level to which these categories are bound together to form a cohesive culture is determined by the level of alignment. Alignment can be described as taking a “systems thinking” approach (Senge, 2006), or “seeing the whole elephant” (in management speak). I prefer analogy of a cake.



To make a cake you take flour, sugar, eggs, fat, and chocolate as individual ingredients. When you mix them together they blend, but it is still possible, using microscopic and powerful sifting techniques, to separate the individual elements of flour, chocolate etc. But when you bake the cake a chemical change occurs – it is now impossible to separate out the constituent ingredients, no matter how hard you try. A low level of alignment has the individual elements of an organisation working independently; as alignment increases the level of integration increases; but when alignment reaches its highest level a qualitative change occurs so that each element is now inseparable from every other element, and the whole becomes greater than the sum of the parts.

These results are preliminary as the research is not yet completed. However, the current grouping of the properties of quality culture, and how they are arranged into the underlying category groupings, are presented below. This presentation is to facilitate feedback and discussion by attendees.

The categories and properties

The eight initial categories consist of the following properties:

Management of the organisation

- Strategic plan generation
- Management alignment (achievement of the strategic plan)
- Progress monitoring
- Performance measurement
- Project management processes

Environmental sensing

- Customers (bottom up)
 - Gathering feedback
 - Collation of feedback
 - Action as a result of feedback
- Organisation (top down)
 - Gathering feedback
 - Influencing organisational decisions
- Wider context (inside out)
 - Gathering feedback
 - Involvement of staff in profession
 - Contribution to profession

Learning organisation

- Staff empowerment
- Staff involvement in change
- Nature / level of learning
- Attitude to mistakes
- Attitude to risk
- Staff encouragement to innovate

Attitude to change

- Attitude to change
- Perception of drivers for change

Attitude to quality

- Definition of quality (including locus of control)
- Attitude to quality improvement
- Perception of responsibility for quality
- Type of quality improvement initiatives - new, big 'sexy' initiatives vs. getting the basics right ("sexy" vs. "vanilla")

Leadership

- Vision and value setting
- Trust
- Inspiration and motivation

Investment in staff

- Attitude to staff (as an asset)
- Training provision
- Development of staff
- Recognition of staff

Alignment

- Vertical alignment
- Horizontal alignment
- Consistency
- Communication flow
- Staff recognition of where they fit into the overall scheme ("little cogs")
- Structure

- Alignment of attitude to quality
- Alignment of attitude to change

Research outcome

The intended outcome of this research will be the Quality Maturity Model presented in a table such as that in figure 1.

	Ad Hoc	Repeatable	Defined	Managed	Continuous
Man. of org.					
Env. sensing					
Learning org.					
Attitude to change					
Attitude to quality					
Leadership					
Invest. in staff					
Alignment					

Each cell will contain descriptors of what a library at this level would look like on this category, taking into account the relevant properties. This will enable the assessment of a library against the model to produce a quantitative measure of that library's meta-quality.

The full model (so far as it is developed) is too large and detailed to be included here, and is presented on the SCONUL performance portal.

Discussion

The aim of this research is to make tricky-to-measure concepts measurable, and so facilitate greater practitioner engagement with 'soft' measures of quality. By taking a Design Science approach, the key objective of this research is utility - is the Quality Maturity Model useful to practitioners? Therefore, a key part of this conference presentation was an open discussion of attendees. The discussion was loosely prompted by the following questions to the 'audience':

Q1: Do you agree with the assertion that libraries operate in a rapidly evolving agile environment and that the ability of a library to survive is determined by its culture of quality, specifically its "meta-quality"?

Comments: All participants felt that the key factor in the quality of an organisation was its culture, both formal and informal.

Q2: From your experience, do you agree with the concept of maturity levels in quality culture – or is it binary? Or something else?

Comments: Participants felt that the development of a quality culture was a continuous process of maturity, however, a discrete model was useful for the purposes of measurement and assessment. It was felt that the simpler the model was, the better.

Q3: Would you find the completed QMM model useful?

Comments: All participants felt it would be useful to them. A number of participants suggested that the model should not be stand-alone, but should assist in the choice of other quality improvement techniques.

Q4 What metric would you find most useful as a measure of performance – a single number (“3”); a mean average (“3.245”); a mode average (“3”); a median average (“3”); a profile (“management of the organisation = 3; attitude to change = 4; alignment = 2” etc); a total out of 40 (8x5)?

Comments: While a couple of people wanted “all of the above”, most felt that a profile would be most useful, one attendee commenting “it is like a personality inventory for the library”. Most felt that a trend over time would be most informative – not a single ‘snapshot’ score.

Q5: What do you think of the 8 categories? Do they ring true in your experience? Have I missed any?

Comments: It was felt that leadership is indeed a key category, with one participant feeling that “the miracle is success despite the leadership”. Akin to this, one participant suggested that public services might be better if they are not closely aligned, as a looser configuration enabled individuals to go beyond their organisational constraints. This challenged the author’s assumption about alignment, and underlined the complexity of this category.

The ‘Attitude to change’ category was also felt to be important, in particular it was recommended that the model should unpick the complexity and variability of the drivers for change, and not make any absolute assumptions.

It was generally felt by participants that a key omission was the property ‘selection and induction of staff’, while accepting that one of the key difficulties facing libraries wishing to induce culture change was the low turnover rate of staff.

Conclusion

This research is still at an early stage. The feedback to this paper suggest that the proposed Quality Maturity Model would be a useful tool in helping libraries to assess their meta-quality, and that such a tool would be used to provide guidance about which quality improvement techniques were appropriate to use.

References

Brockman, J.R. (1992) "Just Another Management Fad? The Implications of TQM for Library and Information Services", *ASLIB Proceedings*, vol. 44, no. 7/8, pp. 283-288.

Brophy, P. & Coulling, K. (1996) *Quality Management for Information and Library Managers*, Aslib Gower, Aldershot.

Cotta-Schonberg, M. (1995) "Performance Measurement in the Context of Quality Management", *Proceedings of the Northumbria International Conference on Performance Measurement in Libraries and Information Services*, Information

North, Newcastle-upon-Tyne, pp. 51-62.

Fairfield-Sonn, J.W. (2001) *Corporate culture and the quality organization*, Quorum Books, Westport, Conn.

Goodall, D. (1988) "Performance Measurement: A Historical Perspective", *Journal of Librarianship*, vol. 20, no. 2, pp. 128-144.

Hradsky, J. (1995) *Total Quality Management Handbook*, McGraw-Hill, New York.

Kinnell, M. & Garrod, P. (1995) "Benchmarking and its Relevance to the Library and Information Sector: Interim Findings of 'Best Practice Benchmarking in the Library and Information Sector', a British Library Research and Development Department Project.", *Proceedings of the Northumbria International Conference of Performance Measurement in Libraries and Information Services*, Information North, Newcastle-upon-Tyne, pp. 159-171.

Morgan, S. (1995) *Performance Assessment in Academic Libraries*, Mansell, London.

Oakland, J.S. (2003) *Total Quality Management: Text with Cases*, 3rd edn, Butterworth-Heinemann, Oxford.

Oakland, J.S. (1993) *Total Quality Management: The Route to Improving Performance*, 2nd edn, Butterworth-Heinemann, Oxford.

Rittel, H.W. & Webber, M.M. (1973) "Dilemmas in a General Theory of Planning", *Policy Sciences*, vol. 4, no. 2, pp. 155-169.

SCONUL Performance Portal, available at <http://vamp.diglib.shrivenham.cranfield.ac.uk/> [Accessed 28 September 2007]

Senge, P.M. (2006) *The Fifth Discipline : The Art and Practice of the Learning Organization*, Rev. edn, Random House Business, London.

Shaughnessy, T.W. (1993) "Benchmarking, Total Quality Management and Libraries", *Library Administration and Management*, vol. 7, no. 1, pp. 7-12.

Sila, I. & Ebrahimpour, M. (2002) "An Investigation of the Total Quality Management Survey Based Research Published Between 1989 and 2000", *International Journal of Quality & Reliability Management*, vol. 19, no. 7, pp. 902-970.

St. Clair, G. (1997) *Total Quality Management in Services*, Bowker Saur, London.

Strauss, A. & Corbin, J. (1998) *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, 2nd edn, Sage, Thousand Oaks.

Tenner, A.R. & De Torro, I.J. (1992) *Total Quality Management: Three Steps to*

Continuous Improvement, Addison-Wesley, Wokingham.

Wilson, F. (2006) "What is the Meta-Quality of your Library?", *SCONUL Focus*, vol. 38, pp. 85-89.

Wilson, F. (2004) *The Long-Term Effects of Benchmarking in Academic Library and information Services*, Unpublished Masters Thesis, University of Bristol, Bristol.

Wilson, F. & Town, J.S. (2006) "Benchmarking and Library Quality Maturity", *Performance Measurement and Metrics*, vol. 7, no. 2, pp. 75-82.

Further Reading

Simon, H.A. (1996) *The sciences of the artificial*. 3rd edn, Cambridge, Mass: MIT Press.

APPENDIX N: presentation given to M25 Consortium of Academic Libraries Quality Working Group 24 June 2008

The Quality Maturity Model

Frankie Wilson

Structure of this talk

- Initial premises
- Context
- Research design
- Results (so far)
- The emerging Quality Maturity Model

PM in agile environments

- Quality Assurance (ISO9001) measures not suitable
- "If you always do what you've always done, you always get what you've always got"



Meta-Quality

- Agile environment - shifting goalposts.
- Quality of quality processes - can they cope?
- Not an alternative to many & varied methods of quality assurance - next level of abstraction.
- Quality culture = "The way quality gets done round here". Influences performance measures selected and attitude of management, staff and parent organisation to these measures

PM in Libraries

Importance

Inputs – budget, staff per FTE

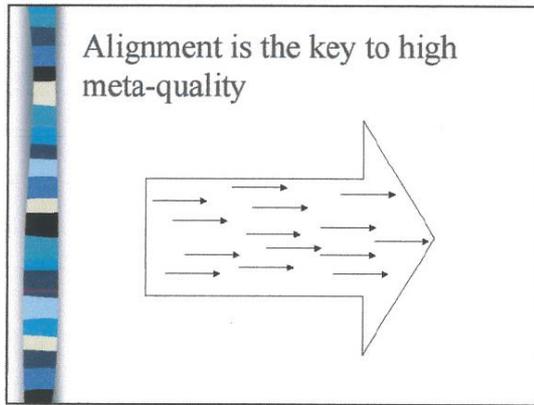
Outputs – n. loans, n. visits

Ratios - Value for Money

Outcomes – educational attainment

Ease of measurement

- Cutting edge techniques researched, promoted and endorsed, but not applied by more than minority
- Difficult to measure soft PMs, but these most important!
- Self measurement that fits workflow "I am too busy doing the job to measure"



The Quality Maturity Model

	Ad Hoc	Repeatable	Defined	Managed	Continuous
Man. of org.					
Env. sensing					
Learning org.					
Attitude to change					
Attitude to quality					
Leadership					
Invest. in staff					
Alignment					

- ### Management of the organisation
- Strategic plan generation
 - Management alignment (achieving SP)
 - Progress monitoring
 - Performance measurement
 - Project management processes

- ### Environmental sensing
- Customers (bottom up)
 - Gathering feedback
 - Collation of feedback
 - Action as a result of feedback
 - Organisation (top down)
 - Gathering feedback
 - Influencing organisation

- Wider context (inside out)
 - Gathering feedback
 - Involvement of staff in profession
 - Contribution to profession

- ### Learning organisation
- Staff empowerment
 - Staff involvement in change
 - Nature / level of learning
 - Attitude to mistakes
 - Attitude to risk
 - Staff encouragement to innovate



Attitude to change

- Attitude to change
- Perception of drivers for change



Attitude to quality

- Definition of quality (inc locus of control)
- Attitude to quality improvement
- Perception of responsibility for quality
- Type of quality improvement initiatives ("sexy" vs. "vanilla")



Leadership

- Vision and value setting
- Trust
- Inspiration and motivation



Investment in staff

- Attitude to staff (as an asset)
- Training provision
- Development of staff
- Recognition of staff



Alignment

- Vertical alignment
- Horizontal alignment
- Consistency
- Communication flow
- "little cogs" - staff see where they fit
- Structure
- Alignment of attitude to quality
- Alignment of attitude to change



A window into your beliefs

- Who has responsibility for quality?
- How do you try to improve quality?
- How do you measure the performance of your library?
- What are the drivers for change?
- What are the barriers to change?

APPENDIX O: Output of Iteration Two

Management of the organisation

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
1.1 Strategic plan generation	There is no strategic plan or annual operating plan.	There is a limited strategic plan.	The strategic plan is derived from (mediated) environmental sensing.	The strategic plan is derived from unmediated environmental sensing.	The strategic plan is derived from environmental sensing (customers; organisation; and wider context).
1.2 Management alignment (a)	Actions are solely reactive to events.	The strategic plan includes breakthrough improvement processes. Many actions are unrelated to the strategic plan and are reactive to events.	The strategic plan includes breakthrough improvement processes. Some actions are unrelated to the strategic plan.	The strategic plan includes breakthrough improvement processes.	All improvement processes, both incremental and breakthrough, flow from the strategic plan and it is updated to reflect new developments.
1.2 Management alignment (b)	Goals for individuals, teams and the LIS are poorly defined, if present.	Goals for specific high-level managers are linked to the strategic plan. Goals for most staff are poorly defined, if present.	All senior staff have goals, some of which are related to the strategic plan.	Goals for achieving the strategic plan are cascaded down throughout the LIS to all appropriate staff.	Goals for achieving the strategic plan are cascaded down throughout the LIS. All staff have individual goals, which contain both improvement and “business as usual” targets.

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
1.3 Progress monitoring	There is no monitoring of progress in achieving goals.	There is no monitoring of progress in achieving goals.	There is (infrequent) monitoring of progress in achieving goals, but no corrective action taken.	There is monitoring of progress in achieving goals, and some corrective action is taken.	Progress in achieving goals is closely monitored and corrective action taken where necessary.
1.4 Performance measurement	Only basic statistical measures are collected, but are used for competitive analysis (“we have more books than X”) if at all.	Basic statistical measures are collected and used for competitive analysis. Customer feedback is also viewed as an indicator of performance.	Customer feedback and measures of internal processes (e.g. time taken to re-shelve a book) are used to determine how the LIS is performing.	A range of performance indicators are used to determine how the LIS is performing. Key Performance Indicators may exist, but are not necessarily fully aligned with metrics used or strategic aims of the LIS.	A range of balanced performance measures are used to monitor how well the LIS is achieving its aims. Metrics closely align with Key Performance Indicators, which closely relate to strategic aims and mission. Performance measures are regularly evaluated to determine whether they continue to accurately and appropriately measure performance.
1.5 Project management processes	Changes are just implemented – no processes are used.	<i>Ad hoc</i> processes are used to implement changes. How it is done depends on who is leading the change.	Changes are implemented through <i>ad hoc</i> project management processes.	Breakthrough changes are implemented through coherent project management processes, including project planning, monitoring and impact assessment.	All changes (incremental and breakthrough) are implemented through project management processes, including project planning, monitoring and impact assessment. Ad hoc projects and changes managed to the same level as planned strategic projects.

Environmental sensing - customers

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
2.1 Gathering of feedback	Feedback from customers is gathered ad hoc and reactively.	Feedback is gathered from customers proactively to assess satisfaction. Feedback is sought from a sub-set of customer groups only. A limited number of methods is used.	Feedback is gathered proactively via a range of methods.	Feedback is gathered proactively via a wide range of methods to access views of all customers.	Feedback is gathered proactively via a wide range of methods to access views of all customers and non-customers. Feedback is proactively sought to assess impact of changes on customer satisfaction.
2.2 Collation of feedback	Feedback is not collated.	Feedback may be collated.	Feedback is collated separately for each source.	Feedback is collated across all feedback methods and analysed for consistency.	Feedback is collated across all feedback methods and analysed for consistency. Collated feedback is analysed over time to identify trends.
2.3 Respond to feedback	Feedback is responded to with excuses, or discounted as due to customers “not understanding the LIS way”	Feedback is responded to with explanation, excuses, or discounted as due to customers “not understanding the LIS way” Changes are not reported.	Feedback is responded to with details of changes, or explanation of why changes cannot be made. The locus of control is presented as the LIS (“we decided to do ...”).	Feedback is responded to with details of changes, including timescales for longer-term changes. The locus of control is presented as customers (“you said ... we did ...”).	Feedback is responded to with details of changes, including timescales. Changes are proactively advertised as based on feedback (locus of control is presented as customers).

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
2.4 Act on feedback	No changes are made in response to feedback.	A small number of changes are made on the basis of feedback. Changes are made only if small and/or agree with LIS's point of view ("sensible" "possible").	Most feedback results in changes. However changes are limited to those "within the LIS's control"	All feedback results in change (though some may be long-term), including changes to non-LIS elements and big changes requiring institutional funding and support.	All feedback results in change (though some may be long-term), including changes to non-LIS elements and big changes requiring institutional funding and support. Analysis of trends leads to anticipatory changes, with both long- and short-term future focus. Feedback leads to changes in overall goals and strategy.

Environmental sensing – organisation

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
2.5 Feedback gathering	Instructions from the parent organisation are obtained <i>ad hoc</i> .	Instructions are proactively obtained from the parent organisation.	Indicators of desired direction are obtained proactively from the parent organisation.	Indicators of desired direction are obtained proactively from the parent organisation, and other sibling departments. Feedback is proactively sought from the parent organisation and other departments.	Knowledge of wider organisational context is obtained. Indicators of possible future directions of the parent organisation are monitored. Indicators of desired direction are obtained proactively from the parent organisation, and other sibling departments. Feedback is proactively sought from the parent organisation, and other departments.

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
2.6 Influencing organisation	Change is responded to <i>ad hoc</i> as instructions from the parent organisation.	Change is imposed top down as instructions from the parent organisation.	Changes are determined top down in response to desired direction from the parent organisation.	LIS negotiates with parent organisation and sibling departments for change implementation (both to achieve change desired by LIS and mitigate change, if contradictory to other feedback, desired by parent and siblings).	LIS influences parent organisation and sibling departments in determination of organisational change.

Environmental sensing – wider context

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
2.7 Feedback gathering	The LIS is unaware of position, policies and practices in other LIS. There is no awareness of possible future developments.	The LIS seeks out specific information relating to potential changes (“We want to do X – how did others do it?”). Specific staff may attend conferences <i>ad hoc</i> .	Indicators of a wide range of best practice (research and practice) are obtained <i>ad hoc</i> (“What are the issues around X?”). A range of staff attend conferences <i>ad hoc</i> .	Indicators of best practice (research and practice) are proactively and comprehensively obtained (“What is going on?”). All staff are encouraged to read professional literature and attend conferences.	Knowledge of the wider professional context is obtained. Indicators of possible short- and long-term future directions of LIS are monitored (including current best practice, research and ‘cutting edge’ (“What might be going on in the future?”).

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
2.8 Involvement & contribution of staff in profession	The LIS does not engage with 'the profession'.	The LIS does not contribute to wider professional knowledge, but does engage with the profession.	LIS staff may contribute to wider professional knowledge <i>ad hoc</i> .	LIS staff are able to contribute to wider professional knowledge through publications, experience sharing and conferences. Limited projects may be undertaken if do not 'interfere' with the LIS business.	The LIS actively contributes to wider professional knowledge through projects, publications, experience sharing, and conference papers. All staff are encouraged to contribute. The LIS operates at the cutting edge in at least some areas.

Learning organisation

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
3.1 Staff empowerment	Decisions are not taken, or are taken <i>ad hoc</i> .	Decision making is controlled by the top.	There is limited middle management decision making	Staff are empowered to make decisions about their own job (with support of the management structure).	Staff are empowered to make decisions about anything (with consultation and 'permission'), with the lowest possible locus of control.
3.2 Staff involvement in change	Staff try to prevent change.	Staff are passive in the change process.	Staff are informed of change and sometimes participate in the process.	Staff are included in the change process and the implementation of change.	Staff are the drivers of change, and the implementation of change.
3.3 Learning	Learning is personal.	There is some shared learning within work units.	There is some shared learning between co-ordinated work units.	There is some shared learning throughout the LIS.	There is shared learning, information and knowledge throughout the LIS.

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
3.4 Attitude to mistakes	Mistakes are hidden due to a blame culture.	Mistakes are fixed – they are viewed as the result of the person not following procedure.	Mistakes are fixed – they are viewed as indicative of faulty processes (especially not enough training).	Mistakes are viewed as opportunities for learning.	Mistakes are viewed as opportunities for learning and are accepted as inevitable if trying new things.
3.5 Attitude to risk	The LIS is risk averse – refuses to take risks.	The LIS is risk averse – may occasionally take what it views as risks, but only if they are virtually guaranteed to work.	The LIS is risk averse – employs checks and balances to minimise risks.	The LIS is risk tolerant – willing to accept risk-taking behaviour (“It is OK to take risks, no-one will die!”).	The LIS is risk seeking – encourage risk taking behaviour (“It is better to do something and fail than to wait to be certain it will work and do nothing”).
3.6 Staff encouragement to innovate	Innovation is discouraged.	‘Innovation’ from senior staff is tolerated (inspiration is taken from elsewhere).	Middle management and specific specialist staff are encouraged to innovate (innovations are taken from elsewhere).	Most staff are encouraged to innovate, but this does not include the most junior levels.	All staff at all levels are encouraged to innovate.

Attitude to change

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
4.1 Attitude to change	The LIS is change averse – change is avoided and prevented. Change is perceived as disruptive to the ‘day job’. “If it ain’t broke, don’t fix it”.	The LIS is change resistant – it prefers stability and permanence. Staff list reasons why change is bad and will fail. “Whether change is good or bad depends on what the change is”.	The LIS is change managing – stability and permanence are preferred, but change accepted as inevitable. “Change is good if done well”.	The LIS is change friendly – there are systems and processes in place to make implementation of change easy. “Change is good if it is done to improve things”.	The LIS is change seeking – constantly seeking to change. “To stand still is to regress”.
4.2 Perception of drivers for change	Change is viewed as imposed top down.	Change is viewed as imposed top down – though the influence of external factors on the LIS management is acknowledged.	Change viewed as driven by customers and/or parent organisation and/or external environment.	Change viewed as driven by customers and parent organisation and external environment.	Change viewed as driven by everyone, with focus on serving and anticipating changing needs of customers and environment.
4.3 Identification of barriers to change	Barriers are the structure / hierarchy / bureaucracy / competency of middle management.	Barriers are the attitudes of staff.	Barriers to change are resources (money / space / time / staff). These barriers are insurmountable.	Barriers to change are other parts of the parent organisation.	There are no barriers that cannot be overcome.

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
4.4 “Vanilla” vs. “sexy”	Changes are implemented to ensure that existing policies / procedures / practices are properly adhered to by everyone. ‘Get the vanilla right’.	Changes are implemented to produce incremental improvements to the what the LIS is already doing (the ‘vanilla’).	Changes are implemented in terms of breakthrough new projects, in order to offer new products / services.	Changes are implemented to produce both incremental and breakthrough improvements.	Changes are implemented to produce both incremental and breakthrough improvements. Staff are aware of why both necessary, and both are included in targets.

Attitude to quality

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
5.1 Definition of quality	Quality is defined by the LIS (e.g. “We provide a perfect classification systems, it is their fault if they can’t find the book”)	Quality is defined as happy face-to-face customers.	Quality is defined as customer satisfaction with products and services. Locus of control is the LIS (e.g. service level agreement levels determined by the LIS). Targets for quality are implicit or secret.	Quality is defined as customer satisfaction with products and services. Locus of control is the LIS (e.g. service level agreement levels determined by the LIS). Targets for quality are explicitly advertised.	Quality is defined by the customer. Locus of control is the customers (e.g. service level agreement levels are determined by customers). Targets for quality are explicitly advertised.

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
5.2 Quality improvement	Quality is absolute, rather than relative.	Quality is achieved by luck / accident.	Quality improvement focuses on improving the products and services. Quality improvement is written in the strategy of the LIS.	Quality improvement focuses on improving processes by which products and services are achieved. Quality and improvement measures are written into documented work processes.	Quality improvement is viewed as a continuous processes. All staff are encouraged to continually improve themselves and their work.
5.3 Perception of responsibility for quality	Quality is the responsibility of everyone to do their best to adhere to procedures.	Quality is the responsibility of people serving customers face-to-face to be 'nice'.	Quality achievement is the responsibility of the management of the LIS, though it may be explicitly devolved down for specific areas.	Quality for a particular area is the responsibility of the people in that area.	Quality for the whole LIS is everyone's responsibility.

Leadership

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
6.1 Vision and value setting	The leader has not set their vision and values.	The leader has clearly articulated their vision and values.	The leader has articulated their vision and values, and communicated it to all staff through a variety of mediums, including dialogue sessions. They embody it by 'walking the talk'. It is covered in new staff induction.	The leader has articulated and communicated their vision and values, which underpin policies, practices, targets, KPIs, staff development, and behaviour. They and other key people 'walk the talk'.	The leader has articulated, communicated, and aligned their vision and values. All staff 'walk the talk' i.e. behaviour in accordance with the vision and values is second nature. There are initiatives in place to ensure this behaviour is sustained.
6.2 Trust	The leader engenders distrust and a lack of openness.	There is distrust in the leader, attributed to lack of understanding on their part. There is no feeling of openness.	There is a lack of distrust in the leader. There is a feeling of openness.	There is trust in the leader and a feeling of openness.	The leader engenders trust and a feeling of openness. They have the 'hearts and minds' of staff.
6.3 Inspiration and motivation	Staff are generally demotivated.	New staff are generally motivated to perform, but over time staff become demotivated by the LIS culture.	Staff are personally motivated to perform.	Specific teams are motivated and inspired to perform.	Leader inspires, motivates, encourages, organises and directs staff to ensure that all the other aspects of achieving a mature quality culture happen.

Investment in staff

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
7.1 Staff as an asset	There is no specific commitment to staff development.	There is a commitment to the achievement of staff development, where staff development is equated with training.	There is a commitment to the achievement of staff satisfaction, development and well-being.	Systems, structure and processes are in place to achieve staff satisfaction, development and well-being.	People are viewed as the LIS's most critical asset. Staff <i>feel</i> the commitment of the LIS to them.
7.2 Training provision	Training is ad hoc and related to the inability to perform specific work task.	There is a reactive training programme, related to work tasks and ad hoc requests.	There is a training programme related to training needs assessment, and provision is related to this.	There is a training programme comprising training needs assessment, provision, and an assessment of the effectiveness of the training. Training is provided in the tools, techniques and skills for improvement. Data gathering and reflection are encouraged.	There is a training programme comprising training needs assessment, provision, and an assessment of the effectiveness of the training. Training is related to future necessary skills and account is taken of succession planning and developing skills required for the future. Training is provided on 'learning how to learn'. Time is built in to work for critical reflection.

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
7.3 Development of staff	There is no development of staff.	Staff are supported in their professional development ad hoc.	Staff are supported in their professional development. There is a clear progression path for some staff.	Staff are supported in their professional and personal development. There is an appreciation that happy and fulfilled staff are more engaged and so produce better work. There is a clear progression path for all staff.	Staff are supported in their professional and personal development. Future leaders are identified and coached. All staff are encouraged to develop their career and their talents, and there is a clear progression path (which may involve leaving the organisation to progress). Staff feel valued as a whole person.
7.4 Recognition of staff	Staff do not feel their work makes a difference.	Staff may feel recognition for their work, dependent on the characteristics of their line manager.	There is a commitment to the recognition of staff, though there are no specific systems in place.	There are systems, structures and processes in place for recognition and/or reward and/or progression of staff.	Staff “feel the love” due to recognition and/or reward and/or progression systems, structures and processes.

Alignment

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
8.1 Vertical alignment	There is no vertical alignment.	There is no vertical alignment	The LIS is aiming for vertical alignment.	There is some vertical alignment, with some areas of 'blockage'.	The LIS is fully aligned vertically in vision, values, attitudes, policies and practices.
8.2 Horizontal alignment	There is no co-ordination between work units.	There is some ad hoc co-ordination between work units.	There is planned co-ordination between work units	The concept of the internal customer is applied between work units.	A systems approach is taken – "managing the whole elephant".
8.3 Consistency	Work processes are dependent on the person undertaking them.	Basic work processes are documented and consistently applied.	Consistency is ensured by documented processes, practices and policies, or job description (as appropriate).	Consistency is ensured by documented processes, practices and policies or job description. Training is provided regularly to emphasise these.	Consistency is ensured by documented processes, practices and policies or job description, which are regularly reviewed for improvement. Training is regularly provided.
8.4 Communication flow	Limited information flows top down.	Limited information flows top down and bottom up. Messages are mediated before being passed down, and limited bottom up communication is sought.	Communication flows top down and bottom up. Not all staff feel confident in the free flow of communication.	Communication flows top down and bottom up. Channels exist for circumventing any blockages to communication.	Multiple methods exist for top down, bottom up and lateral communication. Communication is unambiguous and consistent, with a clear purpose.

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
8.5 Staff recognition of where they fit into the overall scheme	Staff member's approach to the purpose of the LIS is dependent on their specific work.	Staff member's approach to the purpose of the LIS is dependent on their work unit or area.	All staff understand the overall aims and purpose of the LIS. Most understand their contribution to achieving them.	All staff understand the overall aims of the LIS and their contribution to achieving them. Leaders understand how all staff contribute to the achievement of LIS aims.	All staff understand how the overall aims of the LIS contribute to the achievement of the aims of the parent organisation, and how they contribute to achieving them. Leaders of the parent organisation understand how the LIS contributes to the overall aims of the organisation.
8.6 Structure	The structure of the LIS creates silos - it is a barrier to integration and communication.	Some parts of the structure of the LIS are a barrier to integration and communication.	The structure of the LIS is not a barrier to integration and communication.	The structure of the LIS facilitates alignment, integration and communication.	The structure of the LIS facilitates alignment, integration and communication and is flexible so is not a barrier to change.
8.7 Alignment of attitude to quality	There is no quality culture.	There is no quality culture.	Quality culture is weak.	Quality culture is strong.	Quality culture is ubiquitous.
8.8 Alignment of attitude to change	The attitude to change is inconsistent.	The attitude to change is varied.	The attitude to change is split along specific lines (team, location, grade).	The attitude to change is widespread, with some known non-aligned areas.	The attitude to change is universal.

APPENDIX P: Text for testing of questionnaire at Middlesex

Welcome

Welcome to the Quality Culture Test Survey.

This survey includes a first draft version of the Quality Maturity Assessment Questionnaire, which I have created. When it is fully developed, it is intended that the questionnaire will position a Library or Information Service on the Quality Maturity Model (which I have also developed). This will enable management to determine the areas to focus on for improvement.

This survey aims to gather feedback on the questionnaire and on the assessment process. It forms part of the data gathering for my PhD.

The survey is anonymous, contains 40 multiple-choice questions and takes around 15 minutes to complete. There is also a question asking for your feedback on the questionnaire itself.

Please answer the questions based on your opinion or how you feel. You should answer them quickly as I am looking for your 'gut feeling' reaction

Thank you for helping me,
Frankie Wilson

<new page>

Data Protection Statement

All data collected in this survey will be held anonymously and securely. No personal data is requested.

Cookies (personal data stored by your Web browser) are not used in this survey.

All the results will be based on aggregated data. The results will be split by question, section, grade, or team of respondent in order to undertake the necessary analysis.

The results will be fed back to Nick Bevan so he can evaluate the whole process and give me feedback. I will not use the results, only the feedback. Nick will not use the results - Middlesex Library and Student Support is participating solely to support my academic studies.

The free text comments you provide in the final section (feedback about this questionnaire) may be used in my thesis. Any quotations used will be anonymous.

Frankie Wilson

<new page>

<Quality Culture Assessment Questionnaire>

<new page>

Your feedback about the questionnaire

This questionnaire is in the very early stages of development. If you have any feedback about it, positive or negative, please comment below. I will use your comments to improve it.

41. Please leave your comments/feedback about the questionnaire. (Optional)

<new page>

Final Page

Thank you very much for completing this questionnaire.

The results will be shared with Nick Bevan so he can provide feedback to me about the process. This feedback, and any feedback you gave in the last section, will be used in my research. The results of the questionnaire will not be used in my research, or by Nick.

Thank you for helping in my PhD research.

Frankie Wilson

frankie.wilson111@gmail.com

APPENDIX Q: Text for testing of questionnaire at Brunel

Welcome

Welcome to the Quality Culture Test Survey.

This survey includes a draft version of the Quality Maturity Assessment Questionnaire, which I have created. When it is fully developed, it is intended that the questionnaire will position a Library or Information Service on the Quality Maturity Model (which I have also developed). This will enable management to determine the areas to focus on for improvement.

This survey aims to gather feedback on the questionnaire and on the assessment process. It forms part of the data gathering for my PhD.

The survey is anonymous, contains 40 multiple-choice questions and takes around 15 minutes to complete. There is also a question asking for your feedback on the questionnaire itself.

Please answer the questions based on your opinion or how you feel. You should answer them quickly as I am looking for your 'gut feeling' reaction

Thank you for helping me,
Frankie Wilson

<new page>

Data Protection Statement

All data collected in this survey will be held anonymously and securely. No personal data is requested.

Cookies (personal data stored by your Web browser) are not used in this survey.

All the results will be based on aggregated data. The results will be split by question, section, grade, or team of respondent in order to undertake the necessary analysis.

The results will be fed back to Ann Cummings so she can evaluate the whole process and give me feedback. I will not use the results, only the feedback. Ann might use the results, but the reason for Brunel Library participating is to support my academic studies.

The free text comments you provide in the final section (feedback about this questionnaire) may be used in my thesis. Any quotations used will be anonymous.

Frankie Wilson

<new page>

<Quality Culture Assessment Questionnaire>

<new page>

Your feedback about the questionnaire

This questionnaire is in the very early stages of development. If you have any feedback about it, positive or negative, please comment below. I will use your comments to improve it.

41. Please leave your comments/feedback about the questionnaire. (Optional)

<new page>

Final Page

Thank you very much for completing this questionnaire.

The results will be shared with Ann Cummings so she can provide feedback to me about the process. This feedback, and any feedback you gave in the last section, will be used in my research. The results of the questionnaire will not be used in my research. They might be used by Ann (depends what they show).

Thank you for helping in my PhD research.

Frankie Wilson
frankie.wilson111@gmail.com

APPENDIX R: Draft QCAI questionnaire before pretesting

Welcome

Welcome to the Quality Culture Test Survey.

This survey includes a first draft version of the Quality Maturity Questionnaire. When it is fully developed, it is intended that the Quality Maturity Questionnaire will position the library on the Quality Maturity Model. This will enable Library management to determine the areas to focus on for improvement.

This survey aims to gather feedback on the Quality Maturity Questionnaire, and on the Quality Maturity assessment process.

The survey is completed anonymously and takes around 15 minutes to complete.

Note that once you have clicked on the CONTINUE button at the bottom of each page you can not return to review or amend that page

[new page]

Data protection statement

All data collected in this survey will be held anonymously and securely. No personal data is requested.

Cookies (personal data stored by your Web browser) are not used in this survey.

All the results will be based on aggregated data. The results will be split by question, section, grade, or team of respondent in order to undertake the necessary analysis.

The results will be fed back to the Library Director so s/he can evaluate the whole process. The researcher will not use the results.

The free text comments you provide in the final section, feedback about this questionnaire, may be used in the thesis of the researcher. Any such used quotes will be anonymous.

[new page]

Please select the statement that best describes how you see the situation at <LIS name>.

Questions are mandatory unless marked otherwise.

Note that when you have clicked on the CONTINUE button your answers are submitted and you can not return to review or amend that page.

About you

Part of this survey looks at whether there are any differences in the answers from different parts of the Library.

To do this, we need to know your team and your level/grade.

The answers will be averaged across each team or level/grade. E.G. "The shelving team have an average score of ..." or "Staff at grade 6 have an average score of ..."

Your answers will not be used to individually identify you. Individual responses will not be communicated to the Library.

Q1 What team are you in?

- A1 Academic support
- A2 Administration
- A3 Bibliographic services
- A4 Helpdesk
- A5 IT support
- A6 Senior management team
- A7 Student portal

Q2 What grade are you?

- A1 3
- A2 4
- A3 5
- A4 6
- A5 7
- A6 8
- A7 9
- A8 Senior staff

Management of the Library

Q3 Are you involved in the strategic planning or action / operational planning process?

- A1 Yes [-> Q3a and Q3b are displayed]
- A2 No [-> Q3a and Q3b are not displayed]

Q3a How is the strategic plan generated?

- A1 There is no strategic plan
- A2 There is a limited strategic plan
- A3 The strategic plan is derived from reasonable/achievable feedback from users.

A4 The strategic plan is derived directly from user feedback OR from the University's strategic plan OR from awareness of developments at other universities.

A5 The strategic plan is derived from feedback from users, the University's strategic plan, and awareness of new developments at other universities.

Q3b How are actions related to the strategic plan?

A1 Actions are solely reactive to events.

A2 The strategic plan includes 'big project' improvements, but many actions are unrelated to the strategic plan and are reactive to events.

A3 The strategic plan includes 'big project' improvements, although some actions are still unrelated to the strategic plan.

A4 The strategic plan includes 'big project' improvements.

A5 All improvement processes, both incremental and 'big project', flow from the strategic plan, and it is updated to reflect new developments.

Q4 Do you have any goals or targets for the work you do?

A1 No.

A2 Yes, but I am not sure what they are.

A3 Yes.

A4 Yes, there are team goals that come down through the management structure from the strategic plan.

A5 Yes, there are team goals that come from the strategic plan, and I have individual goals too.

Q5 In your experience, how is progress towards achieving targets or goals monitored?

A1 There is no monitoring of progress.

A2 There is some monitoring of progress.

A3 There is monitoring of progress, and corrective action is sometimes taken.

A4 Progress is closely monitored and corrective action taken where necessary.

Q6 How is the Library's performance measured?

A1 We use statistical measures, e.g. spend per FTE, number of PCs, number of journals subscribed to, number of transactions (i.e. the SCONUL return).

A2 We use statistical measures and also user feedback.

A3 We use user feedback and measures of internal processes relating to user expectations, e.g. time taken to re-shelve books.

A4 We use a range of performance indicators and have some KPIs (key performance indicators).

A5 We use a range of balanced performance measures and the KPIs closely relate to the strategic aims. The measures are regularly evaluated.

A6 I don't know.

Q7 How are changes to services/processes/procedures managed?

A1 Changes are just implemented.

A2 It depends on what the change is and who is leading it.

A3 Changes are implemented through project management processes developed for that project.

A4 'Big project' changes are implemented through standard project management processes, including planning, monitoring and impact assessment.

A5 All changes (incremental and 'big project') are implemented through standard project management processes.

Environmental sensing

Q8 How does the Library gather feedback from its users?

A1 There are feedback/complaints forms, and users tell us/email us if they are not happy.

A2 We ask students at boards of study/course committees or via a survey. There are also feedback forms.

A3 We ask students using a range of methods, e.g. course committees, surveys, focus groups, feedback boards.

A4 We use a range of methods to get feedback from all users (students, academic staff, researchers).

A5 We use a range of methods to get feedback from all users. We specifically gather feedback on the impact of any changes we make.

Q9 What happens to user feedback?

A1 We respond to it.

A2 We respond to it. Some of it is collated and reported.

A3 We respond to it. The feedback from course committees is collated, and the survey results are collated, but separately.

A4 We respond to it. It is collated across all feedback methods.

A5 We respond to it. It is collated across all feedback methods and analysed over time for trends.

Q10 How is user feedback responded to?

A1 We explain the reasons behind the problem, or how the user should be doing things.

A2 We explain the reasons behind the problem, or how the user should be doing things. Sometimes we decide to change things.

A3 We respond with details of the changes we have made, or an explanation of why changes cannot be made.

A4 We respond with details of changes, including timescales for longer term changes. We make it clear that these changes are a result of feedback.

A5 We respond with details of changes, including timescales. We advertise the feedback we received and the changes made to address it.

Q11 What changes are made in response to user feedback?

A1 No changes are made in response to feedback.

A2 Some changes are made on the basis of feedback, if they are sensible and possible.

A3 Most feedback results in changes, as long as we are able to do so.

A4 All feedback results in change (though some may be long term), including big changes requiring institutional funding and support.

A5 All feedback results in change. We also analyse trends and make changes in anticipation of what users will want.

Q12 How does the Library know what the University wants?

A1 They tell the Director what to do.

A2 The Director asks them what to do.

A3 The Director finds out from the University strategic plan.

A4 The Director finds out from the University strategic plan and the plans of other service departments.

A5 The Director knows what is going on in the University and monitors possible future directions. S/He proactively seeks their feedback on Library plans.

A6 I don't know.

Q13 How does the Library influence the changes the University wants to make?

A1 The University tells us what to change, not the other way round!

A2 The University sets the Library plan for the year and we agree to it.

A3 The Library management decide what changes to make in response to the University strategic plan.

A4 The Director negotiates with the University and other departments about what changes to implement and how to do so. It is a two-way process.

A5 The Library contributes to the wider University strategic planning process, not just those relating to the Library.

A6 I don't know.

Q14 How does the Library know what is going on in the same areas in other Universities?

A1 It doesn't.

A2 If we want to do something, we find out how others did the same thing. Some staff go to conferences.

A3 We find out the best practice relating to our work area. A range of staff go to conferences.

A4 The Library gathers best practice information in all areas. We are all encouraged to read professional literature and attend conferences.

A5 The Library gathers best practice information and we read professional literature and attend conferences. It looks at possible future directions.

Q15 How do Library staff interact with the wider profession?

A1 We don't.

A2 Most are on mailing lists.

A3 We can go to conferences or special interest groups if we want to. Some people have presented at conference or written articles.

A4 We contribute through publications, experience sharing and conferences. We can do research projects if it does not interfere with normal work.

A5 We are all encouraged to take part in research projects, publications, experience sharing, and conferences. The Library is cutting edge in some areas.

Organisational learning

Q16 Who do you feel is allowed to make decisions?

A1 People don't really make decisions.

A2 Senior management.

A3 Managers.

A4 Anyone can make decisions about their own job.

A5 We can all make decisions about anything, as long as we get permission to make that decision and consult with people.

Q17 Are you involved in changes?

A1 Only to point out the problems that they haven't thought of.

A2 Not really.

A3 I know about what the changes are. If it was relevant to my job I would change what I do.

A4 Yes. If it is in my area or I am on a project group I help to plan the changes.

A5 Yes, we come up with improvement ideas, and if they are approved we implement them.

Q18 If you go on a course, what do you do with what you have learned?

A1 I use it in my work.

A2 I share what I have learned with the others in my team.

A3 I share what I have learned with others in my team, and other teams where it is relevant.

A4 I do a report that any Library staff member can read/attend.

A5 I share it with the rest of the Library staff. We try to share learning, information and knowledge. We all know who to go to for more information about a topic.

Q19 What happens if you makes a mistake?

A1 I try to make up for it. If they find out then you get the blame.

A2 We fix it and make sure that whoever made the mistake knows what the correct procedure is.

A3 We fix it and make sure that whoever made the mistake has more training, or knows they can ask someone for help if they are unsure about something.

A4 We fix it, and use it as an opportunity for learning

A5 We fix it, and use it as an opportunity for learning. These things are going to happen if you are trying out new things.

Q20 Are you encouraged to take risks and try out new things?

A1 No - The Library doesn't take risks.

A2 Not really. The Library occasionally takes risks, but only if they are virtually guaranteed to work.

A3 Not really. If we are doing something new we try to minimise the possible risks.

A4 Yes, it is OK to take risks, no-one will die.

A5 Yes, it is better to do something and fail than to wait to be certain it will work and do nothing.

Q21 Are you supported in trying to improve the service you provide in your job?

A1 No.

A2 Yes, if it has been tried successfully somewhere else first.

A3 Yes.

Attitude to change

Q22 Is change a good thing?

A1 No, it is disruptive. If it ain't broke, don't fix it.

A2 It depends on what the change is. It can be good or bad.

A3 It is inevitable. It is good if it is done well.

A4 Yes, if it is done to improve things.

A5 Yes, it is essential.

Q23 Where does the impetus to change come from?

A1 From the Library management team.

A2 From the Library management team, though they are under pressure from the University.

A3 From users / the University / technology.

A4 From users and the University and technology.

A5 From everyone. The world is constantly changing and we try to anticipate what our users will want before they ask for it.

Q24 What is the main barrier to making changes?

A1 The structure/hierarchy/bureaucracy of the Library.

A2 The attitudes of some members of staff.

A3 Resources (money, space, time, staff).

A4 Other parts of the University.

A5 None - there is always a way to overcome barriers.

Q25 What sort of changes should the Library make?

A1 None.

A2 To make sure we are doing things right.

A3 To improve the things we are doing.

A4 To implement new products or services.

A5 Both to improve things we are doing and to implement new products or services.

Attitude to quality

Q26 How does the Library try to provide a quality service?

A1 We make sure all our systems are as good as they can possibly be, and that everyone follows procedures properly.

A2 We try to provide excellent customer service.

A3 We try to make sure our users are happy with what we do.

A4 We try to make sure our users are happy with what we do. We have service level agreements written by Library staff.

A5 We try to make sure our users are happy with what we do, and anticipate what they want before they ask for it. We have service level agreements written by our customers.

Q27 How does the Library try to improve quality?

A1 We make sure that everything is done properly.

A2 We have constraints on what we can do (money / building etc.), so it can be down to luck and if we have the money or space to make improvements.

A3 We try to improve the products and services we offer. Quality is part of our strategic plan.

A4 We try to improve the processes we use to develop products and services. Quality and performance measures are part of our strategic plan.

A5 It is a continuous process. We are all encouraged to continually improve our work, and to develop ourselves. Quality and performance measures are part of our strategic plan.

Q28 Who has responsibility for quality?

A1 Quality is the responsibility of everyone to do their best to follow procedures.

A2 Quality is the responsibility of people front of house to give excellent customer service.

A3 Quality is the responsibility of the Library management team, though it may be devolved down to managers for specific areas.

A4 Quality for a particular area is the responsibility of the people in that area.

A5 Quality for the whole Library is everyone's responsibility.

Leadership

Q29 Do you know what the vision and values are that the Director has set out for the Library?

A1 Yes. [-> Q29a is displayed]

A2 No. [-> Q29a is not displayed]

Q29a How do you know?

A1 I have seen them written down somewhere.

A2 We had a briefing document/presentation/workshop where we were told about them.

A3 They were talked about during my induction.

A4 They are part of what we do (policies, targets, development).

A5 They are who we are. It is how everyone behaves.

Q30 Do you trust management?

A1 No.

A2 I'm sure they are doing their best, but they don't really understand.

A3 I don't distrust them.

A4 Yes, you have to trust them to do their job.

A5 Yes, it is clear from what they have done in the past that they know what to do for the best of the Library.

Q31 Do you feel motivated to do the best you can?

A1 Not really.

A2 I do personally, but it is difficult. You loose enthusiasm.

A3 Yes I do.

A4 Yes, as a team we always do our best.

A5 Yes, we all do. The Library Director is inspirational and everything is in place to support you in doing so.

Investment in staff

Q32 Do you feel valued by the Library?

A1 Not really.

A2 Not really, but we receive training that we want/need.

A3 Sort of, they say they are committed to the achievement of staff satisfaction/development/well-being.

A4 Sort of, people are supported in developing themselves.

A5 Yes, I know that the Library sees the staff as it's most valuable asset.

Q33 What training do you receive?

A1 Training is provided when we need it on how to perform specific work tasks.

A2 There is a training programme related to specific work tasks, and we can request to go to specific training events if we want to.

A3 There is a training programme related to needs assessment (e.g. through appraisals or performance reviews), and provision is related to this.

A4 There is a training programme based on needs assessment and training is assessed for effectiveness. Training is provided on how to learn, and reflection is encouraged.

A5 There is a needs based training programme that is assessed for effectiveness. Training is provided on the skills required for the future. Critical reflection is encouraged in work time.

Q34 Do you feel supported in your development?

A1 No.

A2 I am supported if I ask for training related to my job.

A3 I feel supported in my professional development. There is a clear progression path for me.

A4 Yes, we are encouraged to develop ourselves professionally and personally. There is a clear progression path for everyone. The Library makes an effort to ensure we are happy.

A5 Yes, professionally and personally. The 'next generation' and 'high flyers' are actively encouraged. Progression is mapped for everyone, though it may involve leaving to progress.

Q35 Do you get recognition for doing a good job?

A1 No, what I do isn't noticed.

A2 No, but that is because of my line manager.

A3 Yes, but that is because of my line manager.

A4 The Library tries to recognise when staff have done a good job, but there are no specific systems in place.

A5 There are systems, structures and processes in place for the recognition/reward/progression of staff.

A6 Yes, the Library does this well. There are recognition/reward/progression systems in place to ensure everyone who does a good job is recognised.

Alignment

Q 36 How do you work with other teams?

A1 We all get on, but we don't really work together on things.

A2 We work with people from other teams on specific projects. Sometimes certain people from other teams will work with us.

A3 We work regularly with a specific other team.

A4 We have a system of 'internal customer' between teams.

A5 We all work together. If one part of the system is not working well, then the whole system might break.

Q37 If a new member of staff joined your team, how would they know what to do?

A1 They would learn from other people doing the job.

A2 There is a manual that documents the standard work processes. Not everything is in it though.

A3 Everything is in the manual/practices and policies/job description.

A4 Everything is in the manual/practices and policies/job description. There is regular training to remind everyone.

A5 Everything is in the manual/practices and policies/job description, which are reviewed to ensure they are current. Training is regularly provided.

Q38 How does communication work in the Library?

A1 Limited information flows top down, from senior managers, to managers, to their staff.

A2 Information flows top down and goes up via the same route. Not everything is passed on by my manager/the managers in my team.

A3 Information flows top down and goes up via the same route.

A4 Information flows top down and bottom up. We are asked for our opinions. If my manager/the manager in my team is not good at passing things on, I can go directly.

A5 There are lots of ways of communicating, e.g. through the management structure, via meetings, through the newsletter, email people, or pop in for a chat.

Q39 How does the structure of the Library staff work?

A1 The structure makes it difficult to work and communicate with other teams.

A2 The structure doesn't really make much difference.

A3 The structure makes it easy to work and communicate with other teams, and to see how the work we do fits with the overall strategy.

A4 The structure makes it easy to work and communicate with other teams, and see where we fit. It is flexible so it can adapt to changing circumstances.

Q40 What is the purpose of the Library, and how do you contribute to it?

Free text answers.

[new page]

Your feedback about the questionnaire

This questionnaire is in the very early stages of development. If you have any feedback about it, positive or negative, please comment below. Your comments will inform the next stage of its development.

Feedback on this questionnaire

Q41 Please leave your comments/feedback about the questionnaire. *(Optional)*

[new page]

Final Page

Thank you very much for completing this questionnaire.

The results will be shared with the Library Director so s/he can provide feedback to me about the process. This feedback, and any feedback you gave in the last section, will be used in my research. The results of the questionnaire will not be used in my research.

Thank you for helping in my PhD research.
Frankie Wilson

APPENDIX S: Pretesting questionnaire for formal testing 1 (screenshots)

Quality Culture Test Survey

Brunel UNIVERSITY LONDON

Welcome

Welcome to the Quality Culture Test Survey.

This survey includes a first draft version of the Quality Maturity Questionnaire. When it is fully developed, it is intended that the Quality Maturity Questionnaire will position the library on the Quality Maturity Model. This will enable Library management to determine the areas to focus on for improvement.

This survey aims to gather feedback on the Quality Maturity Questionnaire, and on the Quality Maturity assessment process.

The survey is completed anonymously and takes around 15 minutes to complete.

Note that once you have clicked on the CONTINUE button at the bottom of each page you can not return to review or amend that page

[Continue >](#)

[Top](#) | [Copyright](#) | [Contact Us](#)

Quality Culture Test Survey

Brunel UNIVERSITY LONDON

Data Protection Statement

All data collected in this survey will be held anonymously and securely. No personal data is requested.

Cookies (personal data stored by your Web browser) are not used in this survey.

All the results will be based on aggregated data. The results will be split by question, section, grade, or team of respondent in order to undertake the necessary analysis.

The results will be fed back to Nick Bevan so he can evaluate the whole process. The researcher will not use the results.

The free text comments you provide in the final section, feedback about this questionnaire, may be used in the thesis of the researcher. Any such used quotes will be anonymous.

[Continue >](#)

[Top](#) | [Copyright](#) | [Contact Us](#)

Quality Culture Test Survey

Brunel UNIVERSITY LONDON

Quality Culture Questionnaire

Please select the statement that best describes the situation as you see it at Middlesex.

Questions are **mandatory** unless marked otherwise.

Note that once you have clicked on the CONTINUE button your answers are submitted and you can not return to review or amend that page.

About you

Part of this survey looks at whether there are any differences in the answers from different parts of the Library.

To do this, we need to know your team and your level/grade.

The answers will be averaged across each team or level/grade. E.G. "The shelving team have an average score of ..." or "Staff at grade 6 have an average score of ..."

Your answers will not be used to individually identify you. Individual responses will not be communicated to the Library.

1. What team are you in? [More info](#)

Select an answer

2. What grade are you?

3 4 5 6 7 8 9 Senior Staff

Management of the Library

3. Are you involved in the strategic planning or action / operational planning process?

Yes No

a. How is the strategic plan generated?

There is no strategic plan.

There is a limited strategic plan.

We can all make decisions about anything, as long as we get permission to make that decision and consult with people.

17. Are you involved in changes?

- Only to point out the problems that they haven't thought of.
- Not really.
- I know about what the changes are. If it was relevant to my job I would change what I do.
- Yes. If it is in my area or I am on a project group I help to plan the changes.
- Yes, we come up with improvement ideas, and if they are approved we implement them.

18. If you go on a course, what do you do with what you have learned?

- I use it in my work.
- I share what I have learned with the others in my team.
- I share what I have learned with others in my team, and other teams where it is relevant.
- I do a report that any Library staff member can read/attend.
- I share it with the rest of the Library staff. We try to share learning, information and knowledge. We all know who to go to for more information about a topic.

19. What happens if you make a mistake?

- I try to make up for it. If they find out then you get the blame.
- We fix it and make sure that whoever made the mistake knows what the correct procedure is.
- We fix it and make sure that whoever made the mistake has more training, or knows they can ask someone for help if they are unsure about something.
- We fix it, and use it as an opportunity for learning.
- We fix it, and use it as an opportunity for learning. These things are going to happen if you are trying out new things.

20. Are you encouraged to take risks and try out new things?

- No - the Library doesn't take risks.
- Not really. The library occasionally takes risks, but only if they are virtually guaranteed to work.
- Not really. If we are doing something new we try to minimise the possible risks.
- Yes, it is OK to take risks, no-one will die.
- Yes, it is better to do something and fail than to wait to be certain it will work and do nothing.

21. Are you supported in trying to improve the service you provide in your job?

- No.
- Yes, if it has been tried successfully somewhere else first.
- Yes.

Alignment

36. How do you work with other teams?

- We all get on, but we don't really work together on things.
- We work with people from other teams on specific projects. Sometimes certain people from other teams will work with us.
- We work regularly with a specific other team.
- We have a system of 'internal customer' between teams.
- We all work together. If one part of the system is not working well, then the whole system might break.

37. If a new member of staff joined your team, how would they know what to do?

- They would learn from other people doing the job.
- There is a manual that documents the standard work processes. Not everything is in it though.
- Everything is in the manual/practices and policies/job description.
- Everything is in the manual/practices and policies/job description. There is regular training to remind everyone.
- Everything is in the manual/practices and policies/job description, which are reviewed to ensure they are current. Training is regularly provided.

38. How does communication work in the Library?

- Limited information flows top down, from senior managers, to managers, to their staff.
- Information flows top down and goes up via the same route. Not everything is passed on by my manager/the managers in my team.
- Information flows top down and goes up via the same route.
- Information flows top down and bottom up. We are asked for our opinions. If my manager/the manager in my team is not good at passing things on, I can go directly.
- There are lots of different ways of communicating, eg through the management structure, via meetings, through the newsletter, email people, or pop in for a chat.

39. How does the structure of the Library staff work?

- The structure makes it difficult to work and communicate with other teams.
- The structure doesn't really make much difference.
- The structure makes it easy to work and communicate with other teams, and to see how the work we do fits with the overall strategy.
- The structure makes it easy to work and communicate with other teams, and see where we fit. It is flexible so it can adapt to changing circumstances.

40. What is the purpose of the Library, and how do you contribute to it?

[Continue >](#)

Quality Culture Test Survey



Your feedback about the questionnaire

This questionnaire is in the very early stages of development. If you have any feedback about it, positive or negative, please comment below. Your comments will inform the next stage of its development.

Feedback on this questionnaire

41. Please leave your comments/feedback about the questionnaire. (Optional)

[Continue >](#)

Final Page

Thank you very much for completing this questionnaire.

The results will be shared with Nick Bevan so he can provide feedback to me about the process. This feedback, and any feedback you gave in the last section, will be used in my research. The results of the questionnaire will not be used in my research.

Thank you for helping in my PhD research.
Frankie Wilson

[Top](#) | [Copyright](#) | [Contact Us](#)

APPENDIX T: Pretesting questionnaire for formal testing 1 (Middlesex)

Please select the statement that best describes how you see the situation at Middlesex Library & Student Support.

I am looking for your opinions and feelings. Please give your initial 'gut feeling' answer.

Questions are mandatory unless marked otherwise.

Note that when you have clicked on the CONTINUE button your answers are submitted and you can not return to review or amend that page.

About you

Part of this survey looks at whether there are any differences in the answers from different parts of Library & Student Support.

To do this, we need to know your team and your grade.

The answers will be averaged across each team or level/grade. E.G. "The shelving team have an average score of ..." or "Staff at grade 6 have an average score of ..."

Your answers will not be used to individually identify you. Individual responses will not be communicated to Library & Student Support.

Q1 What team are you in?

- A1 Administration (inc. Communication)
- A2 IT Support
- A3 Library Bibliographic services
- A4 Library Operations Team
- A5 Library Teaching & Research Support
- A6 LSS Executive
- A7 Unihelp Team

Q2 What grade are you?

- A1 2
- A2 3
- A3 4
- A4 5
- A5 6
- A6 7
- A7 8
- A8 9
- A9 'Senior Manager'

Management of Library & Student Support

Q3 Are you involved in the strategic planning or action / operational planning process?

A1 Yes [-> Q3a and Q3b are displayed]

A2 No [-> Q3a and Q3b are not displayed]

Q3a How is the strategic plan generated?

A1 There is no strategic plan

A2 There is a limited strategic plan

A3 The strategic plan is derived from reasonable/achievable feedback from users.

A4 The strategic plan is derived directly from user feedback OR from the University's strategic plan OR from awareness of developments at other universities.

A5 The strategic plan is derived from feedback from users, the University's strategic plan, and awareness of new developments at other universities.

Q3b How are actions related to the strategic plan?

A1 Actions are solely reactive to events.

A2 The strategic plan includes 'big project' improvements, but many actions are unrelated to the strategic plan and are reactive to events.

A3 The strategic plan includes 'big project' improvements, although some actions are still unrelated to the strategic plan.

A4 The strategic plan includes 'big project' improvements.

A5 All improvement processes, both incremental and 'big project', flow from the strategic plan, and it is updated to reflect new developments.

Q4 Do you have any goals or targets for the work you do?

A1 No.

A2 Yes, but I am not sure what they are.

A3 Yes.

A4 Yes, there are team goals that come down through the management structure from the strategic plan.

A5 Yes, there are team goals that come from the strategic plan, and I have individual goals too.

Q5 In your experience, how is progress towards achieving targets or goals monitored?

A1 There is no monitoring of progress.

A2 There is some monitoring of progress.

A3 There is monitoring of progress, and corrective action is sometimes taken.

A4 Progress is closely monitored and corrective action taken where necessary.

Q6 How is Library & Student Support 's performance measured?

A1 We use statistical measures, e.g. spend per FTE, number of PCs, number of journals subscribed to, number of transactions (i.e. the SCONUL return).

A2 We use statistical measures and also user feedback.

A3 We use user feedback and measures of internal processes relating to user expectations, e.g. time taken to re-shelve books.

A4 We use a range of performance indicators and have some KPIs (key performance indicators).

A5 We use a range of balanced performance measures and the KPIs closely relate to the strategic aims. The measures are regularly evaluated.

A6 I don't know.

Q7 How are changes to services/processes/procedures managed?

A1 Changes are just implemented.

A2 It depends on what the change is and who is leading it.

A3 Changes are implemented through project management processes developed for that project.

A4 'Big project' changes are implemented through standard project management processes, including planning, monitoring and impact assessment.

A5 All changes (incremental and 'big project') are implemented through standard project management processes.

A6 I don't know.

Environmental sensing

Q8 How does Library & Student Support gather feedback from its users?

A1 There are feedback/complaints forms, and users tell us/email us if they are not happy.

A2 We ask students at boards of study/course committees or via a survey. There are also feedback forms.

A3 We ask students using a range of methods, e.g. course committees, surveys, focus groups, feedback boards.

A4 We use a range of methods to get feedback from all users (students, academic staff, researchers).

A5 We use a range of methods to get feedback from all users. We specifically gather feedback on the impact of any changes we make.

A6 I don't know.

Q9 What happens to user feedback?

A1 We respond to it.

A2 We respond to it. Some of it is collated and reported.

A3 We respond to it. The feedback from course committees is collated, and the survey results are collated, but separately.

A4 We respond to it. It is collated across all feedback methods.

A5 We respond to it. It is collated across all feedback methods and analysed over time for trends.

A6 I don't know.

Q10 How is user feedback responded to?

A1 We explain the reasons behind the problem, or how the user should be doing things.

A2 We explain the reasons behind the problem, or how the user should be doing things. Sometimes we decide to change things.

A3 We respond with details of the changes we have made, or an explanation of why changes cannot be made.

A4 We respond with details of changes, including timescales for longer term changes. We make it clear that these changes are a result of feedback.

A5 We respond with details of changes, including timescales. We advertise the feedback we received and the changes made to address it.

A6 I don't know.

Q11 What changes are made in response to user feedback?

A1 No changes are made in response to feedback.

A2 Some changes are made on the basis of feedback, if they are sensible and possible.

A3 Most feedback results in changes, as long as we are able to do so.

A4 All feedback results in change (though some may be long term), including big changes requiring institutional funding and support.

A5 All feedback results in change. We also analyse trends and make changes in anticipation of what users will want.

A6 I don't know.

Q12 How does Library & Student Support know what the University wants?

A1 They tell the Director what to do.

A2 The Director asks them what to do.

A3 The Director finds out from the University strategic plan.

A4 The Director finds out from the University strategic plan and the plans of other service departments.

A5 The Director knows what is going on in the University and monitors possible future directions. S/He proactively seeks their feedback on Library & Student Support plans.

A6 I don't know.

Q13 How does Library & Student Support influence the changes the University wants to make?

A1 The University tells us what to change, not the other way round!

A2 The University sets the Library & Student Support plan for the year and we agree to it.

A3 The Library & Student Support management decide what changes to make in response to the University strategic plan.

A4 The Director negotiates with the University and other departments about what changes to implement and how to do so. It is a two-way process.

A5 Library & Student Support contributes to the wider University strategic planning process, not just those relating to LSS.

A6 I don't know.

Q14 How does Library & Student Support know what is going on in the same areas in other Universities?

A1 It doesn't.

A2 If we want to do something, we find out how others did the same thing. Some staff go to conferences.

A3 We find out the best practice relating to our work area. A range of staff go to conferences.

A4 Library & Student Support gathers best practice information in all areas. We are all encouraged to read professional literature and attend conferences.

A5 Library & Student Support gathers best practice information and we read professional literature and attend conferences. It looks at possible future directions.

A6 I don't know.

Q15 How do Library & Student Support staff interact with the wider profession?

A1 We don't.

A2 Most are on mailing lists.

A3 We can go to conferences or special interest groups if we want to. Some people have presented at conference or written articles.

A4 We contribute through publications, experience sharing and conferences. We can do research projects if it does not interfere with normal work.

A5 We are all encouraged to take part in research projects, publications, experience sharing, and conferences. Library & Student Support is cutting edge in some areas.

A6 I don't know.

Organisational learning

Q16 Who do you feel is allowed to make decisions?

A1 People don't really make decisions.

A2 Senior management.

A3 Managers.

A4 Anyone can make decisions about their own job.

A5 We can all make decisions about anything, as long as we get permission to make that decision and consult with people.

Q17 Are you involved in changes?

A1 Only to point out the problems that they haven't thought of.

A2 Not really.

A3 I know about what the changes are. If it was relevant to my job I would change what I do.

A4 Yes. If it is in my area or I am on a project group I help to plan the changes.
A5 Yes, we come up with improvement ideas, and if they are approved we implement them.

Q18 If you go on a course, what do you do with what you have learned?

A1 I use it in my work.
A2 I share what I have learned with the others in my team.
A3 I share what I have learned with others in my team, and other teams where it is relevant.
A4 I do a report that any Library & Student Support staff member can read/attend.
A5 I share it with the rest of the Library & Student Support staff. We try to share learning, information and knowledge. We all know who to go to for more information about a topic.

Q19 What happens if someone (LSS staff) makes a mistake?

A1 We try to make up for it. If they find out then you get the blame.
A2 We fix it and make sure that whoever made the mistake knows what the correct procedure is.
A3 We fix it and make sure that whoever made the mistake has more training, or knows they can ask someone for help if they are unsure about something.
A4 We fix it, and use it as an opportunity for learning
A5 We fix it, and use it as an opportunity for learning. These things are going to happen if you are trying out new things.

Q20 Are you encouraged to take risks and try out new things?

A1 No - Library & Student Support doesn't take risks.
A2 Not really. Library & Student Support occasionally takes risks, but only if they are virtually guaranteed to work.
A3 Not really. If we are doing something new we try to minimise the possible risks.
A4 Yes, it is OK to take risks, no-one will die.
A5 Yes, it is better to do something and fail than to wait to be certain it will work and do nothing.

Q21 Are you supported in trying to improve the service you provide in your job?

A1 No.
A2 Yes, if it has been tried successfully somewhere else first.
A3 Yes.

Attitude to change

Q22 Is change a good thing?

A1 No, it is disruptive. If it ain't broke, don't fix it.

- A2 It depends on what the change is. It can be good or bad.
A3 It is inevitable. It is good if it is done well.
A4 Yes, if it is done to improve things.
A5 Yes, it is essential.

Q23 Where do you think the impetus to change comes from?

- A1 From the Library & Student Support executive.
A2 From the Library & Student Support executive, though they are under pressure from the University.
A3 From users / the University / technology.
A4 From users and the University and technology.
A5 From everyone. The world is constantly changing and we try to anticipate what our users will want before they ask for it.

Q24 In your opinion, what is the main barrier to making changes?

- A1 The structure/hierarchy/bureaucracy of Library & Student Support.
A2 The attitudes of some members of staff.
A3 Resources (money, space, time, staff).
A4 Other parts of the University.
A5 None - there is always a way to overcome barriers.

Q25 What sort of changes should Library & Student Support make?

- A1 None.
A2 To make sure we are doing things right.
A3 To improve the things we are doing.
A4 To implement new products or services.
A5 Both to improve things we are doing and to implement new products or services.

Attitude to quality

Q26 How do you feel Library & Student Support tries to provide a quality service?

- A1 We make sure all our systems are as good as they can possibly be, and that everyone follows procedures properly.
A2 We try to provide excellent customer service.
A3 We try to make sure our users are happy with what we do.
A4 We try to make sure our users are happy with what we do. We have service level agreements written by Library & Student Support staff.
A5 We try to make sure our users are happy with what we do, and anticipate what they want before they ask for it. We have service level agreements written by our customers.

Q27 How do you feel Library & Student Support tries to improve quality?

- A1 We make sure that everything is done properly.

A2 We have constraints on what we can do (money / building etc.), so it can be down to luck and if we have the money or space to make improvements.

A3 We try to improve the products and services we offer. Quality is part of our strategic plan.

A4 We try to improve the processes we use to develop products and services. Quality and performance measures are part of our strategic plan.

A5 It is a continuous process. We are all encouraged to continually improve our work, and to develop ourselves. Quality and performance measures are part of our strategic plan.

Q28 Who has responsibility for quality?

A1 Quality is the responsibility of everyone to do their best to follow procedures.

A2 Quality is the responsibility of people front of house to give excellent customer service.

A3 Quality is the responsibility of the Library & Student Support executive, though it may be devolved down to managers for specific areas.

A4 Quality for a particular area is the responsibility of the people in that area.

A5 Quality for the whole Library is everyone's responsibility.

Leadership

Q29 Do you know what the vision and values are that Nick has set out for Library & Student Support?

A1 Yes. [-> Q29a is displayed]

A2 No. [-> Q29a is not displayed]

Q29a How do you know?

A1 I have seen them written down somewhere.

A2 We had a briefing document/presentation/workshop where we were told about them.

A3 They were talked about during my induction.

A4 They are part of what we do (policies, targets, development).

A5 They are who we are. It is how everyone behaves.

Q30 Do you trust management?

A1 No.

A2 I'm sure they are doing their best, but they don't really understand.

A3 I don't distrust them.

A4 Yes, you have to trust them to do their job.

A5 Yes, it is clear from what they have done in the past that they know what to do for the best of Library & Student Support.

Q31 Do you feel motivated to do the best you can?

A1 Not really.

A2 I do personally, but it is difficult. You loose enthusiasm.

A3 Yes I do.

A4 Yes, as a team we always do our best.

A5 Yes, we all do. The LSS executive is inspirational and everything is in place to support you in doing so.

Investment in staff

Q32 Do you feel valued by Library & Student Support?

A1 Not really.

A2 Not really, but we receive training that we want/need.

A3 Sort of, they say they are committed to the achievement of staff satisfaction/development/well-being.

A4 Sort of, people are supported in developing themselves.

A5 Yes, I know that Library & Student Support sees the staff as it's most valuable asset.

Q33 What training do you receive?

A1 Training is provided when we need it on how to perform specific work tasks.

A2 There is a training programme related to specific work tasks, and we can request to go to specific training events if we want to.

A3 There is a training programme related to needs assessment (e.g. through appraisals or performance reviews), and provision is related to this.

A4 There is a training programme based on needs assessment and training is assessed for effectiveness. Training is provided on how to learn, and reflection is encouraged.

A5 There is a needs based training programme that is assessed for effectiveness. Training is provided on the skills required for the future. Critical reflection is encouraged in work time.

Q34 Do you feel supported in your development?

A1 No.

A2 I am supported if I ask for training related to my job.

A3 I feel supported in my professional development. There is a clear progression path for me.

A4 Yes, we are encouraged to develop ourselves professionally and personally. There is a clear progression path for everyone. The Library makes an effort to ensure we are happy.

A5 Yes, professionally and personally. The 'next generation' and 'high flyers' are actively encouraged. Progression is mapped for everyone, though it may involve leaving to progress.

Q35 Do you get recognition for doing a good job?

A1 No, what I do isn't noticed.

A2 No, but that is because of my line manager.

A3 Yes, but that is because of my line manager.

A4 Library & Student Support tries to recognise when staff have done a good job, but there are no specific systems in place.

A5 There are systems, structures and processes in place for the recognition/reward/progression of staff.

A6 Yes, Library & Student Support does this well. There are recognition/reward/progression systems in place to ensure everyone who does a good job is recognised.

Alignment

Q 36 How do you work with other teams?

A1 We all get on, but we don't really work together on things.

A2 We work with people from other teams on specific projects. Sometimes certain people from other teams will work with us.

A3 We work regularly with a specific other team.

A4 We have a system of 'internal customer' between teams.

A5 We all work together. If one part of the system is not working well, then the whole system might break.

Q37 If a new member of staff joined your team, how would they know what to do?

A1 They would learn from other people doing the job.

A2 There is a manual that documents the standard work processes. Not everything is in it though.

A3 Everything is in the manual/practices and policies/job description.

A4 Everything is in the manual/practices and policies/job description. There is regular training to remind everyone.

A5 Everything is in the manual/practices and policies/job description, which are reviewed to ensure they are current. Training is regularly provided.

Q38 How does communication work in Library & Student Support?

A1 Limited information flows top down, from senior managers, to managers, to their staff.

A2 Information flows top down and goes up via the same route. Not everything is passed on by my manager/the managers in my team.

A3 Information flows top down and goes up via the same route.

A4 Information flows top down and bottom up. We are asked for our opinions. If my manager/the manager in my team is not good at passing things on, I can go directly.

A5 There are lots of ways of communicating, e.g. through the management structure, via meetings, through the newsletter, email people, or pop in for a chat.

Q39 How does the staffing structure Library & Student Support work?

A1 The structure makes it difficult to work and communicate with other teams.

A2 The structure doesn't really make much difference.

A3 The structure makes it easy to work and communicate with other teams, and to see how the work we do fits with the overall strategy.

A4 The structure makes it easy to work and communicate with other teams, and see where we fit. It is flexible so it can adapt to changing circumstances.

Q40 What is the purpose of Library & Student Support, and how do you contribute to it?

Free text answers.

APPENDIX U: Email recruiting respondents for formal testing 1 (Middlesex)

Dear all

On behalf of Frankie Wilson, who many of you will remember as Liaison Manager for Arts and Ed, until she left to complete her PhD, I am circulating the email below which asks you to spend a short time completing a questionnaire. It is not compulsory, but the more responses Frankie has the more useful it will be to test the methodology of her thesis. I would just stress that the purpose of the questionnaire is to help Frankie with her research and not to form part of the management process of either the service or the University. As Frankie's research is focused on library and information services (in the broadest sense) this survey is being sent to staff who work in Library services, IT support and UniHelp.

We are one of a number of universities piloting this survey and your feedback will help Frankie to refine this tool and assess its value to the sector.

Thanks, Nick

Nick Bevan
Pro Vice-Chancellor, Director of Library and Student Support
Middlesex University

Dear ex-colleagues,

I hope you are all well. It has been some time since I left Middlesex to concentrate on my PhD, but I am glad to say that it is very nearly finished. However, I need to collect some feedback on a questionnaire I have developed.

I need feedback from a number of universities, and Nick has kindly agreed for Middlesex to be one of them.

The questionnaire is online here: <https://surveys.brunel.ac.uk/middlesex>

There are 40 multiple-choice questions, which should take 10-15 minutes to answer. There is also a free-text question asking for your feedback about the questionnaire.

I realise that you are all busy, but I really hope that you can find 15 minutes to help me. The survey is open Monday 25th Feb - Friday 1st March. It is only open for 5 days as I have a lot of testing (and writing) to do before my hand-in deadline (typical student - leaving things to the last minute!).

Nick and the other members of LSS Executive will not be using the results of the questionnaire. It is purely to support me in my PhD. Nick will see the overall results, but only so that he can give me feedback on whether they would potentially be useful or not.

Thank you very much for your time,
You are welcome to contact me if you have any questions,

Warmest regards,
frankie

Frankie Wilson (former Liaison Manager for the School of Arts & Education)
frankie.wilson111@gmail.com<<mailto:frankie.wilson111@gmail.com>>

APPENDIX V: Pretesting questionnaire for formal testing 2 (Brunel)

Please select the statement that best describes how you see the situation at Brunel Library.

I am looking for your opinions and feelings. Please give your initial 'gut feeling' answer.

Questions that ask for information have a DON'T KNOW option; questions that ask about your opinions do not.

Questions are mandatory unless marked otherwise.

Note that when you have clicked on the CONTINUE button your answers are submitted and you can not return to review or amend that page.

About you

Part of this survey looks at whether there are any differences in the answers from different parts of the Library.

To do this, we need to know your team and your level/grade.

The answers will be averaged across each team or level/grade. E.G. "The shelving team have an average score of ..." or "Staff at grade 6 have an average score of ..."

Your answers will not be used to individually identify you. Individual responses will not be communicated to the Library.

Q1 What team are you in?

- A1 Academic Services
- A2 Content Services
- A3 Collection Services
- A4 Customer Services
- A5 Library Management Team

Q2 What grade are you?

- A1 S1
- A2 S4
- A3 S5
- A4 S6
- A5 H2
- A6 H3
- A7 H5

Management of the Library

Q3 Are you involved in the strategic planning or action / operational planning process?

A1 Yes [-> Q3a and Q3b are displayed]

A2 No [-> Q3a and Q3b are not displayed]

Q3a How is the strategic plan generated?

A1 There is no strategic plan

A2 There is a limited strategic plan

A3 The strategic plan is derived from reasonable/achievable feedback from users.

A4 The strategic plan is derived directly from user feedback OR from the University's strategic plan OR from awareness of developments at other universities.

A5 The strategic plan is derived from feedback from users, the University's strategic plan, and awareness of new developments at other universities.

Q3b How are actions related to the strategic plan?

A1 Actions are solely reactive to events.

A2 The strategic plan includes 'big project' improvements, but many actions are unrelated to the strategic plan and are reactive to events.

A3 The strategic plan includes 'big project' improvements, although some actions are still unrelated to the strategic plan.

A4 The strategic plan includes 'big project' improvements.

A5 All improvement processes, both incremental and 'big project', flow from the strategic plan, and it is updated to reflect new developments.

Q4 Do you have any goals or targets for the work you do?

A1 No.

A2 Yes, but I am not sure what they are.

A3 Yes.

A4 Yes, there are team goals that come down through the management structure from the strategic plan.

A5 Yes, there are team goals that come from the strategic plan, and I have individual goals too.

Q5 In your experience, how is progress towards achieving targets or goals monitored?

A1 There is no monitoring of progress.

A2 There is some monitoring of progress.

A3 There is monitoring of progress, and corrective action is sometimes taken.

A4 Progress is closely monitored and corrective action taken where necessary.

A5 I don't know because I have no targets.

Q6 How is the Library's performance measured?

A1 We use statistical measures, e.g. spend per FTE, number of PCs, number of journals subscribed to, number of transactions (i.e. the SCONUL return).

A2 We use statistical measures and also user feedback.

A3 We use user feedback and measures of internal processes relating to user expectations, e.g. time taken to re-shelve books.

A4 We use a range of performance indicators and have some KPIs (key performance indicators).

A5 We use a range of balanced performance measures and the KPIs closely relate to the strategic aims. The measures are regularly evaluated.

A6 I don't know.

Q7 How are changes to services/processes/procedures managed?

A1 Changes are just implemented.

A2 It depends on what the change is and who is leading it.

A3 Changes are implemented through project management processes developed for that project.

A4 'Big project' changes are implemented through standard project management processes, including planning, monitoring and impact assessment.

A5 All changes (incremental and 'big project') are implemented through standard project management processes.

A6 I don't know.

Environmental sensing

Q8 How does the Library gather feedback from its users?

A1 There are feedback/complaints forms, and users tell us/email us if they are not happy.

A2 We ask students at boards of study/course committees or via a survey. There are also feedback forms.

A3 We ask students using a range of methods, e.g. course committees, surveys, focus groups, feedback boards.

A4 We use a range of methods to get feedback from all users (students, academic staff, researchers).

A5 We use a range of methods to get feedback from all users. We specifically gather feedback on the impact of any changes we make.

A6 I don't know.

Q9 What happens to user feedback?

A1 We respond to it.

A2 We respond to it. Some of it is collated and reported.

A3 We respond to it. The feedback from course committees is collated, and the survey results are collated, but separately.

A4 We respond to it. It is collated across all feedback methods.

A5 We respond to it. It is collated across all feedback methods and analysed over time for trends.

A6 I don't know.

Q10 How is user feedback responded to?

A1 We explain the reasons behind the problem, or how the user should be doing things.

A2 We explain the reasons behind the problem, or how the user should be doing things. Sometimes we decide to change things.

A3 We respond with details of the changes we have made, or an explanation of why changes cannot be made.

A4 We respond with details of changes, including timescales for longer term changes. We make it clear that these changes are a result of feedback.

A5 We respond with details of changes, including timescales. We advertise the feedback we received and the changes made to address it.

A6 I don't know.

Q11 What changes are made in response to user feedback?

A1 No changes are made in response to feedback.

A2 Some changes are made on the basis of feedback, if they are sensible and possible.

A3 Most feedback results in changes, as long as we are able to do so.

A4 All feedback results in change (though some may be long term), including big changes requiring institutional funding and support.

A5 All feedback results in change. We also analyse trends and make changes in anticipation of what users will want.

A6 I don't know.

Q12 How does the Library know what the University wants?

A1 They tell the Director what to do.

A2 The Director asks them what to do.

A3 The Director finds out from the University strategic plan.

A4 The Director finds out from the University strategic plan and the plans of other service departments.

A5 The Director knows what is going on in the University and monitors possible future directions. S/He proactively seeks their feedback on Library plans.

A6 I don't know.

Q13 How does the Library influence the changes the University wants to make?

A1 The University tells us what to change, not the other way round!

A2 The University sets the Library plan for the year and we agree to it.

A3 The Library management decide what changes to make in response to the University strategic plan.

A4 The Director negotiates with the University and other departments about what changes to implement and how to do so. It is a two-way process.

A5 The Library contributes to the wider University strategic planning process, not just those relating to the Library.

A6 I don't know.

Q14 How does the Library know what is going on in the same areas in other Universities?

A1 It doesn't.

A2 If we want to do something, we find out how others did the same thing. Some staff go to conferences.

A3 We find out the best practice relating to our work area. A range of staff go to conferences.

A4 The Library gathers best practice information in all areas. We are all encouraged to read professional literature and attend conferences.

A5 The Library gathers best practice information and we read professional literature and attend conferences. It looks at possible future directions.

A6 I don't know.

Q15 How do Library staff interact with the wider profession?

A1 We don't.

A2 Most are on mailing lists.

A3 We can go to conferences or special interest groups if we want to. Some people have presented at conference or written articles.

A4 We contribute through publications, experience sharing and conferences. We can do research projects if it does not interfere with normal work.

A5 We are all encouraged to take part in research projects, publications, experience sharing, and conferences. The Library is cutting edge in some areas.

A6 I don't know.

Organisational learning

Q16 Who do you feel is allowed to make decisions?

A1 People don't really make decisions.

A2 Senior management.

A3 Managers.

A4 Anyone can make decisions about their own job.

A5 We can all make decisions about anything, as long as we get permission to make that decision and consult with people.

Q17 Are you involved in changes?

A1 Only to point out the problems that they haven't thought of.

A2 Not really.

A3 I know about what the changes are. If it was relevant to my job I would change what I do.

A4 Yes. If it is in my area or I am on a project group I help to plan the changes.

A5 Yes, we come up with improvement ideas, and if they are approved we implement them.

Q18 If you go on a course, what do you do with what you have learned?

A1 I use it in my work.

A2 I share what I have learned with the others in my team.

A3 I share what I have learned with others in my team, and other teams where it is relevant.

A4 I do a report that any Library staff member can read/attend.

A5 I share it with the rest of the Library staff. We try to share learning, information and knowledge. We all know who to go to for more information about a topic.

Q19 What happens if someone (Library staff) makes a mistake?

A1 We try to make up for it. If management find out then you get the blame.

A2 We fix it and make sure that whoever made the mistake knows what the correct procedure is.

A3 We fix it and make sure that whoever made the mistake has more training, or knows they can ask someone for help if they are unsure about something.

A4 We fix it, and use it as an opportunity for learning

A5 We fix it, and use it as an opportunity for learning. These things are going to happen if you are trying out new things.

Q20 Are you encouraged to take risks and try out new things?

A1 No - The Library doesn't take risks.

A2 Not really. The Library occasionally takes risks, but only if they are virtually guaranteed to work.

A3 Not really. If we are doing something new we try to minimise the possible risks.

A4 Yes, it is OK to take risks.

A5 Yes, it is better to do something and fail than to wait to be certain it will work and do nothing.

Q21 Are you supported in trying to improve the service you provide in your job?

A1 No.

A2 Yes, if it has been tried successfully somewhere else first.

A3 Yes.

Attitude to change

Q22 Is change a good thing?

A1 No, it is disruptive.

A2 It depends on what the change is. It can be good or bad.

A3 It is inevitable. It is good if it is done well.

A4 Yes, if it is done to improve things.

A5 Yes, it is essential.

Q23 Where do you feel the impetus to change comes from?

A1 From the Library management team.

A2 From the Library management team, though they are under pressure from the University.

A3 From users / the University / technology.

A4 From users and the University and technology.

A5 From everyone. The world is constantly changing and we try to anticipate what our users will want before they ask for it.

Q24 In your opinion, what is the main barrier to making changes?

A1 The structure/hierarchy/bureaucracy of the Library.

A2 The attitudes of some members of staff.

A3 Resources (money, space, time, staff).

A4 Other parts of the University.

A5 None - there is always a way to overcome barriers.

Q25 What sort of changes should the Library make?

A1 None.

A2 To make sure we are doing things right.

A3 To improve the things we are doing.

A4 To implement new products or services.

A5 Both to improve things we are doing and to implement new products or services.

Attitude to quality

Q26 How do you feel the Library tries to provide a quality service?

A1 We make sure all our systems are as good as they can possibly be, and that everyone follows procedures properly.

A2 We try to provide excellent customer service.

A3 We try to make sure our users are happy with what we do.

A4 We try to make sure our users are happy with what we do. We have service level agreements written by Library staff.

A5 We try to make sure our users are happy with what we do, and anticipate what they want before they ask for it. We have service level agreements written by our customers.

Q27 How do you feel the Library tries to improve quality?

A1 We make sure that everything is done properly.

A2 We have constraints on what we can do (money / building etc.), so it can be down to luck and if we have the money or space to make improvements.

A3 We try to improve the products and services we offer. Quality is part of our strategic plan.

A4 We try to improve the processes we use to develop products and services. Quality and performance measures are part of our strategic plan.

A5 It is a continuous process. We are all encouraged to continually improve our work, and to develop ourselves. Quality and performance measures are part of our strategic plan.

Q28 Who has responsibility for quality?

A1 Quality is the responsibility of everyone to do their best to follow procedures.

A2 Quality is the responsibility of people front of house to give excellent customer service.

A3 Quality is the responsibility of the Library management team, though it may be devolved down to managers for specific areas.

A4 Quality for a particular area is the responsibility of the people in that area.

A5 Quality for the whole Library is everyone's responsibility.

Leadership

Q29 Do you know what the vision and values are that Ann has set out for the Library?

A1 Yes. [-> Q29a is displayed]

A2 No. [-> Q29a is not displayed]

Q29a How do you know?

A1 I have seen them written down somewhere.

A2 We had a briefing document/presentation/workshop where we were told about them.

A3 They were talked about during my induction.

A4 They are part of what we do (policies, targets, development).

A5 They are who we are. It is how everyone behaves.

Q30 Do you trust management?

A1 No.

A2 I'm sure they are doing their best, but they don't really understand.

A3 I don't distrust them.

A4 Yes, you have to trust them to do their job.

A5 Yes, it is clear from what they have done in the past that they know what to do for the best of the Library.

Q31 Do you feel motivated to do the best you can?

A1 Not really.

A2 I do personally, but it is difficult. You lose enthusiasm.

A3 Yes I do.

A4 Yes, as a team we always do our best.

A5 Yes, we all do. The Library Director is inspirational and everything is in place to support you in doing so.

Investment in staff

Q32 Do you feel valued by the Library?

A1 Not really.

A2 Not really, but we receive training that we want/need.

A3 Sort of, they say they are committed to the achievement of staff satisfaction/development/well-being.

A4 Sort of, people are supported in developing themselves.

A5 Yes, I know that the Library sees the staff as it's most valuable asset.

Q33 What training do you receive?

A1 Training is provided when we need it on how to perform specific work tasks.

A2 There is a training programme related to specific work tasks, and we can request to go to specific training events if we want to.

A3 There is a training programme related to needs assessment (e.g. through appraisals or performance reviews), and provision is related to this.

A4 There is a training programme based on needs assessment and training is assessed for effectiveness. Training is provided on how to learn, and reflection is encouraged.

A5 There is a needs based training programme that is assessed for effectiveness. Training is provided on the skills required for the future. Critical reflection is encouraged in work time.

Q34 Do you feel supported in your development?

A1 No.

A2 I am supported if I ask for training related to my job.

A3 I feel supported in my professional development. There is a clear progression path for me.

A4 Yes, we are encouraged to develop ourselves professionally and personally. There is a clear progression path for everyone. The Library makes an effort to ensure we are happy.

A5 Yes, professionally and personally. The 'next generation' and 'high flyers' are actively encouraged. Progression is mapped for everyone, though it may involve leaving to progress.

Q35 Do you get recognition for doing a good job?

A1 No, what I do isn't noticed.

A2 No, but that is because of my line manager.

A3 Yes, but that is because of my line manager.

A4 The Library tries to recognise when staff have done a good job, but there are no specific systems in place.

A5 There are systems, structures and processes in place for the recognition/reward/progression of staff.

A6 Yes, the Library does this well. There are recognition/reward/progression systems in place to ensure everyone who does a good job is recognised.

Alignment

Q 36 How do you work with other teams?

A1 We all get on, but we don't really work together on things.

A2 We work with people from other teams on specific projects. Sometimes certain people from other teams will work with us.

A3 We work regularly with a specific other team.

A4 We have a system of 'internal customer' between teams.

A5 We all work together. If one part of the system is not working well, then the whole system might break.

Q37 If a new member of staff joined your team, how would they know what to do?

A1 They would learn from other people doing the job.

A2 There is a manual that documents the standard work processes. Not everything is in it though.

A3 Everything is in the manual/practices and policies/job description.

A4 Everything is in the manual/practices and policies/job description. There is regular training to remind everyone.

A5 Everything is in the manual/practices and policies/job description, which are reviewed to ensure they are current. Training is regularly provided.

Q38 How does communication work in the Library?

A1 Limited information flows top down, from senior managers, to managers, to their staff.

A2 Information flows top down and goes up via the same route. Not everything is passed on by my manager/the managers in my team.

A3 Information flows top down and goes up via the same route.

A4 Information flows top down and bottom up. We are asked for our opinions. If my manager/the manager in my team is not good at passing things on, I can go directly.

A5 There are lots of ways of communicating, e.g. through the management structure, via meetings, through the newsletter, email people, or pop in for a chat.

Q39 How does the staffing structure of the Library work?

A1 The structure makes it difficult to work and communicate with other teams.

A2 The structure doesn't really make much difference.

A3 The structure makes it easy to work and communicate with other teams, and to see how the work we do fits with the overall strategy.

A4 The structure makes it easy to work and communicate with other teams, and see where we fit. It is flexible so it can adapt to changing circumstances.

Q40 What is the purpose of the Library, and how do you contribute to it?

Free text answers.

APPENDIX W: Email recruiting respondents for formal testing 2 (Brunel)

Dear all

On behalf of Frankie Wilson, who many of you will remember as former Subject Liaison Librarian for SISCM, until she left to go to Middlesex, I am circulating the email below which asks you to spend a short time completing a questionnaire. It is not compulsory, but the more responses Frankie has the more useful it will be to test the methodology of her thesis. I would just stress that the purpose of the questionnaire is to help Frankie with her research and not to form part of the management process of either the service or the University. As Frankie's research is focused on library and information services (in the broadest sense) this survey is being sent to staff who work in the Library and ASK.

We are one of a number of universities piloting this survey and your feedback will help Frankie to refine this tool and assess its value to the sector.

Thanks
Ann

Ann Cummings

Dear ex-colleagues,

I hope you are all well. It has been a very long time in gestation, but I am glad to say that my PhD is very nearly finished. However, I need to collect some feedback on a questionnaire I have developed. I need feedback from a number of universities, and Ann has kindly agreed for Brunel to be one of them. The questionnaire is online here:

<https://surveys.brunel.ac.uk/qmmbrunel>

There are 40 multiple-choice questions, which should take 10-15 minutes to answer. There is also a free-text question asking for your feedback about the questionnaire.

I realise that you are all busy, but I really hope that you can find 15 minutes to help me. The survey is open Monday 11th March - Friday 15th March. It is only open for 5 days as I have a lot of testing (and writing) to do before my hand-in deadline (typical student - leaving things to the last minute!).

Ann and the other members of LMT might use the results of the questionnaire, depending on whether it reveals anything interesting :-). However, the reason for Brunel participating is to support me in my PhD. Ann will see the overall results and give me feedback on whether they would potentially be useful or not

Thank you very much for your time, You are welcome to contact me if you have any questions,

Warmest regards,

frankie

Frankie Wilson (former Subject Liaison Librarian for the School of Information Systems, Computing & Mathematics) frankie.wilson111@gmail.com

Appendix X: The Quality Culture Assessment Instrument

Please select the statement that best describes how you see the situation at <LIS name>. You may only select one answer for each question. If no answer exactly matches your opinion, please select the closest one.

I am looking for your opinions and feelings. Please give your initial 'gut feeling' answer.

Questions that ask for information have a Don't Know option; questions that ask about your opinions do not.

Questions are mandatory unless marked otherwise.

About you

Part of this survey looks at whether there are any differences in the answers from different parts of the Library.

To do this, we need to know your team and your grade.

The answers will be averaged across each team or level/grade. E.G. "The shelving team have an average score of ..." or "Staff at grade 6 have an average score of ..."

Your answers will not be used to individually identify you. Individual responses will not be communicated to the Library.

Q1 What team are you in?

A1 <list team names>

...

Ax

Q2 What grade are you?

A1 <list pay grades>

...

Ax

Management of the Library

Q3 Are you involved in the strategic planning or action / operational planning process?

A1 Yes -> complete Q3a and Q3b

A2 No

Q3a How is the strategic plan generated?

A1 There is no strategic plan.

A2 There is a limited strategic plan that only covers some areas.

A3 The strategic plan is derived from reasonable/achievable feedback from users.

A4 The strategic plan is derived directly from user feedback OR from the University's strategic plan OR from awareness of developments at other universities.

A5 The strategic plan is derived from feedback from users, the University's strategic plan, AND awareness of new developments at other universities.

Q3b How are actions related to the strategic plan?

A1 Actions are solely reactive to events.

A2 The strategic plan includes some 'big project' improvements, but many actions are unrelated to the strategic plan and are reactive to events.

A3 The strategic plan includes 'big project' improvements, although some actions are still unrelated to the strategic plan.

A4 The strategic plan includes 'big project' improvements.

A5 All improvement processes, both incremental and 'big project', flow from the strategic plan, and it is updated to reflect new developments.

Q4 Do you have any goals or targets for the work you do?

A1 No.

A2 Yes, but I am not sure what they are.

A3 Yes.

A4 Yes, there are team goals that come down through the management structure from the strategic plan.

A5 Yes, there are team goals that come from the strategic plan, and I have individual goals too.

Q5 In your experience, how is progress towards achieving targets or goals monitored?

A1 There is no monitoring of progress.

A2 There is some monitoring of progress.

A3 There is monitoring of progress, and corrective action is sometimes taken.

A4 Progress is closely monitored and corrective action taken where necessary.

A5 I don't know because I have no targets.

Q6 How is the Library's performance measured?

A1 We use statistical measures, e.g. spend per FTE, number of PCs, number of journals subscribed to, number of transactions (i.e. the SCONUL return).

A2 We use statistical measures and also user feedback.

A3 We use statistical measures, user feedback and measures of internal processes relating to user expectations, e.g. time taken to re-shelve books.

A4 We use a range of performance indicators and have some key performance indicators (KPIs).

A5 We use a range of balanced performance measures and the Key Performance Indicators closely relate to the strategic aims. The measures are regularly evaluated.

A6 I don't know.

Q7 How are changes to services/processes/procedures managed?

A1 Changes are just implemented.

A2 It depends on what the change is and who is leading it.

A3 Changes are implemented through project management processes developed for that project.

A4 'Big project' changes are implemented through standard project management processes, including planning, monitoring and impact assessment.

A5 All changes (incremental and 'big project') are implemented through standard project management processes.

A6 I don't know.

Environmental sensing

Q8 How does the Library gather feedback from its users?

A1 There are feedback/complaints forms, and users tell us/email us if they are not happy.

A2 There are feedback/complaints forms, and users tell us/email us if they are not happy. We ask students at boards of study/course committees or via a survey.

A3 We ask students using a range of methods, e.g. course committees, surveys, focus groups, feedback boards, feedback/complaints forms, encourage them to email us.

A4 We use a range of methods and get feedback from all users (students, academic staff, researchers).

A5 We use a range of methods to get feedback from all users (students, academic staff, researchers). We specifically gather feedback on the impact of any changes we make by taking a 'snapshot' before and after the change.

A6 I don't know.

Q9 What happens to user feedback?

A1 We respond to it.

A2 We respond to it. Some of it is collated and reported.

A3 We respond to it. All the feedback is collated and reported but separately for each method of obtaining it.

A4 We respond to it. All the feedback is collated, across all methods to give a 'big picture'.

A5 We respond to it. All the feedback is collated, across all methods to give a 'big picture'. It is analysed over time for trends.

A6 I don't know.

Q10 How is user feedback responded to?

A1 We explain the reasons behind the problem, or how the user should be doing things.

A2 We explain the reasons behind the problem, or how the user should be doing things. Sometimes we decide to change things.

A3 We respond with details of the changes we have made, or an explanation of why changes cannot be made.

A4 We respond with details of changes, including timescales for longer term changes. We make it clear that these changes are a result of feedback.

A5 We respond with details of changes, including timescales. We advertise the feedback we received and the changes we have made to address it.

A6 I don't know.

Q11 What changes are made in response to user feedback?

A1 No changes are made in response to feedback.

A2 Some changes are made on the basis of feedback, if they are sensible and possible.

A3 Most feedback results in changes, as long as we have the resources to do so.

A4 All feedback results in change (though some may be long term), including big changes requiring institutional funding and support.

A5 All feedback results in change. We also analyse trends and make changes in anticipation of what users will want.

A6 I don't know.

Q12 How does the Library know what the University wants?

A1 They tell the Director what to do.

A2 The Director asks them what to do.

A3 The Director finds out from the University strategic plan.

A4 The Director finds out from the University strategic plan and the plans of other service departments.

A5 The Director knows what is going on in the University and monitors possible future directions. S/He proactively seeks their feedback on Library plans.

A6 I don't know.

Q13 How does the Library influence the changes the University wants to make?

A1 The University tells us what to change, not the other way round!

A2 The University sets the Library plan for the year and we agree to it.

A3 The Library management decide what changes to make in response to the University strategic plan.

A4 The Director negotiates with the University and other departments about what changes to implement and how to do so. It is a two-way process.

A5 The Library contributes to the wider University strategic planning process, not just those relating to the Library.

A6 I don't know.

Q14 How does the Library know what is going on in the same areas in other Universities?

A1 It doesn't.

A2 If we want to do something, we find out how others did the same thing. Some staff go to conferences.

A3 We find out the best practice relating to our work area. A range of staff go to conferences.

A4 The Library gathers best practice information in all areas. We are **all** encouraged to read professional literature and attend conferences.

A5 The Library gathers best practice information and we read professional literature and attend conferences. It looks at possible future directions.

A6 I don't know.

Q15 How do Library staff interact with the wider profession?

A1 We don't.

A2 Most are on mailing lists.

A3 We can go to conferences or special interest groups if we want to. Some people have presented at conference or written articles.

A4 We contribute through publications, experience sharing and conferences. We can do research projects if it does not interfere with normal work.

A5 We are all encouraged to take part in research projects, publications, experience sharing, and conferences. The Library is cutting edge in some areas.

A6 I don't know.

Organisational learning

Q16 Who do you feel is allowed to make decisions?

A1 People don't really make decisions.

A2 Senior management.

A3 Managers / professional staff.

A4 Anyone can make decisions about their own job.

A5 We can all make decisions about anything, as long as we get permission to make that decision and consult with people.

Q17 Are you involved in changes?

A1 Only to point out the problems that they haven't thought of.

A2 Not really.

A3 I know about what the changes are. If it was relevant to my job I would change what I do.

A4 Yes. If it is in my area or I am on a project group I help to plan the changes.

A5 Yes, we come up with improvement ideas, and if they are approved we implement them.

Q18 If you go on a course, what do you do with what you have learned?

A1 I use it in my work.

A2 I share what I have learned with the others in my team.

A3 I share what I have learned with others in my team, and other teams where it is relevant.

A4 I share it with others in my team, and any other Library staff member who is interested (e.g. through circulated report or presentation).

A5 I share it with the rest of the Library staff. We try to share learning, information and knowledge. We all know who to go to for more information about a topic.

Q19 What happens if someone (Library staff) makes a mistake?

A1 We try to make up for it. If management find out then you get the blame.

A2 We fix it and make sure that whoever made the mistake knows what the correct procedure is.

A3 We fix it and make sure that whoever made the mistake has more training, or knows they can ask someone for help if they are unsure about something.

A4 We fix it, and use it as an opportunity for learning.

A5 We fix it, and use it as an opportunity for learning. These things are going to happen if you are trying out new things.

Q20 Are you encouraged to take risks and try out new things?

A1 No - The Library doesn't take risks.

A2 Not really. The Library occasionally takes risks, but only if they are virtually guaranteed to work.

A3 Not really. If we are doing something new we try to minimise the possible risks.

A4 Yes, it is OK to take risks.

A5 Yes, it is better to do something and fail than to wait to be certain it will work and do nothing.

Q21 Are you supported in trying to improve the service you provide in your job?

A1 No.

A2 Yes, if it has been tried successfully somewhere else first.

A3 Yes.

Attitude to change

Q22 Is change a good thing?

A1 No, it is disruptive.

A2 It depends on what the change is. It can be good or bad.

A3 It is inevitable. It is good if it is done well.

A4 Yes, if it is done to improve things.

A5 Yes, it is essential.

Q23 Where do you think the impetus to change come from?

A1 From the Library management team.

- A2 From the Library management team, though they are under pressure from the University.
- A3 From users / the University / technology.
- A4 From users and the University and technology.
- A5 From everyone. The world is constantly changing and we try to anticipate what our users will want before they ask for it.

Q24 In your opinion, what is the main barrier to making changes?

- A1 The structure/hierarchy/bureaucracy of the Library.
- A2 The attitudes of some members of staff.
- A3 Resources (money, space, time, staff).
- A4 Other parts of the University.
- A5 None - there is always a way to overcome barriers.

Q25 What sort of changes should the Library make?

- A1 None.
- A2 To make sure we are doing things right.
- A3 To improve the things we are doing.
- A4 To implement new products or services.
- A5 Both to improve things we are doing and to implement new products or services.

Attitude to quality

Q26 How do you feel the Library tries to provide a quality service?

- A1 We make sure all our systems are as good as they can possibly be, and that everyone follows procedures properly.
- A2 We try to provide excellent customer service.
- A3 We try to make sure our users are happy with what we do.
- A4 We try to make sure our users are happy with what we do. We have service level agreements written by Library staff.
- A5 We try to make sure our users are happy with what we do, and anticipate what they want before they ask for it. We have service level agreements written by our customers.

Q27 How do you feel the Library tries to improve quality?

- A1 We make sure that everything is done properly.
- A2 It depends whether we have the resources available at the time the suggestion for improvement is made.
- A3 We try to improve the products and services we offer. Quality is part of our strategic plan.
- A4 We try to improve the processes we use to develop products and services. Quality and performance measures are part of our strategic plan.
- A5 It is a continuous process. We are all encouraged to continually improve our work, and to develop ourselves. Quality and performance measures are part of our strategic plan.

Q28 Who has responsibility for quality?

A1 Quality is the responsibility of everyone to do their best to follow procedures.

A2 Quality is the responsibility of people front of house to give excellent customer service.

A3 Quality is the responsibility of the Library management team, though it may be devolved down to managers for specific areas.

A4 Quality is the responsibility of the Quality Officer.

A5 Quality for a particular area is the responsibility of the people in that area.

A6 Quality for the whole Library is everyone's responsibility.

Leadership

Q29 Do you know what the vision and values are that <director> has set out for the Library?

A1 Yes. -> complete Q29a

A2 No.

Q29a How do you know?

A1 I have seen them written down somewhere.

A2 We had a briefing document/presentation/workshop where we were told about them.

A3 They were talked about during my induction.

A4 They are part of what we do (policies, targets, development).

A5 They are who we are. It is how everyone behaves.

Q30 Do you trust management?

A1 No.

A2 I'm sure they are doing their best, but they don't really understand.

A3 I don't distrust them.

A4 Yes, you have to trust them to do their job.

A5 Yes, it is clear from what they have done in the past that they know what to do for the best of the Library.

Q31 Do you feel motivated to do the best you can?

A1 Not really.

A2 I do personally, but it is difficult. You loose enthusiasm.

A3 Yes I do.

A4 Yes, as a team we always do our best.

A5 Yes, we all do. The Library management team is inspirational and everything is in place to support you in doing so.

Investment in staff

Q32 Do you feel valued by the Library?

A1 Not really.

A2 Not really, but we receive training that we want/need.

A3 Sort of, they say they are committed to the achievement of staff satisfaction/development/well-being.

A4 Sort of, people are supported in developing themselves.

A5 Yes, I know that the Library sees the staff as it's most valuable asset.

Q33 What training do you receive?

A1 Training is provided when we need it on how to perform specific work tasks.

A2 There is a training programme related to specific work tasks, and we can request to go to specific training events if we want to.

A3 There is a training programme related to needs assessment (e.g. through appraisals or performance reviews), and provision is related to this.

A4 There is a training programme based on needs assessment and training is assessed for effectiveness. Training is provided on how to learn, and reflection is encouraged.

A5 There is a needs based training programme that is assessed for effectiveness. Training is provided on the skills required for the future. Critical reflection is encouraged in work time.

Q34 Do you feel supported in your development?

A1 No.

A2 I am supported if I ask for training related to my job.

A3 I feel supported in my professional development. There is a clear progression path for some people.

A4 Yes, we are encouraged to develop ourselves professionally and personally. There is a clear progression path for everyone. The Library makes an effort to ensure we are happy.

A5 Yes, professionally and personally. The 'next generation' and 'high flyers' are actively encouraged. Progression is mapped for everyone, though it may involve leaving to progress.

Q35 Do you get recognition for doing a good job?

A1 No, what I do isn't noticed.

A2 No, but that is because of my line manager.

A3 Yes, but that is because of my line manager.

A4 The Library tries to recognise when staff have done a good job, but there are no specific systems in place.

A5 There are systems, structures and processes in place for the recognition/reward/progression of staff.

A6 Yes, the Library does this well. There are recognition/reward/progression systems in place to ensure everyone who does a good job is recognised.

Alignment

Q 36 How do you work with other teams?

A1 We all get on, but we don't really work together on things.

A2 We work with people from other teams on specific projects. Sometimes certain people from other teams will work with us.

A3 We work regularly with a specific other team.

A4 We have a system of 'internal customer' between teams.

A5 We all work together, with a system of 'internal customers'. If one part of the system is not working well, then the whole system might break.

Q37 If a new member of staff joined your team, how would they know what to do?

A1 They would only learn from other people doing the job. There is no manual.

A2 There is a manual that documents the standard work processes. Not everything is in it though so they would learn some things from people doing the job.

A3 Everything is in the manual/practices and policies/job description.

A4 Everything is in the manual/practices and policies/job description. There is regular training to remind everyone.

A5 Everything is in the manual/practices and policies/job description, which are reviewed to ensure they are current. Training is regularly provided.

Q38 How does communication work in the Library?

A1 Limited information flows top down, from senior managers, to managers, to their staff.

A2 Information flows top down and goes up via the same route. Not everything is passed on by my manager/the managers in my team.

A3 Information flows top down and goes up via the same route.

A4 Information flows top down and bottom up. We are asked for our opinions. If my manager/the manager in my team is not good at passing things on, I can find a way round them.

A5 There are lots of ways of communicating, e.g. through the management structure, via meetings, through the newsletter, email people, or pop in for a chat.

Q39 How does the staffing structure of the Library work?

A1 The structure makes it difficult to work and communicate with other teams.

A2 The structure doesn't really make much difference.

A3 The structure makes it easy to work and communicate with other teams, and to see how the work we do fits with the overall strategy.

A4 The structure makes it easy to work and communicate with other teams, and see where we fit. It is flexible so it can adapt to changing circumstances.

Q40 What is the purpose of the Library, and how do you contribute to it?

Free text answers.

APPENDIX Y: Rubric for mapping Quality Culture Assessment Instrument answers onto the QMM.

QMM element	QCAI Question No	QCAI Answer	QMM score
1.1	Q3a	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
1.2a	Q3b	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
1.2b	Q4	All A1 or A2	Level 1
		A1 or A2, except LIS executive (A3, A4 or A5)	Level 2
		Senior staff A3, A4 or A5	Level 3
		A4	Level 4
		A5	Level 5
1.3	Q5	A1	Level 1/ Level 2
		A2	Level 3
		A3	Level 4
		A4	Level 5
		A5	Level 1/ Level 2
1.4	Q6	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
		A6 non-senior staff	Ignore
		A6 senior staff	Level 1
1.5	Q7	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
		A6	Ignore
2.1	Q8	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
		A6	Ignore

2.2	Q9	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
		A6	Ignore
2.3	Q10	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
		A6	Ignore
2.4	Q11	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
		A6	Ignore
2.5	Q12	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
		A6	Ignore
2.6	Q13	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
		A6	Ignore
2.7	Q14	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
		A6	Ignore
2.8	Q15	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
		A6	Ignore
3.1	Q16	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5

3.2	Q17	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
3.3	Q18	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
3.4	Q19	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
3.5	Q20	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
3.6	Q21	All A1	Level 1
		All A1, except LIS executive (A2 or A3)	Level 2
		Senior staff A2 or A3, other staff A1	Level 3
		Managers / professional staff A3, junior staff A1	Level 4
		All A3	Level 5
4.1	Q22	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
4.2	Q23	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
4.3	Q24	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
4.4	Q25	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5

5.1	Q26	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
5.2	Q27	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
5.3	Q28	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 3
		A5	Level 4
		A6	Level 5
6.1	Q29	A2	Level 1
	Q29a	A1	Level 2
		A2	Level 3
		A3	Level 3
		A4	Level 4
		A5	Level 5
6.2	Q30	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
6.3	Q31	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
7.1	Q32	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
7.2	Q33	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
7.3	Q34	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5

7.4	Q35	A1	Level 1
		A2	Level 2
		A3	Level 2
		A4	Level 3
		A5	Level 4
		A6	Level 5
8.1	Cross tabulate responses to all Qs by Q2	There is no similarity in the pattern of responses.	Level 1 / Level 2
		The pattern of responses is similar between certain grades.	Level 3
		The pattern of responses is the same apart from specific, discrete areas.	Level 4
		The pattern of responses is the same.	Level 5
8.2	Q36	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
8.3	Q37	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
8.4	Q38	A1	Level 1
		A2	Level 2
		A3	Level 3
		A4	Level 4
		A5	Level 5
8.5	Q40	Approach to the purpose of the LIS is dependent on respondent's specific work.	Level 1
		Approach to the purpose of the LIS is dependent on respondent's work unit or area.	Level 2
		All understand the overall aims and purpose of the LIS. Most understand their contribution to achieving them.	Level 3
		All understand the overall aims of the LIS and their contribution to achieving them. LIS executive understand how all staff contribute to the achievement of LIS aims.	Level 4
		All understand how the overall aims of the LIS contribute to the achievement of the aims of the parent organisation, and how they contribute to achieving them.	Level 5

8.6	Q39	All A1	Level 1
		Some A1	Level 2
		A2 (no A1)	Level 3
		A3 (no A1)	Level 4
		A4 (no A1)	Level 5
8.7	Cross tabulate responses to Q26, Q27, Q28 by Q1 and (separately) by Q2	There is no similarity in the pattern of responses.	Level 1 / Level 2
		The pattern of responses is similar (but not the same), or the same between certain groups.	Level 3
		The pattern of responses is the same apart from specific, discrete areas.	Level 4
		The pattern of responses is the same.	Level 5
8.8	Cross tabulate responses to Q22, Q23, Q24, Q25 by Q1 and (separately) by Q2	There is no similarity in the pattern of responses.	Level 1
		The pattern of responses is the same between certain groups.	Level 2
		The pattern of responses is the same within team / location / grade.	Level 3
		The pattern of responses is the same apart from specific, discrete areas.	Level 4
		The pattern of responses is the same.	Level 5

APPENDIX Z: Instructions for Using the Quality Culture Assessment Instrument

The Quality Culture Assessment Instrument is a questionnaire of 43 questions. All but one of the questions requires the respondent to select an answer from a multiple-choice list. All questions are mandatory. Most respondents find it takes around 15 minutes to complete the questionnaire.

Personalisation

Before you run it at your institution, you must personalise it for your Library & Information Service to ensure the results are meaningful and the respondents are able to answer the questions.

You should insert the name of your LIS and director where indicated. The questionnaire refers to “the Library” throughout, if your LIS is known by a different name, you should replace “the Library” with this name (this is particularly important in converged services where Library may be viewed by some as only a part of the service, not the whole). You should go through each question and answer to make sure that the language used, especially the terminology, will be understood by your respondents to have the intended meaning.

Questions 1 and 2 require that you provide a list of answers that are appropriate to your situation. Question 1 is used to aggregate the responses by team. You should choose team names that staff members will identify with, and an appropriate level of granularity for the results to be useful to you. Question 2 is used to aggregate responses by the level of the staff member within the organisational hierarchy. You should choose an answer list that will do this and be meaningful to your situation (the questionnaire used Grade, but you may use job title, or any other description). If you have a multi-site service you may want to add a third question to the ‘About You’ section – asking where respondents work. You can then aggregate the results by location, if you want to.

Administration

The instrument should be administered using an online survey tool, such as Survey Monkey, Bristol Online Surveys, or an in-house application. In order to provide a complete and accurate picture as possible, you should administer the questionnaire to all members of staff at your LIS and aim for a 100% response rate. Questionnaires of this nature receive the best response rate if run on a relatively short timescale (e.g. three weeks), though you will need to consider the timing to ensure no particular groups are unable to complete it.

Data Protection

You must take care to ensure that the data provided by respondents is held anonymously and securely in accordance with data protection rules. This is your responsibility. You must also take care to ensure that the minimum number of people have access to the raw data, as it would be possible in most LIS to determine who had provided a particular response by combining the responses to the attribute questions. The survey administrator should aggregate and analyse the data before reporting it to anyone.

Analysing the Results

The responses to each question on the instrument should be aggregated. The mode average response (i.e. most frequent) is taken as the 'result'. You should use the rubric for mapping answers on to the level of an element of the Quality Maturity Model.

Three of the elements of quality culture (8.1, 8.7, 8.8) do not have questions on the instrument. Instead, these are assessed by cross tabulating the answers to specific other questions by team membership and/or level within the hierarchy.

If the responses are spread over a number of answers, the results should be cross-tabulated against team membership and level in the hierarchy to see if this produces different responses between groups and the same responses within groups. If so, these differences should be reported. If no groupings can be determined, then the main modal responses should be reported. An example of this is presented below.

Aggregated responses:						
Q32. Do you feel valued by the Library?						
Not really.	4%					
Not really, but we receive training that we want/need.	7%					
Sort of, they say they are committed to the achievement of staff satisfaction/development/well-being.	45%					
Sort of, people are supported in developing themselves.	3%					
Yes, I know the Library sees the staff as its most valuable asset.	41%					
Cross tabulated by grade:						
	4	5	6	7	8	9
Not really.	2%	0%	0%	2%	0%	0%
Not really, but we receive training that we want/need.	2%	3%	2%	0%	0%	0%
Sort of, they say they are committed to the achievement of staff satisfaction/development/well-being.	16%	14%	5%	7%	0%	0%
Sort of, people are supported in developing themselves.	0%	0%	0%	3%	0%	0%
Yes, I know the Library sees the staff as its most valuable asset.	0%	0%	0%	0%	27%	14%
Report:						
Grades 3-7 = Level 3						
Grades 8-9 = Level 5						

Presentation of the Results

The results should be presented as locating the LIS on the Quality Maturity Model. This enables you to see both where you are on the road to a culture of quality, and the next stage forwards. An example is presented below.

3.4 Attitude to mistakes	Mistakes are hidden due to a blame culture.	Mistakes are fixed – they are viewed as result of the person not following procedure.	Mistakes are fixed – they are viewed as faulty processes (especially not enough training).	Mistakes are viewed as opportunities for learning	Mistakes are viewed as opportunities for learning and are accepted as inevitable if trying new things.
3.5 Attitude to risk	The library is risk averse – it refuses to take risks.	The library is risk averse – it may occasionally take what it views as risks, but only if they are virtually guaranteed to work.	The library is risk averse – it employs checks and balances to minimise risks.	The library is risk tolerant – willing to accept risk taking behaviour (“It is OK to take risks, no-one will die!”).	The library is risk seeking – encourage risk taking behaviour (“It is better to do something and fail than to wait to be certain it will work and do nothing”).

APPENDIX AA: Interview Schedule for Nick Bevan and Ann Cummings

Q1: Has the Quality Maturity Model changed how you think about the quality of your service?

Q2: Has the quality maturity assessment made you engage with issues of quality? If yes, in what way?

Q3: Does the free availability of the model and the assessment instrument make it more likely that you would assess the quality culture of your service in the future (not necessarily using them)?

Q4: Would you use the Quality Maturity Model and the Quality Culture Assessment Instrument (rather than a consultant or something else on the market)?

Q5: What do you see as the negatives of the model and instrument?

Q6: Is there anything else you want to say?

APPENDIX AB: Paper presented at the fourth Library Assessment Conference: Building Effective, Sustainable, Practical Assessment.

Abstract

This paper presents the complete details of the Quality Maturity Model. The QMM provides a framework for libraries to self-assess their progress towards achieving a culture of quality. Librarians at the cutting edge of work on performance measurement and improvement have used the Quality Maturity Model during its development. The aim of this paper is to bring the details of the model to a wider audience, so they too can use it to make their improvement efforts more effective.

A culture of quality is essential in enabling a library to adapt to meet the needs of future customers. A high quality library is able to meet, or even exceed, the needs of its customers. Such success comes (broadly) from focussing on quality as being defined by the customers. However, if a library does not have a mature culture of quality, then as the needs of the customers evolve the existing assessment and quality control processes may no longer be appropriate. The library is in danger of rapidly dropping from high to low quality.

The Quality Maturity Model describes seven facets of quality culture: management of the organisation; learning organisation attributes; attitude to change; attitude to quality; leadership; investment in staff; and the alignment of all parts of the organisation (horizontal and vertical) towards the mission, vision and values.

For each of the facets there are five levels: 1 - ad hoc; 2 - repeatable; 3 - defined; 4 - managed; and 5 - continuous. A library with a strong and ubiquitous culture of quality will score at level 5 (continuous) for all facets. However, libraries that have not yet reached this utopia will score at different levels across the facets.

The QMM enables libraries to locate themselves within the quality maturity landscape. They will then be able to use the Quality Maturity Model as a roadmap to plan their route to improvement. Such a strategic approach to improvement allows libraries to make sense of the literature in terms of what is appropriate for them, so avoiding expensive irrelevancies. After all, it is pointless trying to develop a balanced scorecard if your library does not have a strategic plan!

The Quality Maturity Model is unique. There are other models that assess quality culture, but the details of these models are kept secret and the only way to be assessed is by paying the (large) consultancy fee. There are other models that make their details public, but they describe only one or two aspects of quality culture, not all. The QMM has been developed by a librarian for librarians. Because if you don't know where you are, a map won't help; and if you don't know where you are going, any road will do.

Introduction

Everything that we do in a library is done by people. Library staff make every decision from building design to what books to buy, from how to design an education session to the priorities for spending. Not so, I hear you cry, so much is

automated in libraries now. Well, yes, a customer may use a self-service RFID machine to check out their books, but it is a *person* who decided which machine to install, how many to have, where to put them, the impact on the staffed service points, how often they are serviced, and what to do when one breaks down. A person decided the rules that the machine operates by – how many books you can check out, for how long, and what you are charged if you fail to return them on time. If a customer is unhappy with their experience of borrowing a book, it is not the fault of the machine, but of the decision-makers. There is no such thing as “computer says no”.

In an environment where quality is defined by the customer, and people are crucial to performance, the management of the library must ensure their staff members make the appropriate decision each and every time. But, as everyone who manages people knows, it is not that simple. You can have rules, procedures, manuals, notices and training events, but still they will do it their own way. The key to modifying behaviour is to understand that it is not driven by formal instructions, but by organisational culture¹. If you want to improve the quality of your library service, then you must improve the organisational quality culture.

In the rapidly changing environment within which libraries operate, agility is necessary for survival. But agility is difficult when it relies on people, because people find change difficult, unsettling, threatening and traumatic. And it does rely on people, because we can't sack everyone and start fresh with new staff every time the library takes on a new role. Organisational culture is once again the key – if you can create a culture where change is accepted, embraced, welcomed, even sought out, then you are on your way to building an agile organisation, able to evolve with its environment and consistently provide a high quality library service to its customers.

If the key is changing the organisational culture, how do we do it? According to Schein², culture is a pattern of assumptions, invented, discovered or developed by a group that has worked well enough to be valid and is taught to new members as the correct way to perceive, think and feel. He describes three fundamental levels at which culture manifests itself, illustrated in figure 1.

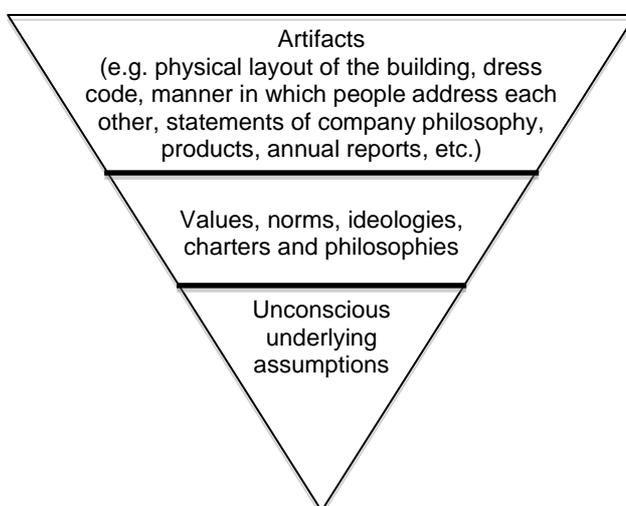


Figure 1: Schein's three levels of organisational culture.

Culture change so often fails because it is concentrated on changing the artifacts, without changing the underlying assumptions that determine perceptions, thought processes, feelings and behaviour. Which is why, if you simply tell people the new way of doing things, no matter how many times you tell them, they will always revert to what they have always done. To successfully change organisational quality culture we need to address the underlying assumptions which lie beneath "the way quality is done round here"³.

What is Quality?

A high quality library is able to meet, or even exceed, the needs of its customers. Such success comes from focussing on quality as being defined by the customers – a Total Quality Management approach.⁴ There are a multitude of books and articles about TQM and how to achieve it, however, the definition of quality in all of these is best described as "I know it when I see it", which is too fuzzy a concept to be helpful to anyone trying to tease out the individual strands of what constitutes quality.

The Quality Maturity Model brings together all descriptions and definitions of quality in the existing literature, and an analysis of quality culture as embodied in practice in UK university library and information services in order to explicate a culture of quality.

The Quality Maturity Model describes a culture of quality as: doing things right; doing the right thing; learning; suited to the business environment; and explicitly and appropriately aiming to improve quality. The culture is created by strong leadership and by the people of the organization; and the ubiquity of the culture is determined by organisational alignment.

The Purpose of the Quality Maturity Model

The purpose of the Quality Maturity Model is four-fold. Firstly, it is intended to be a roadmap to enable a library to determine where they are located on the journey towards achieving a ubiquitous culture of quality, and what is the appropriate direction of travel. Because if you don't know where you are, a map won't help; and if you don't know where you are going, any road will do.

Secondly, it is a framework to enable the management of a library to prioritise actions. The literature contains a myriad of tools and techniques, all proclaiming to be just the thing to help your organization improve. All libraries have limited resources, so where is it best to invest? What will give most bang for your buck? When a library knows its location within the quality maturity landscape, managers can take a strategic approach to improvement and so make sense of the literature in terms of what is appropriate for them. A score that is satisfactorily in most areas but low in a few areas may prompt library managers to concentrate improvement techniques on the low scoring areas. In addition, it can assist managers to avoid expensive irrelevancies just because they are the next big thing - after all, it is pointless trying to develop a balanced scorecard if your library does not have a strategic plan!

Thirdly, the Quality Maturity Model is a tool for assessment. Librarians love assessment; there are three international conferences devoted solely to this subject⁵ (including, of course, this one). Libraries assess inputs, outputs, and combinations of the two; customer satisfaction, staff satisfaction, and their culture of inclusivity; value for money, return on investment; and their impact - on their customers, on society, and everything in between. It seems certain that libraries will also want to assess their quality culture. However, readers familiar with libraries will realise that the list of things assessed is somewhat disingenuous. While it is a pretty safe bet to say that all libraries assess their inputs, very few libraries have successfully been able to assess their impact on society⁶. This is related to ease of measuring – where it is quick, cheap and easy to measure something, it is universally measured; where it is difficult, time-consuming and expensive to measure something, only the most committed or innovative measure it⁷. The Quality Maturity Model, and accompanying assessment instrument, is intended to make it quick, cheap and easy to measure the quality culture of a library.

Fourthly, the Quality Maturity Model is intended to provide a common language and a shared vision for a community of practice.

The Quality Maturity Model

In common with other maturity models, the QMM has five levels:

1. **Ad hoc** - The quality management process is *ad hoc*, even chaotic. Few processes are defined, and success depends on individual effort and heroics.
2. **Repeatable** - Processes are in place so that success for one customer can be replicated with another (or the same one on different occasions).
3. **Defined** - Quality processes are documented and standardised. All work derives from the organisational strategy.
4. **Managed** - Detailed measures of the quality process are collected, and is understood and controlled.
5. **Continuous** - Continuous quality improvement is enabled by feedback and by piloting innovative ideas. Future requirements are anticipated so there is no drop in performance.

However, it is interesting to note that I have come across more than one library operating at below Level 1!⁸

There are 41 factors, grouped into eight facets, to describe what constitutes 'quality culture'. The QMM consists of a description of each factor at all five levels of maturity, as can be seen in figure 2.

Management of the organisation	Ad Hoc	Repeatable	Defined	Managed	Continuous
1.1 Strategic plan generation	There is no strategic plan or annual operating plan.	There is a limited strategic plan.	The strategic plan is derived from (mediated) environmental sensing.	The strategic plan is derived from environmental sensing (top down, bottom up and inside out).	Strategic plan derived from environmental sensing (top down, bottom up and inside out).
1.2 Management alignment (a)	Actions are solely reactive to events.	Strategic plan includes breakthrough improvement processes. Many actions are unrelated to the strategic plan and are reactive to events.	Strategic plan includes breakthrough improvement processes. Some actions are still unrelated to the strategic plan.	Strategic plan includes breakthrough improvement processes.	All improvement processes, both incremental and breakthrough, flow from the strategic plan, and it is updated to reflect new developments.
1.2 Management alignment (b)	Goals for individuals, teams and the library are poorly defined, if present.	Goals for specific high-level managers are linked to the strategic plan. Goals for most staff are poorly defined, if present.	All senior staff have goals, some of which are related to the strategic plan.	Goals for achieving the strategic plan are cascaded down throughout the library to all appropriate staff.	Goals for achieving the strategic plan are cascaded down throughout the library. All staff have individual goals, which contain both improvement and "business as usual" targets.
1.3 Progress monitoring	There is no monitoring of progress in achieving goals.	There is no monitoring of progress in achieving goals.	There is infrequent monitoring of progress, but no corrective action taken.	There is monitoring of progress in achieving goals, and some corrective action is taken.	Progress in achieving goals is closely monitored and corrective action taken where necessary.
1.4 Performance measurement	Basic statistical measures may be collected, but are used for competitive analysis if at all.	Basic statistical measures are collected and used for competitive analysis. Customer feedback is also viewed as an indicator of performance.	Customer feedback and measures of internal processes are used to determine how the library is performing.	A range of performance indicators is used to determine how the Library is performing. KPIs, may exist, but are not necessarily fully aligned with metrics used or strategic aims of the library.	A range of balanced performance measures are used to monitor how well the library is achieving its aims. Metrics closely align with KPIs, which closely relate to strategic aims and mission. Performance measures

Figure 2: Snapshot of QMM.

Each factor is assessed and given a score of 1 – 5. This score locates the library on the 'quality culture roadmap'. So now you know where you are.

The rubric-style presentation of the model clearly illuminates the next step towards quality maturity for each of the 41 factors – enabling you to see where you are going.

Therefore, the eight facets of quality are:

1. Management of the organisation;
2. Environmental sensing;
3. Learning organisation attributes;
4. Attitude to change;
5. Attitude to quality;
6. Leadership;
7. Investment in staff; and
8. Alignment.

The 41 factors that make up these eight facets are presented below.

- 1. Management of the organisation**
 - 1.1 Strategic plan generation.
 - 1.2 Management alignment.
 - 1.3 Progress monitoring.
 - 1.4 Performance measurement.
 - 1.5 Project management processes.
- 2. Environmental sensing**
 - 2a Customers (bottom up)
 - 2.1 Gathering feedback from customers.
 - 2.2 Collation of feedback from customers.
 - 2.3 Response to feedback from customers.
 - 2.4 Action taken as a result of feedback from customers.
 - 2b Organisation (top down)
 - 2.5 Gathering feedback from the parent organization.
 - 2.6 Influencing the parent organization.
 - 2c Wider context (inside out)
 - 2.7 Gathering feedback on the wider operating context (e.g. Higher Education).
 - 2.8 Involvement of library staff in the LIS profession.
- 3. Learning organisation attributes.**
 - 3.1 Staff empowerment.
 - 3.2 Staff involvement in change.
 - 3.3 Nature and level of learning that occurs.
 - 3.4 Attitude to mistakes.
 - 3.5 Attitude to risk.
 - 3.6 Encouragement of staff to innovate.
- 5. Attitude to quality**
 - 4.1 Definition of quality.
 - 4.2 Attitude to quality improvement.
 - 4.3 Perception of responsibility for quality.
 - 4.4 Type of quality improvement initiatives (“sexy” vs. “vanilla”).
- 5. Attitude to change**
 - 5.1 Attitude to change.
 - 5.2 Perception of drivers for change.
 - 5.3 Identification of barriers to change.
- 6. Leadership**
 - 6.1 Vision and value setting.
 - 6.2 Trust.
 - 6.3 Inspiration and motivation.
- 7. Investment in staff**
 - 7.1 Attitude to staff.
 - 7.2 Training provision.
 - 7.3 Development of staff
 - 7.4 Recognition of staff.
- 8. Alignment – the ubiquity of the culture.**
 - 8.1 Vertical alignment (top, middle and bottom all on same song sheet?).
 - 8.2 Horizontal alignment (units work across boundaries, or in silos?).
 - 8.3 Consistency.
 - 8.4 Communication flow (up, down, sideways).
 - 8.5 “Little cogs” - staff see where they fit in the wider organization.
 - 8.6 Staff structure is appropriate.
 - 8.7 Alignment of the attitude to quality.
 - 8.8 Alignment of the attitude to change.

Figure 3: QMM factors

Space prevents me from presenting the full Quality Maturity Model detailing all of the factors with the 'rubric' for each maturity level, but two of the factors, with their maturity level descriptors are presented below.

1.2 Management alignment	
Level 1	Actions are solely reactive to events.
Level 2	Strategic plan includes breakthrough improvement processes. Many actions are unrelated to the strategic plan and are reactive to events.
Level 3	Strategic plan includes breakthrough improvement processes. Some actions are unrelated to the strategic plan.
Level 4	Strategic plan includes breakthrough improvement processes.
Level 5	All improvement processes, both incremental and breakthrough, flow from the strategic plan, and it is updated to reflect new developments.

5.3 Perception of responsibility for quality	
Level 1	Quality is the responsibility of everyone to do their best to adhere to procedures.
Level 2	Quality is the responsibility of people serving customers face-to-face to be 'nice'.
Level 3	Quality achievement is the responsibility of the management of the service (or the quality officer if there is one), thought it may be explicitly devolved down for specific areas.
Level 4	Quality for a particular area is the responsibility of the people in that area.
Level 5	Quality for the whole library is everyone's responsibility.

Figure 4: Extract from the QMM showing maturity level descriptors

QMM Assessment

The intention of the Quality Maturity Model is that libraries can self-assess using the freely available tools. This is in contrast to other models that assess quality culture where the details of the models are kept secret and the only way to be assessed is by paying the consultancy fee⁹.

Assessment against the QMM produces a score from 0 – 5 (0 if the descriptors for level 1 are not met) for each of the 41 facets (this is 42 scores as 1.2 Management alignment is split into two parts) to produce a quality culture profile. A library with a strong and ubiquitous culture of quality will score at level 5 for all facets. However, libraries that have not yet reached this utopia will score at different levels across the facets.

The quality culture profile enables libraries to see their areas of strength and weakness, and managers to strategically plan improvement activities. The profile also enables libraries to see where improvements have been made by repeating the QMM assessment – thereby evidencing the impact of the improvement activities. An example of what a quality culture profile might look like is presented in Figure 5.

Facet	2013 score	2015 score
...		
6. Leadership		
6.1 Vision and value setting	1	
6.2 Trust	3	
6.3 Inspiration and motivation	2	
7. Investment in staff		
7.1 Attitude to staff	3	
7.2 Training provision	4	
7.3 Development of staff	3	
7.4 Recognition of staff	2	
8. Alignment		
...		

Figure 5: What a QMM assessment might look like

Cultural change takes time¹⁰, so it is recommended that repeated QMM assessment be conducted with at least a two-year gap.

Future Developments

At the time of this conference, it is not possible for a library to self-assess against the Quality Maturity Model, because there is not yet a self-assessment instrument! However, over the course of the next year the author will develop and test the Quality Culture Assessment Instrument and make it, the full version of the Quality Maturity Model, and all instructions and necessary information freely available on the SCONUL Performance Portal website¹¹.

The author therefore hands these resources over to the Library community, and asks only two things in return: (1) that anyone using or referring to the Quality Maturity Model and the Quality Culture Assessment Instrument acknowledges the author's intellectual property, and (2) that everyone using the tools contributes to the community of practice via the SCONUL Performance Portal blog. The author hopes that in the future this will become a resource for tools, techniques and best practice to be shared, and so the quality culture of all libraries improved, for the benefit of our customers.

¹ Edgar H. Schein, "Organizational Culture", *American Psychologist* 45, no 2 (1990): 109-119.

² Ibid.

³ After Deal and Kennedy's phrase "culture is the way things get done around here". Terrance Deal and Allan Kennedy, *Corporate Culture: The Rites and Rituals of Corporate Life*. (Cambridge, MA: Perseus Publishers, 2000).

⁴ See, for example, Phillip Crosby, *Quality is Free*. (New York: McGraw-Hill); W. Edwards Deming, *Out of the Crisis*. (Camb., Mass: MIT Press, 1986); A.V. Feigenbaum, *Total Quality Control*. (New York: McGraw Hill, 1991); Kaoru Ishikawa, *What is Total Quality Control? The Japanese Way*. (Englewood Cliffs, N.J.: Prentice-Hall, 1985); J.M. Juran, *Juran on Leadership for Quality: An Executive Handbook* (New York: Free Press, 1989).

⁵ Northumbria International Conference on Performance Measurement and Metrics in Library and Information Services; International Conference on Qualitative and Quantitative Methods in Libraries; Library Assessment Conference.

⁶ See for example Roswitha Poll and Phillip Payne, "Impact measures for libraries and information services", *Library Hi Tech* 24 Iss: 4, (2006): 547 - 562.

⁷ For example Huddersfield's Library Impact Data Project <http://library.hud.ac.uk/blogs/projects/lidp/>

⁸ See Schorsch's tongue-in-cheek article about maturity levels 0 to -3: Tom Schorsch, "The Capability Im-Maturity Model (CIMM)", *US Air Force CrossTalk Magazine*, accessed 18th October 2012, <http://www.grisha.ru/cmm/cimm.htm>.

⁹ For example Baldrige (<http://www.nist.gov/baldrige/>) or EFQM (<http://www.efqm.org/en/>)

¹⁰ See, for example, Philip E. Atkinson, *Creating culture change: The Key to Successful Total Quality Management*. (Milton Keynes, UK:IFS, 1990); John P. Kotter, "Leading change: Why transformation efforts fail." *Harvard Business Review* 73, no. 2 (1995): 59-67.

¹¹ <http://vamp.diglib.shrivenham.cranfield.ac.uk/>

APPENDIX AC: The Quality Maturity Model

Management of the organisation

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
1.1 Strategic plan generation	There is no strategic plan or annual operating plan.	There is a limited strategic plan.	The strategic plan is derived from (mediated) environmental sensing.	The strategic plan is derived from unmediated environmental sensing.	The strategic plan is derived from environmental sensing (customers; organisation; and wider context).
1.2 Management alignment (a)	Actions are solely reactive to events.	The strategic plan includes breakthrough improvement processes. Many actions are unrelated to the strategic plan and are reactive to events.	The strategic plan includes breakthrough improvement processes. Some actions are unrelated to the strategic plan.	The strategic plan includes breakthrough improvement processes.	All improvement processes, both incremental and breakthrough, flow from the strategic plan and it is updated to reflect new developments.
1.2 Management alignment (b)	Goals for individuals, teams and the service are poorly defined, if present.	Goals for specific high-level managers are linked to the strategic plan. Goals for most staff are poorly defined, if present.	All senior staff have goals, some of which are related to the strategic plan.	Goals for achieving the strategic plan are cascaded down throughout the service to all appropriate staff.	Goals for achieving the strategic plan are cascaded down throughout the service. All staff have individual goals, which contain both improvement and “business as usual” targets.

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
1.3 Progress monitoring	There is no monitoring of progress in achieving goals.	There is no monitoring of progress in achieving goals.	There is (infrequent) monitoring of progress in achieving goals, but no corrective action taken.	There is monitoring of progress in achieving goals, and some corrective action is taken.	Progress in achieving goals is closely monitored and corrective action taken where necessary.
1.4 Performance measurement	Only basic statistical measures are collected, but are used for competitive analysis (“we have more books than X”) if at all.	Basic statistical measures are collected and used for competitive analysis. Customer feedback is also viewed as an indicator of performance.	Customer feedback and measures of internal processes (e.g. time taken to re-shelve a book) are used to determine how the service is performing.	A range of performance indicators are used to determine how the service is performing. Key Performance Indicators may exist, but are not necessarily fully aligned with metrics used or strategic aims of the service.	A range of balanced performance measures are used to monitor how well the service is achieving its aims. Metrics closely align with Key Performance Indicators, which closely relate to strategic aims and mission. Performance measures are regularly evaluated to determine whether they continue to accurately and appropriately measure performance.
1.5 Project management processes	Changes are just implemented – no processes are used.	<i>Ad hoc</i> processes are used to implement changes. How it is done depends on who is leading the change.	Changes are implemented through <i>ad hoc</i> project management processes.	Breakthrough changes are implemented through coherent project management processes, including project planning, monitoring and impact assessment.	All changes (incremental and breakthrough) are implemented through project management processes, including project planning, monitoring and impact assessment. Ad hoc projects and changes managed to the same level as planned strategic projects.

Environmental sensing - customers

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
2.1 Gathering of feedback	Feedback from customers is gathered ad hoc and reactively.	Feedback is gathered from customers proactively to assess satisfaction. Feedback is sought from a sub-set of customer groups only. A limited number of methods are used.	Feedback is gathered proactively via a range of methods.	Feedback is gathered proactively via a wide range of methods to access views of all customers.	Feedback is gathered proactively via a wide range of methods to access views of all customers and non-customers. Feedback is proactively sought to assess impact of changes on customer satisfaction.
2.2 Collation of feedback	Feedback is not collated.	Feedback may be collated.	Feedback is collated separately for each source.	Feedback is collated across all feedback methods and analysed for consistency.	Feedback is collated across all feedback methods and analysed for consistency. Collated feedback is analysed over time to identify trends.
2.3 Respond to feedback	Feedback is responded to with excuses, or discounted as due to customers “not understanding the Library way”	Feedback is responded to with explanation, excuses, or discounted as due to customers “not understanding the Library way” Changes are not reported.	Feedback is responded to with details of changes, or explanation of why changes cannot be made. The locus of control is presented as the service (“we decided to do ...”).	Feedback is responded to with details of changes, including timescales for longer-term changes. The locus of control is presented as customers (“you said ... we did ...”).	Feedback is advertised, and responded to with details of changes, including timescales. Changes are pro-actively advertised as based on feedback (locus of control is presented as customers).

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
2.4 Act on feedback	No changes are made in response to feedback.	A small number of changes are made on the basis of feedback. Changes are made only if small and/or agree with service's point of view ("sensible" "possible").	Most feedback results in changes. However changes are limited to those "within the service's control"	All feedback results in change (though some may be long-term), including changes to other services and big changes requiring institutional funding and support.	All feedback results in change (though some may be long-term), including changes to other services and big changes requiring institutional funding and support. Analysis of trends leads to anticipatory changes, with both long- and short-term future focus. Feedback leads to changes in overall goals and strategy.

Environmental sensing – organisation

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
2.5 Feedback gathering	Instructions from the parent organisation are obtained <i>ad hoc</i> .	Instructions are proactively obtained from the parent organisation.	Indicators of desired direction are obtained proactively from the parent organisation.	Indicators of desired direction are obtained proactively from the parent organisation, and other sibling departments. Feedback is proactively sought from the parent organisation and other departments.	Knowledge of wider organisational context is obtained. Indicators of possible future directions of the parent organisation are monitored. Indicators of desired direction are obtained proactively from the parent organisation, and other sibling departments. Feedback is proactively sought from the parent organisation, and other departments.
2.6 Influencing organisation	Change is responded to <i>ad hoc</i> as instructions from the parent organisation.	Change is imposed top down as instructions from the parent organisation.	Changes are determined top down in response to desired direction from the parent organisation.	The service negotiates with parent organisation and sibling departments for change implementation (both to achieve change desired by the service, and to mitigate change, if contradictory to other feedback, desired by parent and siblings).	The service influences parent organisation and sibling departments in determination of organisational change.

Environmental sensing – wider context

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
2.7 Feedback gathering	The service is unaware of position, policies and practices in other LIS. There is no awareness of possible future developments.	The service seeks out specific information relating to potential changes (“We want to do X – how did others do it?”). Specific staff may attend conferences <i>ad hoc</i> .	Indicators of a wide range of best practice (research and practice) are obtained <i>ad hoc</i> (“What are the issues around X?”). A range of staff attend conferences <i>ad hoc</i> .	Indicators of best practice (research and practice) are proactively and comprehensively obtained (“What is going on?”). All staff are encouraged to read professional literature and attend conferences.	Knowledge of the wider professional context is obtained. Indicators of possible short- and long-term future directions of LISs are monitored (including current best practice, research and ‘cutting edge’ (“What might be going on in the future?”).
2.8 Involvement & contribution of staff in profession	The service does not engage with ‘the profession’.	The service does not contribute to wider professional knowledge, but does engage with the profession.	Staff of the service may contribute to wider professional knowledge <i>ad hoc</i> .	Staff of the service are able to contribute to wider professional knowledge through publications, experience sharing and conferences. Limited projects may be undertaken if do not ‘interfere’ with the service’s business.	The service actively contributes to wider professional knowledge through projects, publications, experience sharing, and conference papers. All staff are encouraged to contribute. The service operates at the cutting edge in at least some areas.

Learning organisation

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
3.1 Staff empowerment	Decisions are not taken, or are taken <i>ad hoc</i> .	Decision making is controlled by the top.	There is limited middle management level / professional staff decision making	Staff are empowered to make decisions about their own job (with support of the management structure).	Staff are empowered to make decisions about anything (with consultation and 'permission'), with the lowest possible locus of control.
3.2 Staff involvement in change	Staff try to prevent change.	Staff are passive in the change process.	Staff are informed of change and sometimes participate in the change process.	Staff are included in the change process and the implementation of change.	Staff are the drivers of change, and of the implementation of change.
3.3 Learning	Learning is personal.	There is some shared learning within work units.	There is some shared learning between co-ordinated work units.	There is some shared learning throughout the service.	There is shared learning, information and knowledge throughout the service.
3.4 Attitude to mistakes	Mistakes are hidden due to a blame culture.	Mistakes are fixed – they are viewed as the result of the person not following procedure.	Mistakes are fixed – they are viewed as indicative of faulty processes (especially not enough training).	Mistakes are viewed as opportunities for learning.	Mistakes are viewed as opportunities for learning, and are accepted as inevitable if trying new things.

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
3.5 Attitude to risk	The service is risk averse – refuses to take risks.	The service is risk averse – may occasionally take what it views as risks, but only if they are virtually guaranteed to work.	The service is risk averse – employs checks and balances to minimise risks.	The service is risk tolerant – willing to accept risk-taking behaviour (“It is OK to take risks, no-one will die!”).	The service is risk seeking – encourage risk taking behaviour (“It is better to do something and fail than to wait to be certain it will work and do nothing”).
3.6 Staff encouragement to innovate	Innovation is discouraged.	‘Innovation’ from senior staff is tolerated (inspiration is taken from elsewhere).	Middle management, professional staff, and specific specialist staff are encouraged to innovate (innovations are taken from elsewhere).	Most staff are encouraged to innovate, but this does not include the most junior levels.	All staff at all levels are encouraged to innovate.

Attitude to change

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
4.1 Attitude to change	The service is change averse – change is avoided and prevented. Change is perceived as disruptive to the 'day job'. "If it ain't broke, don't fix it".	The service is change resistant – it prefers stability and permanence. Staff list reasons why change is bad and will fail. "Whether change is good or bad depends on what the change is".	The service is change managing – stability and permanence are preferred, but change accepted as inevitable. "Change is good if done well".	The service is change friendly – there are systems and processes in place to make implementation of change easy. "Change is good if it is done to improve things".	The service is change seeking – constantly seeking to change. "To stand still is to regress".
4.2 Perception of drivers for change	Change is viewed as imposed top down.	Change is viewed as imposed top down – though the influence of external factors on the service management is acknowledged.	Change viewed as driven by customers and/or parent organisation and/or external environment.	Change viewed as driven by customers and parent organisation and external environment.	Change viewed as driven by everyone, with focus on serving and anticipating changing needs of customers and environment.
4.3 Identification of barriers to change	Barriers are the structure / hierarchy / bureaucracy / competency of middle management.	Barriers are the attitudes of staff.	Barriers to change are resources (money / space / time / staff). These barriers are insurmountable.	Barriers to change are other parts of the parent organisation.	There are no barriers that cannot be overcome.

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
4.4 “Vanilla” vs. “sexy”	Changes are implemented to ensure that existing policies / procedures / practices are properly adhered to by everyone. ‘Get the vanilla right’.	Changes are implemented to produce incremental improvements to the what the service is already doing (the ‘vanilla’).	Changes are implemented in terms of breakthrough new projects, in order to offer new products / services.	Changes are implemented to produce both incremental and breakthrough improvements.	Changes are implemented to produce both incremental and breakthrough improvements. Staff are aware of why both necessary, and both are included in targets.

Attitude to quality

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
5.1 Definition of quality	Quality is defined by the service (e.g. “We provide a perfect classification systems, it is their fault if they can’t find the book”)	Quality is defined as happy face-to-face customers.	Quality is defined as customer satisfaction with products and services. Locus of control is the service (e.g. service level agreement levels are determined by the service staff). Targets for quality are implicit or secret.	Quality is defined as customer satisfaction with products and services. Locus of control is the service (e.g. service level agreement levels are determined by the service staff). Targets for quality are explicitly advertised.	Quality is defined by the customer. Locus of control is the customers (e.g. service level agreement levels are determined by customers). Targets for quality are explicitly advertised.

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
5.2 Quality improvement	Quality is absolute, rather than relative.	Quality is achieved by luck / accident.	Quality improvement focuses on improving the products and services. Quality improvement is written in the strategy of the service.	Quality improvement focuses on improving processes by which products and services are achieved. Quality and improvement measures are written into documented work processes.	Quality improvement is viewed as a continuous processes. All staff are encouraged to continually improve themselves and their work.
5.3 Perception of responsibility for quality	Quality is the responsibility of everyone to do their best to adhere to procedures.	Quality is the responsibility of people serving customers face-to-face to be 'nice'.	Quality achievement is the responsibility of the management of the service (or the quality officer if there is one), though it may be explicitly devolved down for specific areas.	Quality for a particular area is the responsibility of the people in that area.	Quality for the whole service is everyone's responsibility.

Leadership

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
6.1 Vision and value setting	The leader has not set their vision and values.	The leader has clearly articulated their vision and values.	The leader has articulated their vision and values, and communicated it to all staff through a variety of mediums, including dialogue sessions. They embody it by 'walking the talk'. It is covered in new staff induction.	The leader has articulated and communicated their vision and values, which underpin policies, practices, targets, KPIs, staff development, and behaviour. They and other key people 'walk the talk'.	The leader has articulated, communicated, and aligned their vision and values. All staff 'walk the talk' i.e. behaviour in accordance with the vision and values is second nature. There are initiatives in place to ensure this behaviour is sustained.
6.2 Trust	The leader engenders distrust and a lack of openness.	There is distrust in the leader, attributed to lack of understanding on their part. There is no feeling of openness.	There is a lack of distrust in the leader. There is a feeling of openness.	There is trust in the leader and a feeling of openness.	The leader engenders trust and a feeling of openness. They have the 'hearts and minds' of staff.
6.3 Inspiration and motivation	Staff are generally demotivated.	New staff are generally motivated to perform, but over time staff become demotivated by the service culture.	Staff are personally motivated to perform.	Specific teams are motivated and inspired to perform.	Leader inspires, motivates, encourages, organises and directs staff to ensure that all the other aspects of achieving a mature quality culture happen.

Investment in staff

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
7.1 Staff as an asset	There is no specific commitment to staff development.	There is a commitment to the achievement of staff development, where staff development is equated with training.	There is a commitment to the achievement of staff satisfaction, development and well-being.	Systems, structure and processes are in place to achieve staff satisfaction, development and well-being.	People are viewed as the LIS's most critical asset. Staff <i>feel</i> the commitment of the LIS to them.
7.2 Training provision	Training is <i>ad hoc</i> and related to the inability to perform specific work task.	There is a reactive training programme, related to work tasks and <i>ad hoc</i> requests.	There is a training programme related to training needs assessment, and provision is related to this.	There is a training programme comprising training needs assessment, provision, and an assessment of the effectiveness of the training. Training is provided in the tools, techniques and skills for improvement. Data gathering and reflection are encouraged.	There is a training programme comprising training needs assessment, provision, and an assessment of the effectiveness of the training. Training is related to future necessary skills and account is taken of succession planning and developing skills required for the future. Training is provided on 'learning how to learn'. Time is built in to work for critical reflection.

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
7.3 Development of staff	There is no development of staff.	Staff are supported in their professional development <i>ad hoc</i> .	Staff are supported in their professional development. There is a clear progression path for some staff.	Staff are supported in their professional and personal development. There is an appreciation that happy and fulfilled staff are more engaged and so produce better work. There is a clear progression path for all staff.	Staff are supported in their professional and personal development. Future leaders are identified and coached. All staff are encouraged to develop their career and their talents, and there is a clear progression path (which may involve leaving the organisation to progress). Staff feel valued as a whole person.
7.4 Recognition of staff	Staff do not feel their work makes a difference.	Staff may feel recognition for their work, dependent on the characteristics of their line manager.	There is a commitment to the recognition of staff, though there are no specific systems in place.	There are systems, structures and processes in place for recognition and/or reward and/or progression of staff.	Staff “feel the love” due to recognition and/or reward and/or progression systems, structures and processes.

Alignment

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
8.1 Vertical alignment	There is no alignment of cultures between the top, middle and bottom of the service.	There is no alignment of cultures between the top, middle and bottom of the service.	The service is aiming for alignment of cultures between the top, middle and bottom of the service.	There is some alignment of cultures between the top, middle and bottom of the service, with some areas of 'blockage'.	The service is fully aligned at all levels of the service in vision, values, attitudes, policies and practices.
8.2 Horizontal alignment	There is no co-ordination between work units.	There is some ad hoc co-ordination between work units.	There is planned co-ordination between work units	The concept of the internal customer is applied between work units.	A systems approach is taken – "managing the whole elephant".
8.3 Consistency	Work processes are dependent on the person undertaking them.	Basic work processes are documented and consistently applied.	Consistency is ensured by documented processes, practices and policies, or job description (as appropriate).	Consistency is ensured by documented processes, practices and policies or job description. Training is provided regularly to emphasise these.	Consistency is ensured by documented processes, practices and policies or job description, which are regularly reviewed for improvement. Training is regularly provided.
8.4 Communication flow	Limited information flows top down.	Limited information flows top down and bottom up. Messages are mediated before being passed down, and limited bottom up communication is sought.	Communication flows top down and bottom up. Not all staff feel confident in the free flow of communication.	Communication flows top down and bottom up. Channels exist for circumventing any blockages to communication.	Multiple methods exist for top down, bottom up and lateral communication. Communication is unambiguous and consistent, with a clear purpose.

	Level 1: Ad Hoc	Level 2: Repeatable	Level 3: Defined	Level 4: Managed	Level 5: Continuous
8.5 Staff recognition of where they fit into the overall scheme	Staff member's approach to the purpose of the service is dependent on their specific work.	Staff member's approach to the purpose of the service is dependent on their work unit or area.	All staff understand the overall aims and purpose of the service. Most understand their contribution to achieving them.	All staff understand the overall aims of the service and their contribution to achieving them. Leaders understand how all staff contribute to the achievement of service aims.	All staff understand how the overall aims of the service contribute to the achievement of the aims of the parent organisation, and how they contribute to achieving them. Leaders of the parent organisation understand how the service contributes to the overall aims of the organisation.
8.6 Structure	The structure of the service creates silos - it is a barrier to integration and communication.	Some parts of the structure of the service are a barrier to integration and communication.	The structure of the service is not a barrier to integration and communication.	The structure of the service facilitates alignment, integration and communication.	The structure of the service facilitates alignment, integration and communication and is flexible so is not a barrier to change.
8.7 Alignment of attitude to quality	There is no quality culture.	There is no quality culture.	Quality culture is weak.	Quality culture is strong.	Quality culture is ubiquitous.
8.8 Alignment of attitude to change	The attitude to change is inconsistent.	The attitude to change is varied.	The attitude to change is split along specific lines (team, location, grade).	The attitude to change is widespread, with some known non-aligned areas.	The attitude to change is universal.