

**On the Nexus of Academic Libraries, Literacies, and Lifelong Learning for
Academic Staff**

Submitted by

Tatum T. McPherson-Crowie

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Declaration/Statement of Sources

This thesis contains no material published elsewhere or extracted in whole or in part from a thesis by which I have qualified for or been awarded another degree or diploma. No other person's work has been used without due acknowledgement in the main text of the thesis. This thesis has not been submitted for the award of any degree or diploma in any other tertiary institution. All research procedures reported in the thesis received the approval of the relevant Ethics/Safety Committees (where required).

Signed

A handwritten signature in black ink, appearing to be 'James', written over a horizontal line.

Dated 30 January, 2015

Abstract

This thesis is located in the changing context of higher education and concomitant changes in the management of higher education institutions (HEIs) and the nature of academic work. The research explores the role of academic libraries in providing opportunities to support the lifelong learning of academic staff. It is argued that within the evolving context and requirements of higher education, the provision of academic library lifelong learning opportunities are vitally important for academic staff to meet the changing nature and needs of their work in the short-term, and enhance their life chances, in the longer term.

Changes in the context of higher education, the management of higher education institutions and the nature of academic work were found in this study to have shaped a range of academic staff perceptions pertaining to the provision of learning opportunities in HEIs. In particular, the ways in which academic staff discern the academic library's capacity to provide information services and learning opportunities in a range of literacies deemed relevant to the lifelong learning of academic staff.

The study was informed by the theoretical insights of the philosopher Karl Popper, the philosophical investigations of Ludwig Wittgenstein, and used a range of qualitative and quantitative research methods in a multiphase mixed methods design comprised of four phases. A total of 43 academic staff employed in an Australian university participated in various phases of this study. The mixed methods approach commenced with the collection of semi-structured interviews data from eight academic staff in phase one. A modified Delphi method for the collection and analysis of quantitative data from 25 participants was used in the second phase. This was followed by the collection of focus group interviews data from five participants in the third phase. The study concluded with personal lens interviews on lifelong learning from five participants in the fourth stage of the research.

The findings show that the extent to which academic libraries meet the lifelong long learning needs of academic staff is shaped by the higher education context of

their work. Learning opportunities, provided by academic libraries, are challenged by their setting within higher education institutions, which this study identified as conditioned and constrained by themes of *intensification*, within a culture of *performance*. Further learning opportunities are perceived to be impacted upon by institutional expectations of *compliance* and the effort required and tension experienced by academic staff in maintaining their own individual and professional *sustainability*.

It was found that limiting the negative impact of the *intensification* of academic work was central to academic staff concerns about personal and professional *sustainability*. Understanding the *intensified* conditions within which staff are working, in *compliance*, to meet the expectations of higher education management and the expectations of students, and the importance of identifying an individual's threshold for *sustainability* were emphasized as critical considerations in setting future priorities. Learning opportunities, incorporating a range of literacies, and the available learning options within HEIs were strongly perceived to contribute to academic staff *productivity*, *performance* and *compliance*. However, perceptions of current learning opportunities made available by higher education institutions were repeatedly characterised as training sessions, where the emphasis is on employee *compliance* for the overriding benefit of *performance* expectations and evaluations.

These considerations, operating within the changing context of HEIs, condition and shape the academic library's ability to fulfill its potential as a facilitator for learning opportunities, advantageous to academic staff facing institutional challenges and responsibilities, addressing the short- and long-term goals of academic work and pursuing their needs for lifelong and life-wide learning. Among the priority area for academic libraries to focus upon in meeting the lifelong learning needs of academic staff, statistically significant correlations highlighted the areas of *new modes of learning* and *accessible publishing*. For academic libraries to meet the identified lifelong learning needs of academic staff library management and staff need to work from an individually and institutionally informed approach to be able to provide and facilitate the authentic, complementary, and extensible learning opportunities deemed to be most relevant and preferred by academic staff.

I conclude from the analysis of data collected during the four phases of data collection in this study that critical to understanding current concerns and setting future priorities in the nexus of academic libraries, literacies and the lifelong learning of academic staff are the themes I have identified as *intensification*, *sustainability*, *compliance*, and *performance*. These themes were shown in the data to condition and shape academics' perceptions of, participation in, and relationship with, academic libraries and their notions of lifelong learning. Academic staff, academic libraries and academic institutions, I suggest, are in a vulnerable position at a critical and complex juncture. Addressing the concerns and conditions identified in this thesis, would contribute to more resilient academic institutions and a more capable, better prepared, fulfilled and informed academic community with broader lifelong learning opportunities and life chances.

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List of Abbreviations

ALA	American Library Association
ALIA	Australian Library and Information Association
ANZIL	Australia and New Zealand Information Literacy (framework)
CAUL	Council for Australian University Librarians
CILIP	Chartered Institute for Library and Information Professionals
HE	Higher Education
HEIs	Higher Education Institutions
ICTs	Information and Communication Technologies
IFAP	Information for All Program
IFLA	International Federation of Library Associations
LIS	Library and Information Science
LMS	Learning Management Systems
NPM	New Public Management
OECD	Organization for Economic Cooperation and Development
RIN	Research Information Network
RLUK	Research Libraries United Kingdom
UNESCO	United Nations Educational, Scientific, and Cultural Organization

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Chapter 1

Introduction to the Study

This study of academic libraries and lifelong learning aimed to explore the roles of academic libraries in facilitating learning opportunities for academic staff, within a constantly changing global environment. At the outset of this study, research investigating the link between academic libraries and lifelong learning, which explicitly addressed the requirements of academic staff within the evolving context of higher education, was limited. In order to address this area of concern, my research has set out (McPherson-Crowie, 2010, 2011, 2012a, 2012b) to explore the relationships between academic libraries, academic staff, and lifelong learning in higher education, particularly in the context of the changing nature of academic work.

I examine and analyse the potential learning opportunities that might be provided by academic libraries in higher education institutions (HEIs) for the ongoing benefit of academic staff as they respond to the changing nature and needs of their academic work within the evolving context of higher education. To maintain participation within this evolving context of higher education, I argue, it has become essential for academic staff to embrace an evolving concept of knowledge, a breadth of learning, and an array of learning strategies and learning technologies. Academic staff working in HEIs are now required to engage in increasingly complex learning processes and interact with a vast array of scholarly information. The range of information used in this context requires a range of literacies and skills to complete academic and professional tasks. This range of literacies and skills also informs an individual's access and opportunities for lifelong learning and, in turn, their life chances.

The mixed methods multiphase research design used in this study was developed to identify the role of academic libraries in the lifelong learning of

academic staff. Possible interventions and future priorities for academic libraries designed to meet academic staff lifelong learning needs were identified and recommendations for policy, research and practice have been put forward to further advance this work.

The Nexus of Academic Libraries, Literacies, and the Lifelong Learning of Academic Staff

This research is concerned with the nexus of academic libraries, literacies and lifelong learning (American Association of University Professors (AAUP), 2013; Asher, 2003; Association of College and Research Libraries (ACRL) & Working Group on Intersections of Scholarly Communication and Information Literacy, 2013; Nimon, 2002). Individuals working in academic institutions are personally and professionally required to engage with increasingly complex processes, and to interact with a vast array of information to complete their day-to-day tasks. It has become essential for academics to embrace an expanding breadth of knowledge and learning opportunities and an array of learning strategies and learning technologies (Becher & Trowler, 2001; Bentley, Coates, Dobson, Goedegebuure, & Meek, 2013; Brophy, 2005; Enders, 2007; Grappa, Austin, & Trice, 2007; Longworth, 2003; Marginson & van der Wende, 2007). In this context lifelong learning is vitally important for an individual to achieve her or his goals and aspirations in personal, academic, and professional life (Chapman & Aspin, 2013; Evans, Schoon, & Weale, 2013).

The context and work of academic staff is informed by the evolving roles of HEIs within the global knowledge economies. Academics are required to respond to the changing roles, relationships and interactions of HEIs which incorporate people, products, financial capital, information, knowledge and technologies (Altbach, Reisberg, & Pacheco, 2012; Altbach, Reisberg, & Rumbley, 2009; Bentley et al., 2013; Bexley, 2013; Enders, 2007; Marginson & Considine, 2000; Marginson & van der Wende, 2007).

A variety of relationships between academic staff, HEIs, academic libraries, literacies, and lifelong learning is conceivable (AAUP, 2013; ACRL & Working Group on Intersections of Scholarly Communication and Information Literacy, 2013; Auckland, 2012; Evans, 2009; Hager & Halliday, 2006; Taylor, 1999). A range of learning opportunities in academic libraries for literacies that have the capacity to contribute to the current requirements and the lifelong learning needs of academic staff have been identified (Connaway, Dickey, & OCLC Research, 2010; Ithaka S+R, Jisc, & Research Libraries UK (RLUK), 2013; Research Information Network (RIN) & Research Libraries UK (RLUK), 2011, March; Schonfeld & Housewright, 2010). Additionally, this research sought to identify the form and character of the impact of the dynamic nature of HEIs and academic work on the reshaping of academic libraries, literacies and their provision of opportunities for lifelong learning within higher education.

Four decades ago, a number of emerging themes that are central to this study were identified by the American librarian Paul Zurkowski (1974, November) in his report *The information service environment relationships and priorities* to the ‘National Commission on Libraries and Information Science’. His work has had global impact and has influenced the perceptions and conceptualisations of academic, private, public, school, and special library services and relationships. Chiefly Zurkowski identified an unfolding “universal condition” and articulated that “we experience an overabundance of information whenever available information exceeds our capacity to evaluate it” (p. 1).

The significance of the Zurkowski report, in 1974 and today, cannot be overstated for three key reasons. Firstly, it can be held as an accurate assessment of the conditions of individuals and information. Secondly, it forecasts the multiplicity of information types and sources, and the ‘kaleidoscopic’ ways in which people now require, use, and access information. Thirdly, the report foretold the vital importance of lifelong learning to meet the needs of the exponential growth of information in evolving forms (information equivalents). These three factors continue to be

significant today and have accumulated four decades of growth and complexity, in part with the advent of real-time global mass communication in the form of the internet, its facilitating technologies and the influence of information communication formats.

The concept of information literacy was introduced by Zurkowski (1974, November) and defined as:

People trained in the application of information resources to their work can be called information literates. They have learned techniques and skills for utilizing the wide range of information tools as well as primary sources in molding information solutions to their problems. The individuals in the remaining portion of the population, while literate in the sense that they can read and write, do not have a measure for the value of information, do not have an ability to mold information to their needs, and realistically must be considered to be information illiterates. (p. 6)

This definition emphasises that information literacy is learnt; it encompasses information types and tools; is comprised of techniques and skills for problem solving, and is applied whenever and however people work with information.

In the context of this study, within contemporary HEIs, the needs of individuals and the characteristics of information identified by Zurkowski are enhanced by reference to an academic's role in information and knowledge creation, knowledge transfer, and scholarly communication. An increasing amalgamation of knowledge, understanding, and skills, namely literacies spanning the generic to the specific, are required to accomplish daily tasks (American Library Association (ALA), 2008a; Australian Library and Information Association (ALIA), 2006; Information For All Programme (IFAP), 2000; International Federation of Library Associations and Institutions (IFLA), 2006). Academic staff participating in scholarly communication use, in combination, their discipline knowledge, information literacy, academic literacy, ICT skills, publishing knowledge and an understanding of copyright. The amalgamation of knowledge, understanding, skills and literacies varies in depth, breadth and the level of fluency applied to each task. The ways in which individuals achieve their objectives are required to develop in response to their changing needs. Hence, learning opportunities,

techniques and strategies accumulated in HEIs ought to additionally contribute to satisfying the broader lifelong learning needs of academic staff.

Among the core values associated with the academic library is the provision of learning opportunities and instruction in learning techniques and strategies. Nimon (2002) draws attention to these values from which “the development of ‘lifelong learners is central to the mission of higher education’ and information literacy is a ‘prerequisite for lifelong learning’, [therefore] it is logical that librarians see the potential contribution of academic librarians to the achievement of that mission” (CAUL, 2001, p. 2 as cited in Nimon, 2002, p. 15). Academic libraries are purposeful in the promotion and delivery of learning opportunities that focus on the benefit to an individual across their lifespan, be it within or outside of higher education (HE) (AAUP, 2013; ALA, 2008a; 2008b; ALIA, 2002; 2006; IFLA, 2006). In this context, acceptance of the imperatives of lifelong learning is vital for both academic staff and academic institutions.

Traditional institutions with long histories, such as HEIs and academic libraries, appear to be rapidly changing and expanding. It might be suggested that they are evolving with the needs of a rapidly changing and expanding population. If they are evolving, it may be perceived to be at an uneven pace as they endeavour to meet a range of disparate needs. In this environment academic staff must keep pace with HEI employers and the HE sector. Academic staff not wanting to be left behind or left out will need to adopt an evolving approach to the ways in which they conduct their work, and the nature and form of work over a longer working lifespan than experienced by previous generations of academics (Evans, 2009; Evans et al., 2013; Hager & Halliday, 2006; Halliday, 2001; Taylor, 1999).

Evolutionary and transformational approaches to understanding ‘knowledges’, ‘skills’, and ‘literacies’, I suggest, are pivotal for academic staff in their conceptualisation of lifelong learning and their enhancement of life chances. Academic work in HEIs has and will continue to change, requiring an evolving understanding of the composition and application of

‘knowledges’, ‘skills’, and ‘literacies’. Ongoing and evolving conceptualisations require a range of learning opportunities across a lifespan and have the capacity to have a transformational impact on an individual and their life chances (Evans et al., 2013).

Academics who repudiate this premise and fail to keep pace with HEIs, also fail to meet the changing requirements of their institutions, graduates and the expectations of graduates’ prospective employers (AAUP, 2013; ALA, 2008a; ACRL & Working Group on Intersections of Scholarly Communication and Information Literacy, 2013; ALIA, 2006; Johnston & Webber, 2003). Information literacy and its relationship to lifelong learning is recognised universally within and outside of HEIs (AAUP, 2013; ACRL & Working Group on Intersections of Scholarly Communication and Information Literacy, 2013; Auckland, 2012; IFLA, 2006; Johnston & Webber, 2003; Longworth, 2003; United Nations Educational Scientific and Cultural Organization (UNESCO), 2009). Within HEIs, ‘information literate lifelong learners’ is established as a graduate attribute of students, and by reasonable extension is held to be characteristic of the academic staff who teach them (Bundy, 2004; Candy, 2000; Connaway et al., 2010; Law, 2010; Moyle & Owen, 2009; Schonfeld & Housewright, 2010).

Beyond HEIs, access, opportunities and support to develop the qualities of an information literate lifelong learner is identified as a human right (IFLA, 2006; UNESCO, 2009).

Genesis of the Study

The genesis of this study has been shaped by generations of lifelong learners who are dear to me and who have helped to shape my decision to enter the profession of academic librarianship. To experiment, explore, learn, and share has always appeared to me to be natural, effortless and desirable. Curiosity has been rewarded. I have learnt that informed opinions should be met with respect, and respectfully challenged without hesitation. This has

motivated me to take on a diverse and ongoing body of formal and informal learning, and an enthusiasm not to miss opportunities. This approach has informed my life, and underpinned my approach to learning. Within this environment, in the company of formal and informal educators, I have learnt to enrich, test, and prompt my own learning experiences through sharing. It is from this foundation that I felt motivated to undertake this study, with the goal of enriching my own learning and the learning experiences of others.

In the setting of higher education, I have always held the greatest respect for educators and learners equally, particularly those who share their knowledge. I am routinely privileged to witness that shared knowledge can confirm, contest, and inspire new knowledge. Moreover, I have observed that individuals who pursue lifelong and lifewide learning have the capacity to lead rewarding and fulfilling lives.

I believe that the purpose of a library is to share the knowledge in their stewardship. Traditionally, the library gently and quietly has shared knowledge with immeasurable resonance. As a librarian, I know that a library can be the quietest space but one in which every opinion is heard, distinguished, and given a designated space.

To me, the library represents the arena in which we can examine the sum of who we are and who we can become. The contents of a library inspire the possibility of us becoming all that is possible to become. These prospects can be elevated by an adequate provision for lifelong learning. I believe physical and digital libraries should be inclusive environments, accommodating people of all ages, genders, affiliations, denominations, physical and intellectual abilities, and socio-economic backgrounds. When the library is a welcoming space, when an adequate foundation for lifelong learning has been introduced, encouraged, challenged, enhanced, and maintained, it can exemplify social participation and equity.

From this range of personal experiences and beliefs, I embarked upon this study, feeling a responsibility to explore opportunities and the internal and

external challenges to the capacity of the academic library to be a place of learning and instruction. Such an investigation, I believe, could only serve to strengthen academic libraries and their position, contribution and role within academia and enhance their contribution to the lifelong learning of one of their most important constituencies, members of academic staff.

Assumptions, Values, and Beliefs Underpinning the Study

At the outset of this study, I held the belief that in responding to the changing nature of HEIs and academic work, academic libraries had sometimes been deficient in providing academic staff with lifelong learning opportunities. In doing so, academic libraries may limit the development of academic staff competencies, rather than enabling and enhancing the acquisition of knowledge and capacity in a changing HE context.

I suspected that the combination of the changing nature of academic work and the changing approaches to management within HEIs had impacted upon the academic library's provision of information and services, and learning opportunities. In some instances information and library instruction could appear to have been adapted or abandoned, with the replacement learning opportunities having a limited impact on the ability of an academic staff member to operate with competency. Some academic libraries have demonstrated the influence of their HEI context by narrowing the services and learning opportunities they provide. These restricted services and opportunities prioritise short-term utility over long-term, lifelong, and lifewide application.

The academic libraries that have adopted these responses appear to have replicated a managerialist approach in the compartmentalisation of the institution's infrastructure. The overlaying of these organisational and management structures upon academic library learning opportunities has, accordingly, reshaped outcomes. This has led to circumstances where task-

based and work-role training are perceived to have taken priority over learning for lifelong and life-wide application.

In undertaking this study, I also operated from the assumption that academic libraries have an educative role and responsibility within HEIs. Their educative role is to provide a range of learning opportunities that contribute to academic staff and student capacity within HE and outside this context for lifelong learning (ALA, 2008a, 2008b; ALIA, 2002, 2006; IFLA, 2006). This role for undergraduate and postgraduate students is clear and documented in the professional and scholarly literature (Sproles, Detmerig, & Johnson, 2013).

Less defined is the connection between academic libraries and the diverse cohort of academic staff. The range of individuals in this cohort includes tutors, lecturers, professors, fellows, researchers, and readers who are employed on a permanent, part-time, or casual (sessional) basis or who may have adjunct, emeritus or honorary status. In academic libraries, librarians work with academic staff to provide access to the resources required and in their primary responsibility to contribute to learning, teaching, and research expectations of HEIs.

It is from this foundation, that this thesis explored the ways in which academic staff perceive present and future options and opportunities in HEIs for literacies and lifelong learning facilitated by academic libraries. Questions of ownership, opportunity, and support for the nature and longitudinal value of these learning opportunities have been investigated in this study.

In outlining the beliefs and values that inform this research it is important that I reiterate Zurkowski's (1974, November, p. 6) conceptualisation of information literacy and its relationship to skills:

People trained in the application of information resources to their work can be called information literates. They have learned techniques and skills for utilizing the wide range of information tools as well as primary sources in molding information solutions to their problems.

From this definition, I hold the belief that to have and use a skill is not the same as having command of information literacy. Similarly to be information literate is not the same as being information skilled. I will argue that to be information literate is a much broader and deeper capacity that is the enmeshment of knowledge, skills, and understanding. It is also important to identify the context in which this enmeshment of knowledge, skills, and understanding will be used. This study is chiefly interested in the needs and expectations contextualized within a tertiary or higher education setting. Within higher education the requirements of academic staff vary according to the needs and expectations of their life stage, career development, and life chances.

The Aims of the Study

The purpose of this thesis has been to explore the relationship between academic libraries, literacies and the lifelong learning of academic staff.

The aims of the study were:

- To undertake a conceptual and empirical analysis of the impact of the changing context of higher education, changes in the management of higher education institutions and the nature of academic work on academic libraries and their provision of lifelong learning opportunities for academic staff.
- To identify the perceptions of academic staff regarding current issues and future priorities in higher education and their implications for academic libraries and the provision of learning opportunities for academic staff.
- To examine the capacity of academic libraries to provide information services and learning opportunities in a range of literacies relevant to the perceptions of academic staff regarding their lifelong learning needs.

The specific aims guiding research were:

- To explore the ways in which HEIs' impact upon the form and nature of lifelong learning opportunities provided by academic libraries to academic staff.
- To analyse how learning opportunities for a range of literacies are situated within HEIs and to examine the opportunities for learning a range of literacies in academic libraries.
- To investigate the relevance of academic library lifelong learning opportunities across the working life of academic staff.

Significance of the Study

There is a lack of consensus in the Library and Information Science (LIS) research literature about the relationships between the needs of academic staff and the range of learning opportunities for information related literacies in academic libraries (Sproles et al., 2013). The relationship between general libraries, learning, and lifelong learning has long been accepted. In the context of academic libraries in higher education institutions, earlier literature sought to define the range of information literacies required by academic staff in terms of their students and the graduate attributes and outcomes associated with courses of study in undergraduate and postgraduate degrees. This interpretation has been insufficient in theory and in practice (Altbach, 2007; Altbach et al., 2012; Altbach et al., 2009; Connaway et al., 2010; Enders, 2007; Evans, 2009; Halliday, 2001; Ithaka S+R et al., 2013; RIN & RLUK, 2011, March; Schonfeld & Housewright, 2010; Taylor, 1999). Researchers hold differing views on the nature and form of the relationship between academic libraries and lifelong learning in the HEI context. This lack of consensus accentuates the variance between theory, research, and practice. This in turn influence the relationship between academic libraries and academic staff, and the ways in which academic librarians endeavour to provide learning opportunities to meet the lifelong learning needs of academic staff.

This thesis seeks to contribute to the body of knowledge on academic libraries and lifelong learning, by examining the key concepts in order to: firstly identify academic staff perceptions; secondly examine lifelong learning priorities; thirdly analyse the roles for academic library learning opportunities and services; and, fourthly portray the lifelong learning experiences of academic staff. An examination of the literature suggests that this study is the first multiphase mixed methods investigation having as its central focus the role of academic libraries and lifelong learning needs and opportunities of academic staff within higher education institutions. The research questions are addressed by using an evolutionary epistemology and a Popperian approach to problem solving with iterative conjecture and refutation. This study examined one research site and acknowledges that it might not be possible to extrapolate these results to other HEIs.

Interest in my thesis could be found across many different groups of people, but three groups in particular may find significance in the study and could make use of my findings. The first are individuals concerned about the future roles of academic libraries. My thesis provides strong evidence for the modes and approaches to learning opportunities identified by academic staff to specifically meet their perceived lifelong learning needs. The second group is individuals interested in the development and organisation of learning opportunities and lifelong learning for academic staff. Third, my thesis may be of special interest to those who value HEIs and the needs of their academic staff.

Definition of Terms

A number of terms will be used in this thesis. These include:

- Academic Library

Use of the term *library* in the context of this thesis will refer to: an academic library; library and information services located in a Higher Education Institution (HEI); college library; or university library.

- Academic Staff

Academic staff is the term used within this thesis for those employed, both tenured and non-tenured, by universities and colleges with teaching and/or research responsibilities. This study does not examine professional, leadership, and executive appointments within HEIs.

- Higher Education Institution (HEI)

Degree awarding, doctorate-granting, post-secondary institutions, namely universities and colleges.

- Library and Information Science (LIS)

The academic discipline of Librarians, Information Scientists and Information Management professionals.

- Lifelong Learning

The definition of lifelong learning in this research was guided by the work of Aspin and Chapman (2000, 2001) who conceived of lifelong learning for personal growth and fulfillment, economic advance and democratic decision-making. Additionally, this study draws on Wittgenstein's (1967 [1953]) theory of language-in-use whereby terms are without fixed meaning. Accordingly, at the outset of this study a working definition of lifelong learning was adopted to guide the conceptualization of the research and the research design. This was informed by the scholarly literature reviewed in Chapter two of this thesis, in particular Aspin & Chapman, 2000, 2001; Aspin,

Chapman, Hatton, & Sawano, 2001; Bryce, 2006; Bundy, 2004; Chapman & Aspin, 1997, 2013; Chapman et al., 2006; Evans, 2009; Evans, Schoon, & Weale, 2013; Hager & Halliday, 2006; Halliday, 2001; IFLA, 2006; Longworth, 2003; Rymarz, 2006; Skilbeck, 2006; Swann, 2012; Taylor 1999; and Watson 2004. Further in this thesis, the understanding of the term of lifelong learning is guided by the language-in-use of the 43 academic staff who participated in this study.

- Literacies

Generic and specific understanding, knowledge, and skills are integrated within the term *literacies* which extend along a continuum with a sequence unique to each individual. In the course of this research, the term *literacy* will be presented with multiple prefixes. The most frequent compound term is *Information literacy* as conceptualised by Paul Zurkowski (Nov 1974, p. 6):

People trained in the application of information resources to their work can be called information literates. They have learned techniques and skills for utilizing the wide range of information tools as well as primary sources in molding information solutions to their problems. The individuals in the remaining portion of the population, while literate in the sense that they can read and write, do not have a measure for the value of information, do not have an ability to mold information to their needs, and realistically must be considered to be information illiterates.

In this study, *literacies* will also encompass the idea that “the information seeking procedures of individuals are different at different times for different purposes” (Zurkowski, 1974, November, p. 1) across an individual’s lifespan, shaped by their lifelong learning and impacting their life chances.

- New Public Management (NPM)

The techniques of New Public Management (NPM) are characterised by devolution of responsibility, increasing micro-management, intrinsic encouragement of competition and risk-taking behaviour, emphasis on managerialism, and the relationships between sources of funding and accountability, audits, contracts and performance and output measures (Becher & Trowler, 2001; Marginson & Considine, 2000; Marginson & van der

Wende, 2007). Within the context of HEIs, NPM has notably also emphasised and increased the diversity of tasks that need to be achieved without equal measures of access to resources by all staffing levels within HEIs.

During the course of undertaking this research a number of key terms emerged from the language-in-use of participants, in particular:

- Accessible publishing

The term *accessible publishing* is used to refer to a pair of Delphi questionnaire factors identified for correlation analysis in the second phase of this study. The factors which are summarised as *accessible publishing* are ‘keeping up-to-date with information resources which requires contextual legal knowledge e.g. copyright, intellectual property, open access’ and ‘support of accessible publishing practices including awareness of copyright, intellectual property rights and licensing issues’.

- Intensification

The term *intensification* is used to refer to a conceptual theme identified and defined in the qualitative data analysed in this study. The term is linked to the evolving character of academic appointments within HEIs, the ways in which the conduct of academic work has been reshaped by the techniques of new public management, and the changing nature and fragmented form of academic pursuits.

- Sustainability

The term *sustainability* is used to refer to a conceptual theme identified and defined in the qualitative data analysed in this study. The term is linked to the personal and professional sustainability of academic staff in the context of intensification of HEIs and encompasses the notion of an individual’s threshold.

- Compliance

The term *compliance* is used to refer to a conceptual theme identified and defined in the qualitative data analysed in this study. The term is linked to the compliant conduct of academic staff to the learning opportunities and options provided by HEIs.

The Research Design

In this research I adopted several qualitative and quantitative research methods to address the aims of the study (Creswell & Plano Clark, 2007; R. B. Johnson & Onwuegbuzie, 2004; McGrath & Johnson, 2003). The choice of methods was based on their capacity to support and act in accordance with the notions of the provisional character of knowledge, research, truth and the importance of criticism to bring about the elimination of error (Popper, 1972; Pring, 2005). In using this approach I aimed to demonstrate and advocate the potential of mixed methods research and mixed model designs, particularly related to the underlying Popperian approach of making research accessible to criticism (Popper, 1972, 1974).

The design for this study incorporated a four-stage approach. Data were collected from academic staff in a multiphase mixed methods design. Data collection began with a series of preliminary interviews with eight participants in the first phase. Following and central to this research was the application of the modified Delphi method with three iterations and 25 participants for the second phase of data collection. The Delphi acted as an iterative means for articulating and applying collaborative conjectures and refutations. In phase three, enquiry through a series of focus groups was conducted with five participants to explore and elaborate upon the findings of the preceding phase. The fourth and final stage of data collection comprised the construction of personal lenses on lifelong learning for five participants.

The Research Site

Ethical considerations for the anonymity of participants in this study have been carefully examined, and informed the design and reporting of this research. Cohen, Manion and Morrison (2011, p. 91) argue that “the essence of anonymity is that information provided by participants should in no way reveal their identity” and that “the principal means of ensuring anonymity, then, is not using the names of participants or any other personal means of

identification”. Creswell (2014, p. 99) similarly recommends that researchers “use aliases or pseudonyms for individuals and places, to protect the identities of participants”. Taking into account these measures a range of numerical pseudonyms has been applied to ensure the anonymity of participants throughout the four phases of the study (Cohen et al., 2011, p. 91; Creswell, 2013, p. 173), for example *Primus*, *Secundus*, *Treis*, and *Tessares*. Furthermore, concern that “combining data may uniquely identify an individual or institution” (Cohen et al., 2011, p. 91) the research site for the purpose of this thesis will be referred to as *Glendalough University* for the purpose of anonymity and confidentiality of participants.

‘Glendalough’ University

The 43 academic staff participants in this study are employed at Glendalough University. The University is a medium-sized ‘New University’, formed post-1986, in Australia with more than 1,250 staff and more than 18,000 (FTE) students enrolled at the time of data collection. Glendalough has a range of faculties on campus including the Sciences, Social Sciences and Humanities. All faculties offer undergraduate, postgraduate, and doctoral degrees. Glendalough includes a number of research units and specialist research teams.

The University supports the education of indigenous students and provides all students with access to academic skills support, counselling, equity and disability support, career development and student associations. Glendalough contributes to a range of local partnership projects with not-for-profit and for-profit organisations, as well as international programs with a range of institutions in several European countries.

Higher Education Institutions

The changing nature of academic work has been characterised and framed by a range of impacting factors, the most prominent of which relate to technology, management and leadership, human resources, and information and knowledge resources (Altbach, 2007; Altbach et al., 2012; Altbach et al., 2009; Enders, 2007; Marginson & van der Wende, 2007).

Scholarly literature and research on higher education and higher education institutions is structured in various ways for different audiences and research purposes. Higher education research in the United States is commonly organised by the ‘basic’ classifications of the Carnegie Foundation’s database of institutions. The classification system is “an update of the traditional classification framework developed by the Carnegie Commission on Higher Education in 1970 to support its research program” (Carnegie Foundation, 2010).

Higher education research for a global audience often makes use of the International Standard Classification of Education (ISCED). The ISCED is “the standard framework used to categorise and report cross-nationally comparable education statistics” and “to benchmark performance across countries over time” (UNESCO Institute for Statistics, 2012, p. iii). Higher or tertiary education “comprises ISCED levels 5, 6, 7, and 8, which are labelled as short-cycle tertiary education, Bachelor’s or equivalent level, Master’s or equivalent level, and doctoral or equivalent level, respectively” (UNESCO Institute for Statistics, 2012, p. 46).

The organising framework for education and training in Australia is the Australian Qualifications Framework (AQF) (Australian Qualifications Framework Council, 2013, January). The AQF is the national policy for regulated qualifications and is applied in higher education policy research. The broader scholarly literature on Australian higher education has adopted the structure developed by Marginson and Considine (2000) for their research on Australian higher education and higher education institutions. This study

broadly focuses on the international scholarly literature on higher education and higher education institutions, and where possible, specifically the research on ‘Doctorate-granting Universities’ and ‘ISCED Level 8’. Table 1.1 sets out these three classifications systems to present an overview of higher education that will be considered in this study.

Table 1.1. Classifications Higher Education and Higher Education Institutions

ISCED Levels (UNESCO Institute for Statistics, 2012, p.46)	Carnegie Classifications, Basic Classification (2010)	AQF Levels (Australian Qualifications Framework Council, 2013, January, p.72)	The Enterprise University sample structure (Marginson & Considine, 2000, pp.15-16)
ISCED Level 5: Short-cycle tertiary education programmes (at least two years)	Associate's Colleges: "Includes institutions where all degrees are at the associate's level, or where bachelor's degrees account for less than 10 per cent of all undergraduate degrees."	AQF Level 6: Advanced Diploma and Associate Degree	'Sandstone' Universities: "founded in Australia before the first world war"
ISCED Level 6: Bachelor's or equivalent long first degree programmes (three to more than four years)	Doctorate-granting Universities: "Includes institutions that awarded at least 20 research doctoral degrees during the update year (excluding doctoral-level degrees that qualify recipients for entry into professional practice, such as the JD, MD, Pharm D, DPT, etc)."	AQF Level 7: Bachelor Degree	'Redbrick' Universities: established in the 1940s-1950s
ISCED Level 7: Master's or equivalent long first degree programmes (at least five years)	Master's Colleges and Universities: "Generally includes institutions that awarded at least 50 master's degrees and fewer than 20 doctoral degrees during the update year."	AQF Level 8: Bachelor Honours Degree, Graduate Certificate, and Graduate Diploma	'Gumtree' Universities: "pre-1987 ... founded between the early 1960s and the mid-1970s"
ISCED Level 8: Doctoral or equivalent programme	Baccalaureate Colleges: "Includes institutions where baccalaureate degrees represent at least 10 per cent of all undergraduate degrees and where fewer than 50 master's degrees or 20 doctoral degrees were awarded during the update year."	AQF Level 9: Masters Degree (Research), Masters Degree (Coursework), and Masters Degree (Extended) including the use of the qualification title 'Juris Doctor' and 'Doctor of Dentistry' etc	'Unitechs': "former large institutes of technology"
	Special Focus Institutions: "Institutions awarding baccalaureate or higher-level degrees where a high concentration of degrees (above 75%) is in a single field or set of related fields."	AQF Level 10: Doctoral Degree and Higher Doctoral Degree	'New Universities': "post-1986 universities"
	Tribal Colleges: "Colleges and universities that are members of the American Indian Higher Education Consortium, as identified in IPEDS Institutional Characteristics."		

Note. ISCED Levels 5-8 are comparable with European Qualifications Framework (EQF) Levels 5-8 (European Commission, 2013). All

Australian Universities are identified as 'ISCED Level 8' 'Doctorate-granting Universities'.

Academic Libraries

Academic libraries support the teaching, learning and research endeavours of HEI employees, students, and broader academic and local communities by delivering access to information resources, and by providing services and facilities (ALA, 2008a, 2008b; ACRL & Working Group on Intersections of Scholarly Communication and Information Literacy, 2013; ALIA, 2002, 2006; Brophy, 2005; Bundy, 2004; Council of Australian University Librarians (CAUL), 2009; Connaway et al., 2010; Ithaka S+R et al., 2013; Jacso, 2010; Jordan, 1998; Oakleaf & Association of College and Research Libraries (ACRL), 2010; Schonfeld & Housewright, 2010). The organisation and management of academic libraries is conditioned by the HEIs they are governed by and vary widely from institution to institution. Two of the more common organisational structures adopted individually or in combination are broadly described as distributed management by location and centralised management by function. For example a location could be defined as a smaller branch library or a section within the library, i.e. a map room or reading room, which independently manages its day-to-day operation. A centralised management approach informs the consistent delivery of service functions, such as customer service, across a range of locations.

The structure of academic libraries shapes the range of services facilitated and the ways in which services are delivered. The range of in-person and online academic library services may include, but are not limited to, the:

- day-to-day operation of physical library and/or learning commons;
- front-of-house services;
- customer service;
- reference service;
- research and academic support services;
- teaching, instruction and educational programs;

- maintenance of Integrated Library System (ILS)/ Library Management System (LMS);
- acquisition of or subscription to information resources;
- cataloguing and arrangement or curation of materials;
- equity and disability services;
- interlibrary loans and document delivery;
- development and maintenance of the research depository of the institution;
- copyright management services;
- reporting and original research;
- asset and income generating services; and
- communications and marketing.

Some, all or a combination of these services may occur internally or be outsourced (ALA, 2008a, 2008b; ACRL & Working Group on Intersections of Scholarly Communication and Information Literacy, 2013; ALIA, 2002, 2006; Brophy, 2005; Bundy, 2004; CAUL, 2009; Connaway et al., 2010; Ithaka S+R et al., 2013; Jacso, 2010; Jordan, 1998; Oakleaf & ACRL, 2010; Schonfeld & Housewright, 2010).

The academic library workforce is characterised by the “knowledge, skills, and abilities formed from a library and information science (LIS) education” (Lynch & Smith, September 2001, p. 417). Lynch and Smith’s (September 2001, p. 414) study of American academic library employment trends reported that over 80% of positions required a professional (Masters) degree accredited by the American Library Association (ALA), 24% preferred a second masters degree, and 43% included faculty status (tenure). LIS knowledge, skills, and abilities are insufficient on their own, as a combination of “the growing requirement for behavioral skills, especially oral and written communication skills” (Lynch & Smith, September 2001, p. 418) is highly desirable across the workforce and all levels of appointment. Lynch and Smith (September 2001, p. 416) also note that the “emergence of the combination positions could be the result of budget concerns: ‘We must do more with

less” in addition to academic librarianship “shifting from the traditional, functional specialist positions to more expansive and complex job” demands.

Limitations and Delimitations

Conditions that may impact upon the outcomes of this research include the fact that the study was limited to a single research site and that the researcher worked at the site. Identifying these parameters early in the conceptualisation of this study, I investigated whether the modified Delphi method was able to mitigate these conditions. The modified Delphi method’s formula for ensuring the anonymity and confidentiality of the participants throughout the duration of this research was a key factor in the selection of this method. This feature of the method also addresses the potential influence of the relationships amongst participants, as well as with the researcher. In addition, through the use of the Delphi method it was believed that participants employed by the same employer should expect to be able to explore fully the subject matter of this study with confidence in the combination of qualitative and quantitative techniques used to analyse the data collected.

It was a concern that participants sourced from a single HEI may impact upon the transferability and the generalisability of the results of the research. However, the purposeful selection of 43 participants from a range of faculties and disciplines at the research site enhances the breadth and depth of the qualitative data collected. The reasoning underpinning this consideration was focused on the attempt to draw findings from the greatest amount of applied knowledge and experience, which may include a variety of HEI employment and career experiences, in addition to the characteristics of faculty composition and dynamics.

This research was designed with the intention of examining the perceptions of academic staff in regard to lifelong learning opportunities,

potentially available through academic libraries. This research was not designed to evaluate the specific institution within which the study took place.

This thesis is situated in the interdisciplinary nexus of the disciplines of library and information science, higher education and lifelong learning. This research was informed by the scholarly literature from these disciplines relevant to the key concepts of academic libraries, literacies, lifelong learning, HEIs, and academic staff.

It should be noted that it is conceivable that many of the themes relevant to this study could also have been examined in a range of disciplines outside of the scope of this particular study, such as digital humanities and management, and accordingly might lay a basis for future research.

Addressing the Potential for Researcher Bias

The design and conduct of this research has been informed by consideration of the potential for researcher bias. Incorporated within the limitations and delimitations of the study are the conditions that may negatively impact the existing relationships between and employment of the participants and the researcher. Ethical considerations have been paramount: carefully examined, approved by the Human Research Ethics Committee (HREC) and implemented throughout. Rigor in the research design and conduct of multiple phases and multiple methods of data collection and analysis of qualitative and quantitative approaches have all been central to minimising the potential for researcher bias.

Thesis Structure

Following this introduction in chapter one, the second chapter provides a review of literature central to this study, focussing on lifelong learning, academic libraries and the learning needs of academic staff in response to the

changing nature of academic work. The literature review encompasses academic libraries and the learning context; academic libraries and opportunities for lifelong learning; academic staff and the role of lifelong learning; and lifelong learning and academic libraries.

In the methodology and research methods in chapter three, the evolutionary epistemology, and meta-theoretical perspectives of Karl Popper that have informed this study and shaped the selection and design of the research are presented. The four chapters following the methodology and research methods address the four phases of data collection and analysis. Chapter four deals with the first phase of the study analysing the semi-structured interviews conducted to explore the perceptions of academic staff. In chapter five the results of the modified Delphi method, which examined the concerns and priorities of participants in phase two is analysed. Chapter six analyses the roles for academic library learning opportunities and services explored through the phase three focus groups. Chapter seven presents the findings from the fourth phase, which used semi-structured interviews to reflect the lived experiences of and personal lens on lifelong learning.

In chapter eight a summary of the four phases of results is presented with a discussion of the major qualitative findings and the quantitatively statistically significant results. Chapter nine presents the conclusions formed from the discussion of the significant results of the study in relation to the research context and the literature examined in the second chapter. Concluding comments in chapter nine include recommendations and suggestions for theory, practice, and further study.

Chapter 2

Review of the Literature

Academic staff working in higher education institutions (HEIs) are now required to undertake increasingly complex learning processes and engage with a vast array of scholarly information. The range of information requires an array of literacies and skills to complete academic and professional tasks. In order for academics to maintain their currency, it has become essential for staff to embrace an evolving concept of knowledge, a breadth of learning, and a variety of learning strategies and learning technologies.

Acceptance of the imperatives of lifelong learning is vital for both individuals and for academic institutions in this context of change. The academic and professional objectives and life chances of academic staff are impacted by this evolving context. In this environment of change academic libraries too must continue to explore and develop the ways in which they can address the needs of their academic clientele. 'Adaptation' becomes a key concept in ensuring that both academics and the academic libraries which support them can continue to respond to their changing needs.

The acquisition, maintenance, development, and accumulation of knowledge and a range of learning strategies and technologies are key features of the work of academic libraries. Academic libraries are resolute in their role to facilitate the resources that have the potential to assist an individual's development of knowledge, understanding, and a range of skills and literacies. The development of such learning opportunities support an academic's lifelong learning and their capacity to respond to the changing nature of academic work and the changing situation in HEIs.

This chapter will review the literature on the key characteristics of the relationship between academic libraries, literacies and lifelong learning within

contemporary higher education. The polymorphous character and interconnectedness of this relationship will be discussed in light of the illuminations provided in current international scholarly literature and emerging Australian research.

The literature explored in this review sets out to illustrate the relationship between academic staff and academic libraries in higher education. In particular the literature is explored in the context of learning opportunities that contribute to an academic's capacity for lifelong learning, including the contested term 'literacies'. The context, mode, and content of learning opportunities available in academic libraries and the roles that academic libraries do and might play in supporting academics as lifelong learners facing the challenges of evolving information resources and knowledge creation are considered.

The chapter is structured as follows. First, the link between the nature and form of academic libraries and the concept of the learning context is examined. The link between academic libraries and opportunities for lifelong learning is presented in the second section. The third section addresses the needs of academic staff and the role of lifelong learning in assisting them to respond to the changing nature of academic work. In the fourth section the role of an academic library in promoting lifelong learning for academics is considered.

Academic Libraries and the Learning Context

The Context of Higher Education Institutions

One of the roles of academic libraries is to support the teaching, learning and research requirements of all academic staff. Academic libraries have traditionally been characterised as being central to universities, a cornerstone of the values of the academy, the place for the practice of

scholarship and with the capacity and expertise to occupy a wide institutional role (RIN & RLUK, 2011, March, pp. 6-7).

Academics who engage with academic libraries do so with a diverse range of experience, knowledge and skills. The ways in which academic libraries demonstrate their capacity to provide learning opportunities varies. Learning opportunities tailored to an individual's current context and their aspirations, shapes the extent to which the short- and long-term goals of academic work are achieved across an academic's working life.

The changing nature of the profession of librarianship, the role of corporate influence upon information management and knowledge management through the acquisitions and mergers within the publishing industry, and the evolution of technological capacity (ICT), all significantly impact the work of academic libraries. As part of the 'information society', academic libraries are shaped by "a society in which the creation, distribution, and manipulation of information has become the most significant economic cultural activity" (UK National Inventory Project, 2000, as cited in Johnston & Webber, 2003, p. 335). The economic cultural activity of the academic library is shaped, in addition to internal policy, the governance of higher education institutions (HEIs), and thus their 'economic cultural activity' is formed by at least three levels of demand: government, institutional, and library.

HEIs operate from the assemblage and integration of *New Public Management* (NPM) techniques in their approaches to management and administration. There has been an increase in managerialism and a concomitant growth in the diversity of tasks that need to be achieved, by HEIs and their component subsidiaries, without commensurate access to more resources, or additional staffing (ACRL & Working Group on Intersections of Scholarly Communication and Information Literacy, 2013; Becher & Trowler, 2001; Brabazon, 2007; Harris, 2005; Jackson, 2004; Jordan, 1998; Lincoln, 2011).

Within the current 'economic cultural activity' of society HEIs have been expected to achieve more with less. In addition, there has been an emphasis on providing 'seamless access' in the provision of services within the HEI, a requirement that has been criticised (Becher & Trowler, 2001; Brophy, 2005; Jordan, 1998) as being both unattainable and unsustainable. Criticism stems from HEI's relationships with their many 'clients' and 'stakeholders'. The clients and stakeholders include students, academic and general staff, government regulators, and professional and academic bodies. This has required the various departments and units of the HEI to concentrate on sharpening their sense of the service focus to form a hybrid customer-service approach (Jackson, 2004). This customer-service approach is economically driven whereby HEI 'clients' are constructed as 'customers' and managerialism is prioritised. International empirical research on academic libraries (ACRL & Working Group on Intersections of Scholarly Communication and Information Literacy, 2013; Ithaka S+R, Jisc, & Research Libraries UK (RLUK), 2013) illustrate that the current customer-service approach is evident today in academic libraries around the world.

Academic libraries must also confront the challenges of responding to the changing nature of higher education. In the Association of College and Research Libraries (ACRL) report *The Value of Academic Libraries*, Oakleaf asserts "new conceptions of the nature of higher education must be accompanied by new conceptions of academic libraries" (2010, p. 28). In Australia, the United Kingdom and United States of America this includes moves towards an increasing 'massification' and widening access to HE, ICT-facilitated access to HE, and the growing popularity of demand for vocational and coursework degrees. This is a significant change to the traditional concept of HE with its emphasis on the humanities and sciences. These changes strongly influence the development and revision of course design and teaching methods, such as those now to be found in distance and online ICT-based learning. Similarly changes in the nature and provision of research funding has moved much of the research focus of HEIs in general into more narrow and economically related fields. Finally the change in the culture of both HEIs and governments has seen a repositioning of HEI targets, especially in terms of

staff and student recruitment, retention, outputs, and the return on investment. These challenges in turn shape the design and function of a hybrid library service. Academic libraries combine analogue and digital services such as the provision and availability of physical and digital collections, digital repositories, inter-library provisions and relationships, and increasing demand for the library to serve as multipurpose *learning commons* otherwise understood as a communal general learning space (Becher & Trowler, 2001; Brophy, 2005; Jordan, 1998; Williams, 2009). ACRL's (2010) call for new conceptions of academic libraries may require libraries to change not only their practices but the very nature of their role in higher education.

Academic Libraries and Information Literacy

Zurkowski (1974, November) identified, four decades ago, an evolving “universal condition” and articulated that “we experience an overabundance of information whenever available information exceeds our capacity to evaluate it” (p. 1).

Three reasons were put forward to support this claim in 1974:

1. The information seeking procedures of individuals are different at different times for different purposes.
2. A multiplicity of access routes and sources have arisen in response to this kaleidoscopic approach people take to fulfilling their information needs. These are poorly understood and vastly underutilized.
3. More and more of the events and artifacts[sic] of human existence are being dealt with in information equivalents, requiring retraining of the whole population. (p. 1)

Zurkowski (p. 2) introduced the metaphor of a prism of information publishing activity, in which “ideas and concepts” enter the prism as light and return a range of reflections in the forms of “editing, redacting, printing, microfilming, encoding, arranging, etc”. These reflections form “a spectrum of information products, services and systems designed to correspond to the kaleidoscopic needs of the field of users it purposefully selects to serve”. Figure 2.1 illustrates the analogy of information publishing activities with the

gathering of light from the left side of the prism and its refractions on the right side.

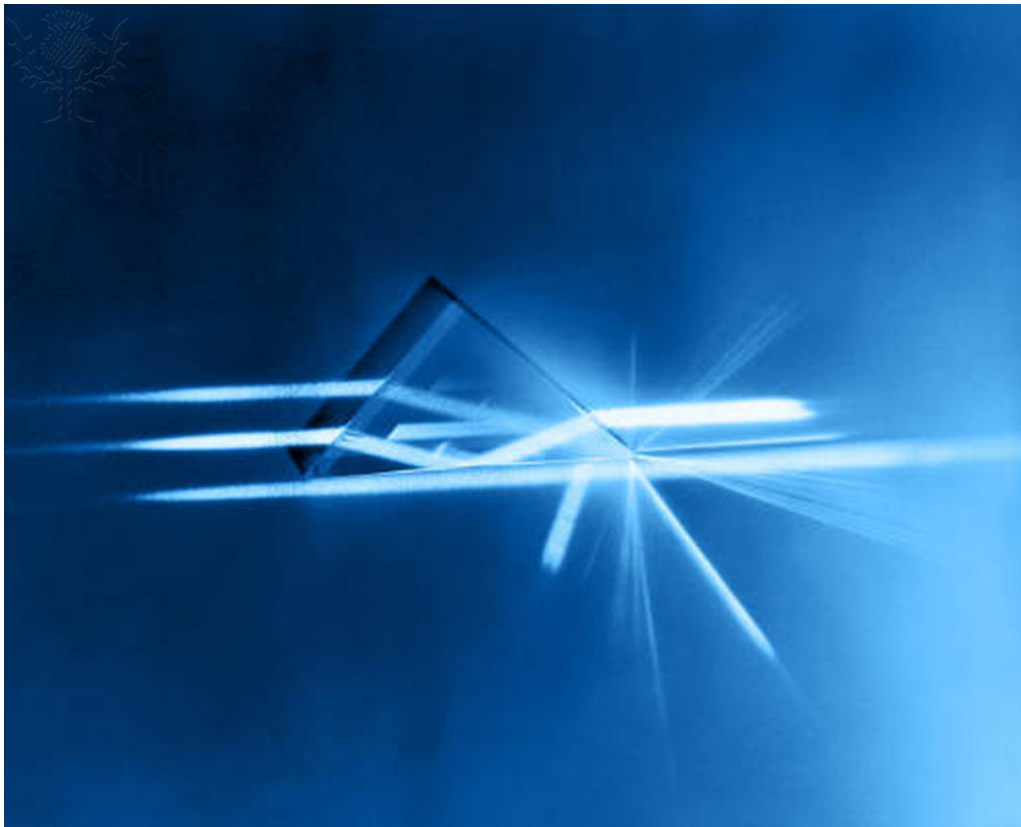


Figure 2.1. Light Refraction (Encyclopædia Britannica Image Quest, n.d.).

Change is not new in libraries. In 1974 Paul Zurkowski identified many of the information-related challenges that forty years later are of ongoing concern to libraries and the general population. As an example, he introduced the concept of ‘information literacy’:

In our age of information overabundance, being information literate means being able to find what is known or knowable on any subject (p. 23).

Further, his report introduced the precursor to what libraries now call client services. He set out to establish a successful operational balance between what he classified at the time as information services and reading services. In a contemporary library setting ‘reading services’ are commonly termed as client services and ‘information services’ are known by many different names such as collection development, collection maintenance, acquisitions,

digital/electronic services and digital curation. The primary focus of Zurkowski's work was the reader or client. He incorporated the earlier work of Emerson (1970) reiterating that:

individual fulfillment, the advancement of knowledge and the discovering of truth, participation in decision making by all members of society, [and] achieving an adaptable and stable community depends on a system of freedom of expression (Emerson, 1970, p.3, as cited in, Zurkowski, 1974, November, p. 23).

Today's academic library aim of information literacy educational opportunities for all individuals is derived from this vision and the belief in its contribution to a system of freedom of expression. While academic libraries have been subject to structural, governance and performance change, other dimensions of change are also impacting on academic libraries and on the librarians who work in them.

A second dimension of contemporary change in academic libraries can be found in technology. Information and communication technology has had a profound impact on libraries (Brophy, 2005). One example of this can be seen in the processes and actions associated with information provision, search, and retrieval. Academic staff and information seekers are exposed to an abundance of scholarly communication and academic literature, more than has ever previously been available or accessible by traditional subscription and open access publishing models (ALA, 2008a, 2008b; ALIA, 2002, 2006; Jinha, 2010; Keen, 2007; Laakso, Welling, Bukvova, Nyman, Björk, & Hedlund, 2011; Longworth, 2003; Margolis, 2000).

While information richness is a positive feature of contemporary life, 'information abundance' complicates the task of identifying specific and relevant information particularly in the context of education and research. Both personal and occupational information needs of academic library users have increased in systematic complexity. An increased number and sequence of complex systems are required to be used, both asynchronously and synchronously. Writing in the *Australian and New Zealand Information Literacy Framework*, Bundy (2004, p. 3) asserts that:

Individuals are faced with diverse information choices – in their studies, in the workplace, and in their lives. Information is available through community resources, special interest organisations, manufacturers and service providers, media, libraries, and the internet. Increasingly, information comes unfiltered. This raises questions about authenticity, validity, and reliability. In addition, information is available through multiple media, including graphical, aural, and textual. These pose special challenges in evaluating, understanding and using information in an ethical and legal manner.

Caution is suggested when individuals are navigating this proliferation in order to avoid *information overload* (ALA 2008a, 2008b, ALIA 2002, 2006, Hobart and Schiffman 1998, Keen 2007, Longworth 2003, Margolis 2000). The same caution applies to librarians working with academic staff and students in academic libraries. The scholarly setting of their interactions requires even greater vigilance with regard to the integrity of the information they provide.

Offering a more positive view is Jinha's (2010, p. 262) study of the volume of scholarly literature, which notes that "50 million peer-review journal articles is an impressive heritage, and a powerful resource for humanity". At the core of the *Australian and New Zealand Information Literacy Framework* is the notion that the "sheer abundance of information and technology will not in itself create more informed citizens *without* a complementary understanding and capacity to use information effectively" (Bundy, 2004, p. 3). In particular, information literacy complemented by ICT literacy and digital literacy enhance an individual's efficacy in the current context (Dudfield, 1999; IFLA, 2006; Longworth, 2003; Longworth & Davies, 1996). Relevant to all information and knowledge workers is the continuing requirement to evaluate and filter huge volumes of information, which includes wilful misinformation, inadvertent deception, and the heterogeneous character and orientation of information (Hobart & Schiffman, 1998; Holmes, 2006; Keen, 2007).

Academic Libraries and Information Provision

The role and function of academic libraries and librarians to shape effectively the provision of information for academic staff is consistently and increasingly exposed to the accumulating challenges within the context of expanding information resources. The economic conditions that have contributed to diminished resources within HEIs further heighten these challenges. *The digital information seeker: Findings from selected OCLC, RIN and JISC user behaviour projects* (Connaway et al., 2010) outlines the stipulations from library members, particularly related to academic libraries, to support a “greater variety of digital formats and content” (p. 46). The findings, synthesised from twelve user-behaviour studies conducted in the US and the UK, stress the increasing needs of academics for the provision of data that are further-reaching than e-journals, notably the curation of data sets, Virtual Research Environments (VREs), non-text-based and multi-media objects, blogs and open source materials. Furthermore, participants in the study emphasised the role of high-quality metadata, that is data that describe other data for the identification and assessment of electronic resources. Within the present situation of information abundance, the methods and techniques of metadata are escalating and vary significantly in quality as metadata are increasingly collated from predominantly digitized processes (Jacso, 2010).

The demands and expectations of academic staff for more information and more high-quality metadata to enable them to identify and judge the available information with confidence is justified. Information workers and knowledge workers will require a strategy to manage and navigate abundance of information. Individuals will have to manage the imbalance between information and metadata by addressing their capacity to acquire, maintain, and develop the imperative skills to use effectively the available and evolving information (Connaway et al., 2010).

Since 2003, the *Ithaka Faculty Survey* (Schonfeld & Housewright, 2010) has gathered data on the roles played by academic libraries as perceived by academic staff in the process of responding to the changing nature of their

academic work. This investigation of the importance and evolution of the traditional functions of academic libraries is analysed from the perspective of three core information-related practices. These three traditional practices are defined as the ‘gateway function’ (in which the library is the ‘starting point’ for accessing information), the ‘buyer function’ (emphasising the collection-development and acquisitions of the library), and the ‘archive function’ (in which ‘the library is a repository of resources’) (Schonfeld & Housewright, 2010, p. 6). The *Faculty Study 2009: Key Strategic Insights for Libraries, Publishers, and Societies* (Schonfeld & Housewright, 2010, p. 7) reported the steady rise of the classification of the library’s ‘buyer function’ as ‘very important’ by 90% of academic staff. The context of the global economic conditions during which data were collected in 2009 was determined as having minimal impact on the unwavering decline of perceived importance of the library’s archive and gateway function, with preference for the ‘buyer function’.

The range of learning strategies and learning technologies adopted by HEIs was found to have impacted upon the relationship between academic libraries and academics. Most of the latter notably placing “less value on the library’s traditional intellectual value-added role” (Schonfeld & Housewright, 2010, p. 13). The perceptions by academic staff of the decline of the library’s traditional value-added role, forming the connecting link to information, seems to be at variance with recognition by academics of their reliance upon the *technical facilitation* “behind the scenes” by the library (Schonfeld & Housewright, 2010, p. 3). Sometimes ‘unbeknown’ to staff, the technical facilitation provided by libraries, in many instances, enables academics to enjoy and profit from the opportunity for the ‘seamless exploration’ of electronic platforms, repositories, resources, services and domains. This seamless exploration is often anchored by the necessary validation of identity or location, such as an academic’s office, by means of internet protocol (IP) recognition or login authentication. Technical facilitation to information provided by libraries is increasingly challenging because of the ever-changing placement of the information technology (IT) responsibilities in HEIs that can be centrally managed or dispersed to the faculties and libraries.

This technically facilitated experience quickly turns to technical frustration when any number of contributing, albeit ‘behind the scenes’, factors are altered. Contributing factors relevant here may include one’s device (desktop computer unit, laptop, tablet or smart-phone), location of the device, internet and network connection, software currency and configuration. The contributing technical factors also have further interconnected consequences, in which a modification to one factor or aspect might conflict with another, causing further technical difficulties.

The essential and increasing range of technical knowledge and skills required by academic staff shapes the ways in which academics engage with their work. Gone are the days of a plethora of research assistants or administration and secretarial staff working with or for individual academics and researchers on word processing or literature searching and reviewing. An individual’s response to the evolving characteristics and components of their work may condition the extent of technical knowledge and skills required; for instance, differences between faculties and disciplines regarding the role and pedagogy of elearning.

Academic Libraries, Literacies, and Opportunities for Lifelong Learning

Academic Libraries and Literacies

Academics and other individuals learning and working in HEIs require increasing amounts of a combination of generic and specific understanding and knowledge in order to work on and achieve their daily objectives (Evans et al., 2013; Tamarkin & The 2010 EDUCAUSE Evolving Technologies Committee, 2010, November/December). Generic and specific understanding, knowledge, and skills are integrated within the term *literacies* in the library-related scholarly and professional literature (Sproles et al., 2013). These *literacies* have the capacity to serve individuals so that they can acquire, maintain, and develop knowledge and understanding throughout their life

span. These literacies may be employed to assist an individual to address the changing objectives and interests that society values, and contribute to individuals' ability to cultivate, define, and implement common and personal goals (ALA, 2008a; 2008b; ALIA, 2002; 2006; IFAP, 2000; IFLA, 2006). There is an evolving range of literacies, including those requiring a foundation of generic skills (IFLA, 2006; Skilbeck, 2006), to those associated with highly specialised job-specific skills (Skilbeck, 2006). The nature and requirements of these literacies are individual and change over time. Individuals equipped with these literacies are able to adapt to and interact with situations or circumstances as they arise. It is only with the individual power and facility to employ and exploit the literacies that people have the capacity to undertake independent lifelong learning.

The term *information literacy*, which evolved from *bibliographic instruction* (Asher, 2003) as the educational emphasis shifted from format to content, was defined in 1974 by Paul Zurkowski as “the use, evaluation and repurposing of information for a wide range of uses” (Crawford, 2013, p. 1). The *Australian and New Zealand Information Literacy Framework*, the guiding document for the educational role of libraries, focuses on the intended outcomes of information literate individuals. Principally the framework suggests that such individuals have the capacity to:

- Engage in independent learning through constructing new meaning, understanding and knowledge;
- Derive satisfaction and personal fulfilment from using information wisely;
- Individually and collectively search for and use information for decision making and problem solving in order to address personal, professional and societal issues; and
- Demonstrate social responsibility through a commitment to lifelong learning and community participation (Bundy, 2004, p. 11).

Teaching learners to become information, or *biblio*, literate and to develop as ‘lifelong learners’ has long been the aim and continues to be a goal of many academic librarians (Asher, 2003; Nimon, 2002). However, despite information literacy continuing to be a key professional focus in academic libraries, ‘literacy’, and the extending range of ‘literacies’, has become an “elastic term” (Nimon, 2002). The contested nature and elasticity of the term literacies was addressed in Albitz’s (2007, p. 97) review of library and higher education literature, which concluded, “these two groups [academic libraries and academic staff] are not using the same language when they discuss very similar concepts”. Bruce, Edwards, and Lupton (2007, pp. 37-38) suggest that different or contested conceptualisations of information literacy is not novel as similarly “people see teaching and learning differently”. Undoubtedly and of most significance is that there is a consensus among academic staff and academic librarians on the outcomes and capacity of information literate individuals (ACRL & Working Group on Intersections of Scholarly Communication and Information Literacy, 2013). Furthermore, Detmering, Johnson, Sproles, McClellan, and Linares (2014, preprint) argue that the information literacy “terminology and pedagogy we use changes to reflect new understandings about our interactions with information in the twenty-first century”.

The ‘elastic term’ and contested concept of information literacy (formerly library instruction), has been studied for forty years by the *Reference Services Review* annual bibliography and analysis of trends in the peer-reviewed library and information science literature (Sproles et al., 2013). Since 1974 the annual bibliography has documented approximately 9000 publications representative of the evolution of research, policy and practice of facilitating learning opportunities for information literacy on an international scale (Detmering et al., 2014). Academic library instruction between 1973-1998 represented the largest percentage (62%) of the 3,898 articles (Rader, 2000 in Sproles et al., 2013, p. 397). Rader’s analysis found that “fewer than 5% of publications per year appeared in journals outside the field of librarianship”. These publishing trends provide evidence of the conceptual gap between librarians and academic staff identified in the literature. Information

literacy and library instruction continues to be a key publishing focus with “the number of library journals featuring information literacy articles doubled” during 2001-2010, with “the number of non-library journals tripled” (Sproles et al., 2013, p. 402). However, non-library journals were most likely to be ‘information science’ (Sproles et al., 2013) journals, which may continue the division between higher education and librarianship disciplines in their understanding of similar themes and concepts. The discrepancy in the scholarly literature is important because it demonstrates that different ways of expressing the same themes has and continues to obscure the link between academic staff and academic librarians and their likeness in the ways in which they separately educate lifelong learners in HEIs.

The *Reference Services Review* annual bibliography for January-December 2012 (A. M. Johnson, Sproles, & Detmering, 2013, p. 675) analysed 546 published citations, which included 37 manuscripts. This is the largest number of books published on information literacy since 2009. The annual bibliography “demonstrates, year after year, that librarians and other educators remain committed to the values embodied in the concept of information literacy” and the enduring belief that “people genuinely improve their lives when they can find relevant information, evaluate its quality, and use it to make better decisions or develop new knowledge” (Detmering et al., 2014, preprint). Information literacy continues to be a key professional interest and educational role for academic librarians accounting for 57 per cent of the literature in 2012 and 62 per cent of the 501 citations identified in 2013 (Detmering et al., 2014). Johnson et al. (pp. 675-676) report the continued trend of rich and diverse information literacy research beyond the discipline boundaries of library and information science (LIS). The rich variety of information literacy research, including collaboration between academics and librarians within a given academic discipline, address the planning, teaching, and assessment of HE students. However, of particular interest to this study, information literacy research published between 2001-2012 (A. M. Johnson et al., 2013; Sproles et al., 2013, p. 409) is primarily focused on the “impact on student learning”. The last decade of information literacy research shows very limited interest in academic staff learning and thus has not been identified in

the analysis of annual bibliographies. This is problematic because academic staff have a strong impact on student learning.

Opportunities for Literacies

ICT literacy, information literacy and digital literacy are increasingly emphasised as essential for functioning within a knowledge society (Dudfield, 1999; IFLA, 2006; Longworth, 2003; Longworth & Davies, 1996). Carnaby (2010, p. 20) argues that “the professional boundaries of librarian, educator, ICT specialist and researcher are now more blurred than ever before”. These new and extending ranges of understanding and knowledge are assessed as being so integral to efficient functioning in daily life that literacies should be accounted for as constituting a basic human need and right for increasing the quality of life (Dudfield, 1999; IFLA, 2006; Longworth, 2003; Longworth & Davies, 1996). Of the three literacies identified (ICT literacy, information literacy and digital literacy), information literacy, and an understanding and knowledge of which it is comprised, is not technologically dependent and is specifically a matter of learning (IFLA 2006; Johnston & Webber, 2003, p. 335). Information literacy presents individuals with the greatest versatility for opportunity, ownership, and support to its advocates and recipients because it is not technologically dependent.

In an analysis of the range of tools for information search and retrieval, *The digital information seeker: Findings from selected OCLC, RIN and JISC user behaviour projects* (Connaway et al., 2010) examined what they saw as the contradictory findings from the data gathered. Their findings indicated that “information literacy has not necessarily improved with users’ digital literacy” (p. 36). Digitally mediated information search and retrieval has not necessarily improved individuals “being able to find what is known or knowable on any subject” (p. 23). This notion is supported by data gathered from the *Researchers and discovery services: Behaviour, perceptions and needs* (RIN, November 2006), and *Information behaviour of the researcher of the future* (CIBER/UCL, commissioned by British Library (BL) and Jisc, 2008, January), studies that identified a discrepancy between the confidence and

self-estimation of researchers and their performance. Again, the study *Jisc user behaviour in resource discovery* (Wong, Stelmaszewska, Barn, Bhimani, & Barn, 2009) also found information literacy skills to be lacking and inconsistent with an individual's digital literacy capacity. Moreover, the findings from the Connaway, et al. (2010, p. 37) study confirm the view that “when the level of information literacy and domain knowledge increases, [commensurately there is an] increased use of quality resources”. The expression ‘quality resources’ is commonly defined as credible, reliable and verifiable information sources.

Corresponding with these findings and the practice of knowledge dissemination, *The researcher of the future* (CIBER/UCL, commissioned by British Library (BL) and Jisc, 2008, January) “highlighted the self-taught nature of young people in search, as a contributing reason for their failures” (Connaway et al., 2010, p. 42). A number of user behaviour studies have confirmed that there is an imbalance between self-reliance of individuals and their performance when conducting research in the contemporary context of digital information abundance. Such findings underline the need to give priority to information literacy and complementary skills learning opportunities. Table 2.1. introduces the current and forecasted learning trends, challenges and opportunities for academic libraries, which further suggests that individual reliance on ‘self-taught’ and immethodical approaches to literacies are insufficient for the anticipated trajectory of information resources provided by academic libraries

The rapidly changing, challenging and enriching academic information landscape (Johnson, Adams Becker, Estrada, & Freeman, 2014) will bring few benefits to academics and institutions that are not seriously engaged in and with lifelong learning for literacies. Established in 2002 the NMC Horizon Project, including the *NMC Horizon Report* series and *NMC Technology Outlooks*, are internationally recognised for annually identifying and delineating significant emerging technologies. In the first library edition, data was analysed by a panel of 47 library and technology experts representative of 16 countries on five continents and generalisable to academic and research

libraries worldwide. Table 2.1 outlines the 18 topics identified in the report, which are suggested to impact decision-making, technology planning and in turn will impact the teaching of literacies and provision of learning opportunities in academic libraries.

Table 2.1. Trends, Challenges, and Technology, NMC Horizon Report: 2014 Library Edition (Johnson, Adams Becker, Estrada, & Freeman, 2014)

		Key Trends
Fast Trend: Driving technology adoption in academic and research libraries over the next one to two years	Increasing focus on research data management for publications Prioritization of mobile content and delivery	“The growing availability of research reports through online library databases is making it easier than ever for students, faculty, and researchers to access and build upon existing ideas and work” (p. 6) “Mobile devices such as smart phones, tablets, and e-readers are capturing a larger share of the information market.” (p. 8)
Mid-Range Trend: Driving technology adoption in academic and research libraries within three to five years	Evolving nature of the scholarly record Increasing accessibility of research content	“Once limited to print-based journals and monographic series, scholarly communications now reside in networked environments and can be accessed through an expansive array of publishing platforms.” (p. 10) “Academic and research libraries are gradually embracing the movement toward openness as the internet has opened the floodgates of international and scientific knowledge.” (p. 12)
Long-Range Trend: Driving technology adoption in academic and research libraries in five or more years	Continual progress in technology, standards and infrastructure Rise of new forms of multidisciplinary research	“A recent survey of US academic library directors by Ithaka S+R revealed that libraries are shifting focus from building local print collections to providing remotely accessed online resources and guiding students and researchers through new discovery services.” (p. 14) “According to the Melbourne Sustainable Society Institute, multidisciplinary research refers to concurrent exploration and activities in seemingly disparate fields.” (p. 16)
		Significant Challenges
Solvable Challenge: Those that we understand and know how to solve	Embedding academic and research libraries in the curriculum Rethinking the roles and skills of librarians	“While libraries often provide general support to institutions, it is a challenge for librarians to make the case to faculty and curriculum committees that they should play a critical role in the development of information literacy skills.” (p. 20) “As more universities incorporate new technologies into teaching and learning, there is an increasing demand for technological and instructional support for faculty and students. Libraries are uniquely situated to meet those needs.” (p. 22)
Difficult Challenge: Those that we understand but for which solutions are elusive	Capturing and archiving the digital outputs of research as collection materials Competition from alternative avenues of discovery	“One of the essential purposes of academic and research libraries has been to collect the outputs of academic research.” (p. 24) “Before the rise of the internet, libraries were widely perceived as the ultimate gateways to knowledge.” (p. 26)
Wicked Challenge: Those that are complex to even define, much less address	Embracing the need for radical change Maintaining ongoing integration, interoperability, and collaborative projects	“Academic and research libraries are facing ongoing leadership issues that impact every aspect of their facilities and offerings, including updating staffing models and addressing a lack of financial resources.” (p. 28) “Research institutions have become more reliant on creating strong partnerships with other institutions to enhance their visibility and reinforce their standings in order to earn funding from agencies that are setting the bar higher and higher” (p. 30)
		Important Developments in Technology
Time-to-Adoption Horizon: One year or less	Electronic Publishing Mobile Apps	“Already firmly established in the consumer sector, electronic publishing is redefining the boundaries between print and digital, still image and video, passive and interactive.” (p. 32) “Mobile apps continue to gain traction in academic and research libraries, because they are particularly useful for learning as they enable people to experience new concepts wherever they are, often across multiple devices.” (p. 36)
Time-to-Adoption Horizon: Two to three years	Bibliometrics and Citation Technologies Open Content	“Advances in bibliometrics are helping academic and research libraries maintain a competitive edge by maximizing the influence of their scientific outputs, and thus reinforcing their effort to gain funding.” (p. 38) “The movement towards open content reflects a growing shift in the way scholars in many parts of the world are conceptualizing education to a view that is more about the process of learning than the information conveyed.” (p. 40)
Time-to-Adoption Horizon: Four to five years	The Internet of Things Semantic Web and Linked Data	“The Internet of Things (IoT) is a network of connected objects that link the physical world with the world of information through the web.” (p. 42) “Semantic applications and linked data have the potential to be immensely powerful educational resources that enable students and researchers to more effectively sift, query, and gather relevant information.” (p. 44)

Literacies for Lifelong Learning

As the number and complexity of information processes grows incrementally, so too does the individually unquantifiable and intangible breadth of literacies. These vary according to site, situation, occupation, geography, societal and cultural context, media, and medium specifications. Learners are encouraged to take ownership of their learning to acquire and accrue literacies (IFLA, 2006), and maintain their currency for application and extension as needed. Such is the inherent accumulative nature of literacies that IFLA emphasises that “information literacy and lifelong learning are of the same essence” (2006, p. 6) and, what is more, that “information literacy lies at the core of lifelong learning” (2006, p. 3). Learners equipped with accumulated literacies can use them in isolation and in unison to filter, interpret, and reveal deeper and more complex and sophisticated types and levels of meaning (IFAP, 2000) when they are interacting with the abundance of available and accessible information.

Brophy and Craven (1998) anticipated that the convergence of libraries, information literacy, the broader suite of literacies, lifelong learning skills and opportunities would be seen as an inevitable trend. They identified that “lifelong learning poses great challenges for libraries, but also offers the prospect of enormous rewards if they succeed in transforming themselves into the central support agency for the lifelong learner” (Brophy & Craven, 1998, p.61). Panetsos, Makropoulos, and Psychogios (2008, p. 429) further suggest that the primacy and providence of instilling “lifelong learning skills through general bibliographic and information literacy instruction in academic libraries is a primary outcome of higher education”.

Academic libraries that acknowledge these trends of convergence with commensurate responses in order to develop their capacity as the ‘central support agency for the lifelong learner’ have recently been summoned with a further test. President of the American Association of College and Research Libraries, Joyce Ogburn, extended the challenge to academic libraries stating

that ‘lifelong learning requires lifelong access’ (Ogburn, 2011, p.515). Academic libraries “creating critical thinkers and expectations of continuous learning requires highly credible resources to be available, easily found, and recognised for their quality among the abundance of information propagated so freely on the Web” (Ogburn, 2011, p.515). Ogburn’s conceptualisation of ‘lifelong access’ proclaims the convergence of the academic library’s role both to support and to sustain lifelong learning.

Academic Staff and the Need for Lifelong Learning

The Changing Context for Academic Staff Learning

The nature of academic staff work and learning has changed dramatically in response to the varied and ongoing fluctuations in the ways academic work is undertaken in HEIs. Whilst all institutions have to face specific local challenges, the majority of HEIs simultaneously contend with a multitude of other common factors. These overarching factors are shaped and informed by global knowledge economies, in which HEIs “are more important than ever as mediums for a wide range of cross-border relationships and continuous global flows of people, information, knowledge, technologies, products and financial capital” (Marginson & van der Wende, 2007, p. 5). The importance and range of roles that HEIs occupy within global knowledge economies will have a long-term effect on the nature and form of academic work. Grappa et al. (2007, p. 30) assert that academic staff and HEIs are affected by global marketplace shifts toward increased flexibility, devotion to work, restricted access to support and executive staff, combined with prescriptive work procedures. Mertova, Webster and Nair (2010, p.3) have identified the prominent role of the quality assurance and enhancement movement in HE as resulting from “political control over higher education, growth in the number and changes in the expectations of students, and financial control on the part of national governments”. Academic learning, academic work, and academic staff are increasingly competitive, as “the knowledge of academics has become another commodity on the open market”

(Jackson, 2004, p. 141). Concurrently, HEI employees operate within a distinctive cultural context, characterised by internal hierarchies and infrastructures, both official and unofficial, yet nonetheless significant. This context has a role in shaping and characterising the psychosocial responses, such as mental and emotional stress and tension, by individuals to the changing nature of academic work (Altbach et al., 2012; Fredman & Doughney, 2012; Gill, 2013; Grappa et al., 2007; Harris, 2005; Haymes, 2008).

The prominence and prestige of HEIs is under scrutiny and they “appear to be losing their privileged status as primary producers of knowledge as they become part of a wider learning market” (Edwards, 1997, p. 56). The global learning marketplace is competitive and crowded by public and private tertiary and vocational institutions, as well as consultancies, private sector research and development units, and think tanks (Edwards, 1997; Grappa et al., 2007; Marginson & Considine, 2000). Marginson and Considine’s (2000, p. 3) research found that “academic work that survived previous restructures are now under more direct assault”. The individual and discipline-based identities of academic staff are “subordinated to the mission, marketing and strategic development of the institution and its leaders” (Marginson & Considine, 2000, p. 5). Academics who, on top of the demands of their workload, are managing institutional challenges to their identity, discipline, and work are not in a situation conducive to short-term or long-term learning.

HEIs have responded to the demands of their roles within global knowledge economies by assuming the techniques of new public management (NPM). NPM is distinctive by its devolution of responsibility, intrinsic encouragement of competition and risk-taking behaviour, and the relationships between sources of funding and accountability, audits, contracts, performance, quality and output measures. The competitive nature of new public management has given rise to, and accentuated signs of tension and even discord between academic disciplines and faculties, and similarly between HEIs (Becher & Trowler, 2001; Grappa et al., 2007; Harris, 2005; Mertova et al., 2010). It has been argued that the reforms emerging from new

public management approaches and styles and in global knowledge economies, in the last two decades, “have been the strongest single driver of change” (Marginson & van der Wende, 2007, p. 8) upon HEIs. The impact on academic staff is significant with the introduction of corporate standards, external scrutiny, casualisation and insecure employment, entrepreneurial ventures, research income generation and assessment, governance based on targets, audits and outcomes, quality evaluations and redefining academics and their work based on instrumental and economic values over and above educational values (Altbach et al., 2012; Gill, 2013; Grappa et al., 2007; Harris, 2005; Jackson, 2004; Lincoln, 2011; ; Mertova et al., 2010).

The ongoing international cross-institutional research series *Working Papers on University Reform* examines universities and higher education in the global knowledge economy. Recent findings from the program (Wright, Curtis, Lucas, & Robertson, 2014) report “the danger of narrowing and impoverishing of the mission of the university” (p. 42) with the steering of “university research towards the ‘needs of a knowledge economy’” (p. 1). Academic staff engaged in research and the knowledge that they produce are being shaped and “moulded in order to fit the demands of audit regimes” (p. 16) by an “intensification of the management and organisation of research activities” (p. 13), which has changed what “academics do, and need to do, to get by” (p. 41). HE research audit regimes determined by the global knowledge economy inform the managerial processes that unbundle research and teaching activities and influence a punitive culture of precarious academic identity and unstable terms of employment (Altbach et al., 2012; Bexley, 2013; Gill, 2013; Grappa et al., 2007; Harris, 2005; Haymes, 2008; Jackson, 2004; Lincoln, 2011; Marginson & van der Wende, 2007; Wright, Curtis, Lucas, & Robertson, 2014).

The dynamic context of change in the nature, activities, and processes of HEIs has strongly impacted upon various aspects of academic work. Taylor (1999, p. 3) identified that HEIs in most OECD countries are confronting numerous “challenges that are quantitatively if not qualitatively different from those they have faced in their more recent histories”. In such a context, the

changing nature of academic work has been characterised and framed by a range of impacting factors, the most prominent of which relate to technology, management and leadership, human resources, and information and knowledge resources. A leading factor here is the multidimensional impact of ICT on learning, teaching and research, with existing frameworks being enhanced or outmoded, and contemporary frameworks facilitated (Altbach et al., 2012; Longworth, 2003; Staley & Trinkle, 2011, January/February; Tamarkin & The 2010 EDUCAUSE Evolving Technologies Committee, 2010, November/December). ICT has had a profound impact on the nature of academic work and on the information and skills required by academics to function, particularly in the areas of research, knowledge transfer, and teaching.

A range of factors reshape academic work and accordingly impact upon academic institutions. Bexley (2013, p. 98) asserts that “in the twentieth century the university itself became fractured, overrun with a multiplicity of purposes”. The widening and massification of higher education is paralleled by HEIs’ response that ICT is both the underpinning and overarching solution to the challenges they confront. At the forefront of HEIs’ essentialist and determinist application of technology (Oliver, 2012, p. 220) is the growing interest in and use of Massive Open Online Courses (MOOCs).

MOOCs offer mostly free and open enrolment to online learning systems and content to a diverse cohort of self-directed learners. Currently, this learning opportunity is described as supplementary and complementary to HEIs (Dennis, 2012; Department for Business Innovation and Skills, 2013). However, literature in the higher education discipline also proposes that MOOCs “have the potential to solve some of the big problems facing higher education” (Dennis, 2012, p. 29). The opportunities for students and challenges for institutions detailed in Dennis’s article include important concerns for student debt, participation, retention and graduation rates, unsustainable costs, and international competition. Dennis (2012, p. 29) views academic staff as an obstacle, as many “will not be able to adjust to the new

methods of teaching” despite evolving modes of distance education being widely prevalent in HEIs.

A recent systematic review of the 45 published peer-reviewed papers on MOOCs between 2008-2012 offers an explanation for some of the popular discourses that surround MOOCs (Liyangunawardena, Adams, & Williams, 2013). The authors report on the “minor focus on the institutional threats and opportunities”, “significant gap” and “lack of published research on MOOC facilitators’ experience and practice” (p. 217). Additionally, while MOOCs may be perceived as being of wide public interest, this was not reflected in the peer-reviewed research (p. 219).

Building HEIs technological capacity and ICT use as a resource base in the academy relies on academic staff acceptance of ICT facilitated opportunities. Acceptance and harnessing of these opportunities also requires acknowledgement of an evolving concept of knowledge. Moreover, students’ and educators’ relationships with information are changing as the infrastructure of information develops in knowledge societies (Altbach, 2007; Becher & Trowler, 2001; Brophy, 2005; Holmes, 2006; Jordan, 1998). Ubiquitous access to, and the availability of, information without the prior restrictions of time, space or geography have affected the interpersonal relationships that existed previously for mediating information, especially those between student and teacher, teacher and researcher, and student, teacher and researcher with the library. These fundamental changes in the behaviour and expectations of academic staff are rapidly diminishing the workplace security of faculty who lack a sophisticated command of existing and new technologies (Tamarkin & The 2010 EDUCAUSE Evolving Technologies Committee, 2010, November/December, p. 36; Williams, 2009, p. 3).

The Impetus for Academic Staff Learning

The current context in which academic staff learn and teach is situated in an environment shaped by NPM techniques and neoliberal market influences. The NPM approach of compartmentalisation and specialisation

of HEI functions and outcomes, which have encouraged a process of transition towards domain based degrees, emphasises the micro-management of both staff and students, and increases the volume and complexity of tasks while reducing resources and staffing levels (Becher & Trowler, 2001; Bentley et al., 2013; Brophy, 2005; Enders, 2007; Gill, 2013; Grappa et al., 2007; Longworth, 2003; Marginson & van der Wende, 2007; Mertova et al., 2010; Trowler, Saunders, & Bamber, 2012; D. Watson, 2009). Altbach et al. (2012, p. 4) examines the impact on academic staff of working and learning in this context highlighting that “institutional diversification has led to a fracturing of the academic profession into many segments and to the decline of a sense of the academic community”. Furthermore, they suggest that the current state of higher education is “without question, less of a community than it was in the past” (p. 4).

Changes in student demographics, with increased numbers, mixed-mode delivery to on campus, online and distance students, thereby widening access for first generation tertiary students, mature age, part- and full-time employed, continuing education, rural and international students, have been accompanied by unfamiliar demands on all HEI staff. Additionally, the distinction between fee-paying and fee-supported students has impacted on the relationship dynamic between students and institutions. Some students and HEI management consider that students are entitled to demand value and satisfaction in view of students’ status as ‘paying customers’ (Becher & Trowler, 2001; Brophy, 2005; Grappa et al., 2007; Jordan, 1998; Mertova et al., 2010). The evolving composition of the new student cohorts has an ongoing and variable impact on academic staff and their approaches to learning and teaching.

The increased numbers and varied demographics of students have placed increased and varied demands on all HEI staff. Negotiations about staff to student ratios, the extent of flexible learning and semantic and ideological conflict between the concepts of e-learning and learning management systems are ongoing. In some circumstances, there have been imbalances between the demand for and delivery of student and staff support services, alongside the

limited scope and ‘dehumanisation’ of these support services. These imbalances of demand and delivery have increased and rendered more complex the roles undertaken by staff who currently occupy interpersonal and interactive roles such as academic and library staff (Brabazon, 2007; Brophy, 2005; Candy, 2000; Grappa et al., 2007). The physical and electronic visibility of these staff have, in some instances, contributed to these staff members acting as surrogates for career guidance experts, counsellors, health advisors, industrial mediators, legal advocates, parental and family figures, as well as friends and colleagues.

The aging workforce of which HEIs are now predominantly comprised also have personal needs that sometimes conflict with the dynamism demanded in their employment environment (Haymes, 2008). In the present and prospective academic context, academics need to have mastery of a combination of disparate abilities in order to function effectively. Academics without these capacities will not only be less able to fulfil their responsibilities in research, knowledge transfer, and teaching but, without a broad command of literacies, will not be able to function in a modern academic library.

The roles of HEIs have impacted on the techniques of knowledge management applied to the academic work attributes of learning and teaching, research, administration, governance, and community engagement within the organisation. Knowledge management often functions as a determinant of the conception, analysis and dissemination of knowledge. An institutional approach to knowledge management, subordinating the individual approach, is exerted upon academic and general staff, administrators, students, information and technology. Individuals have responded with resistance and subversion to prescriptive management of the conception, analysis, and dissemination of knowledge within HEIs (Cain, Branin, & Sherman, 2008; Lincoln, 2011; Marginson & van der Wende, 2007). Coyne (2010, p. 105) argues, “no longer can we expect students and researchers to follow a prescribed workflow” suggesting that the conduct of learning, teaching and research in HEIs will need to be met and supported through a diversity of approaches.

There is now an expectation placed upon academic staff to confidently, efficiently, and practically incorporate new information technology within their teaching and learning environments. As an example within the institution that is the focus of this research, academic staff are required to have an online presence for every unit in undergraduate and postgraduate courses. Academics are expected to design, develop and maintain the content and substance of this online component. Devlin and Samarawickrema (2010) describe this expectation as “providing for flexible, ‘anytime-anywhere education’ ... of the effective university teacher” (p. 119). The changing expectations for the nature and production of academic work consequentially alter the processes of information retrieval and the learning needs for literacies for academic staff. Instruction in, and retention of, a range of literacies is at present impeded by the absence of learning opportunities to complement the evolution of ICT. This is further challenged by the governance of ICT in HEIs, which has not evolved to complement the rapid growth in ‘bring your own device’ (BYOD) culture on campuses to meet the teaching and learning needs of staff and students (Beard, Dale, & Hutchins, 2007; Mellow & Woolis, 2010; Staley & Trinkle, 2011, January/February).

The Opportunities for Academic Staff Learning

For their students and colleagues university teachers and lecturers are role models for learning (Jordan, 1998), and their reactions and attitudes inform students’ experiences (Candy, 2000) and the conclusions students draw from them. Their academic work requires discipline expertise often refined over a lifetime of learning, to be transposed across mediums (Brabazon, 2007). The complex transpositions of an educator’s expertise from conceptualisation to the varied media formats anticipated for the purposes of learning and teaching might include verbal presentation (lecture, podcast, vodcast), written presentation (report, journal article, book) and multimedia presentation (PowerPoint, website, wiki, blog, twitter, learning management system). Accordingly, to better integrate and benefit from evolving technologies, academic staff members are required to apply and promote an

acceptance of and appreciation for the available resources that support their learning and teaching roles (Beard et al., 2007).

The integration of learning strategies and learning technologies in HEIs by academic staff and this knowledge transfer to students has been reported as an area requiring improvement. The Connaway, Dickey and OCLC Research's analysis of the user behaviour study, noted in the preceding section, *Information behaviour of the researcher of the future* (CIBER, 2008) detailed the evidence and potential outcomes of "teachers not passing literacy on to pupils" (Connaway et al., 2010, p. 37). Similarly, Moyle and Owen's (2009) Australian study of the role of learning technologies by HEI students of and graduates from the discipline of education reported corresponding concerns for the knowledge transfer associated with learning technologies and learning strategies. This study collected data on the themes of access and use of technologies, online and computer games, social networking, learning styles and the educational value of technologies, support for learning with technologies, technology use on practicum and becoming a teacher, and the future expectations of participants. Moyle and Owen's (2009) findings reported participants' "concerns about the ability of their university lecturers and their supervising teachers to assist them to learn how to include technologies into their teaching and learning while on their respective practica" (p. 34). Fifty per cent of participants "considered improvements in their lecturers' capabilities necessary" (p. 43). These perspectives on academic staff capabilities in the dissemination of knowledge and knowledge transfer are echoed in the scholarly literature of academic libraries, in that the "information literacy skills of academic staff are just as much in need of upgrading" (Law, 2010, p. 9) as their students.

Given the cultural shift of HEIs towards massification and the practices of managerialism, provisions for lifelong learning are necessary and complementary for academics to stay relevant, up to date, flexible and employable within the evolving workplace environment (Halliday, 2001; Longworth, 2003). Lifelong learning can appear to be conceptually opposed to the HEI transition towards domain-based degrees and the

compartmentalisation and rigid specialisation of HEI functions (Becher & Trowler, 2001; Jackson, 2004; Longworth, 2003). This challenging environment of often competing and opposing demands is further compounded by the reshaping of HEI processes due to the implementation of technology. Technology has become a universal scapegoat for the environmental challenges that effect learning, lifelong learning, and teaching functions (Holmes, 2006).

Alongside these challenges, educators are increasingly aware of the new guiding roles they are required to occupy for twenty-first century learning. The actions and requirements of educational guides further emphasise educators' need to be informed and experienced in the provisions with which they are required to equip their students in order for students to fulfil their personal, social and occupational aspirations (Chapman, McGilp, Cartwright, De Souza, & Toomey, 2006; Longworth, 2003). Consideration by HEI employers and educators needs to be given to conceptions of them by students as learning role models and role models for lifelong learning when they are responding to the changing nature of academic work (Candy, 2000). In this context, HEIs' and educators' values and views impact upon students becoming lifelong learners themselves (Candy, 2000). It is for this reason that writers such as Jordan (1998) support the rise and promotion of the values that become embedded when there is a sharing and demonstration of learning experiences. The learning and lifelong learning experiences of academic staff (teaching and research), general staff and students might all become entwined within HEIs.

Lifelong Learning and Academic Libraries

Lifelong and Life-wide Learning

Lifelong learning has the ability to inspire personal, social, and occupational aspirations. In practice, lifelong learning has the ability to help individuals realise these aspirations. Individual commitment to lifelong learning is essential for the cultivation of a learning society to complement the demands of the twenty-first century, characterised as a knowledge society. A knowledge-shaped economy and its knowledge workers “are under continuous pressure to learn something new” (Pyöriä et al., 2005 as cited in Valtanen, Berki, Georgiadou, Ross, & Staples, 2011, p. 24) and to *commoditise* and *marketise* these *knowledge products* (Harris, 2005). Tamarkin et al. (2010, November/December, p. 36) also emphasise a crucial ideological shift in which “technologies no longer simplify processes; instead, working with the technologies has become a process in itself”. Therefore knowledge workers, in this case academic staff are required to accept an individual commitment to lifelong learning.

To achieve the aspirations of a highly skilled workforce, a democratic and inclusive society, and a more personally rewarding life, lifelong learning is also fundamental (Chapman & Aspin, 1997, 2013). Valtanen et al., (2011, p. 24) in a similar way assert that the intention of academic staff and the purpose of HEIs “should aim at well-educated citizens and not just well-trained, well-informed knowledge workers”. This intention may well be at odds with the current directions of HEIs as business and industry driven training providers for the various professions. For individuals to achieve these aims of fulfilment, it is necessary to explore the interests, motivations, conceptions, expectations, and ownership of learning opportunities that underpin successful and sustainable lifelong learning (Chapman et al., 2006; Longworth, 2003; Skilbeck, 2006). The *Australian and New Zealand Information Literacy Framework* specifies that “intentional lifelong learning, either formally or self-managed, is regarded as necessary due to rapid technological, social cultural and economic change” (Bundy, 2004, p. 4). Conditions that foster or

inhibit these learning aims necessarily require thoughtful examination and meaningful resolution (Skilbeck, 2006).

In the scholarly literature, informal learning, workplace learning, and lifelong learning are commonly addressed as independent concepts. Hager and Halliday's (2006) research on learning examines the convergence of concepts of learning previously unexamined. This conceptualisation of the convergence of learning approaches, opportunities, and outcomes informs this study as I investigate the role of academic libraries in the lifelong learning of academic staff.

Furthermore, it is this perspective of learning that aligns with the Popperian epistemology that underpins this research. McNamara (1978, p. 30) identifies that "what is distinctive about Popper's idea of rationality and what is relevant to educational discussion is his emphasis upon an attitude of mind and a general mental predisposition". The predisposition and attitude of mind of the lifelong learner is one of the instances of convergence across divergent learning sites and learning situations. For educators, Swann (2012, p. 84) encourages us to "construe learning as a change in disposition – characterised as a change in preference and/or expectation". Learning which changes our disposition and attitude facilitates transcendent learning. Transcendent learning is an approach to learning which surpasses our expectations and "that enables us, collectively and individually to progress" (Swann, 2012, p. 2). For employees, Evans (2009, p. 90) identified lifelong learning in the workplace as shaped by an employee-centred personalised approach to convergence across working sites and working situations. Learners who learn from their participation and who recognise how the "four types of knowledge" (knowing what, knowing how, knowing who and knowing why) converge in their own personal context demonstrate the predisposition of a lifelong learner.

Life Chances for Lifelong Learners

Lifelong learning, and the provision of opportunities to support learning across one's lifespan, varies from person to person. Individual

lifelong learners accrue abilities, which in turn shape their personal, civic and occupational participation and proficiency. Watson (2004, p. 4) believes that these individuals “must have the *motivation* and *capacity* to learn, in any type of setting, with any type of teacher, or simply by themselves”. These vital characteristics of a lifelong learner might also be described as independence and ownership. One’s independent commitment to lifelong learning is of the utmost importance to the individual’s contribution to achieving the aspirations of a learning society, comprised of a highly skilled workforce, a democratic and inclusive society, and a more personally rewarding life (Chapman & Aspin, 1997). In order to better support individuals seeking to attain these qualities (Chapman 2006; Longworth, 2003) it is essential to examine their conceptions and expectations, personal interests and motivations, and ownership of learning opportunities across their lifespan (Longworth, 2003; Skilbeck, 2006). In the context of HEIs and academic staff, the aim is for academic libraries to acknowledge the independence of learners and their ownership of the ways in which they accrue capacity. It is proposed that they embrace “the concept of education and training that responds to individual needs” (Watson, 2004, p. 16).

Learning opportunities that respond to academic staff needs that are characterised by individual ownership are suited to the evolving context of HEIs. Halliday (2001, p. 93) states, “globalisation produces such rapid changes in the world of work that learning must be ongoing to cope with it”. To meet the needs of varying staffing arrangements and address their personal competencies, ongoing learning opportunities need to demonstrate a corresponding basis of variability and personalisation. Taylor (1999, p. 158) identifies that “academics are well placed to refocus and extend their expertise in ways that will serve their interests, and the interests of those contributions they wish to make to their communities”.

The continuum of learning must evolve with the learner. Lifelong learning is a sequence of learning opportunities that is able to complement the learner with a breadth and depth of knowledge that meets an individual’s needs and surpasses their expectations. The best design to achieve this

requires the restructuring of access and personalised opportunities for lifelong learning (Bryce, 2006; Evans, 2009; Hager & Halliday, 2006; Halliday, 2001; Longworth, 2003; Skilbeck, 2006). Furthermore, Taylor (1999, p. 158) asserts that, “while learning is a risky business, it remains the best bet for ensuring personal satisfaction and a continuing role for academics into the future”.

Increasingly evident is the importance of the set of changing relationships between work, study and the individual. These, in turn, have an effect on work patterns and the issues of training, retraining, up-skilling, re-education and life chances (Evans et al., 2013; Longworth, 2003; Rymarz, 2006). It is imperative for learning providers and individuals to look beyond immediate and specific benefits when they evaluate opportunities for continued learning because, predominantly, these opportunities contribute to both present and future successes (Aspin & Chapman, 2000, 2001; Aspin, Chapman, Hatton, & Sawano, 2001; Chapman et al., 2006; Evans et al., 2013; IFLA, 2006; Longworth, 2003; Skilbeck, 2006). Lifelong learning also presents employers with benefits as their employees become well positioned to take advantage of emerging opportunities and attain their professional and personal goals (Evans, 2009; Hager & Halliday, 2006; Halliday, 2001).

Life Chances Supported and Enhanced by Academic Libraries

Lifelong learning, academic libraries, and librarians share an evolving and symbiotic relationship in which the library has a role in offering learning opportunities to their employees. This, in turn, shapes the practices and services of academic libraries and their capacity to support the learning opportunities of individuals who interact with libraries and their staff. Mayfield and Mitchell (2009) emphasise the importance of the individual ownership of learning opportunities within library and information based professions, citing the Australian Library and Information Association’s (ALIA) statement to plan and implement “lifelong learning that is unique to you” (ALIA 2008a, 2008b as cited in Mayfield & Mitchell, 2009, p. 5). The capacity for libraries to be successful in this endeavour is heavily reliant upon the learning strategies of library staff. In the professional development

statement of ALIA, this learning strategy is in part described as the individual's obligation to "develop new skills, knowledge and confidence to ensure you have a successful and rewarding career" (ALIA, 2008b).

The qualities of independence and ownership in the pursuit of lifelong learning are advocated within the profession of librarianship in Australia. Library and information professionals who recognise the significance of individual ownership of learning opportunities have a positive influence upon the educational role of libraries (AAUP, 2013; ACRL & Working Group on Intersections of Scholarly Communication and Information Literacy, 2013; Mayfield & Mitchell, 2009). The learning strategies of library staff, accordingly, impact upon an academic library's capacity in this endeavour. ALIA (2008a) emphasises independence in professional development in order to "develop new skills, knowledge and confidence to ensure you have a successful and rewarding career". The learning program of library professionals informs the learning opportunities that libraries are able to provide, which in turn shapes the capacity of libraries to support the lifelong learning needs of individuals. Within HEIs, this evolving educational role is dependent upon the relationship between librarians themselves, their commitment to lifelong learning, the values of the institution and of the library (AAUP, 2013; ACRL & Working Group on Intersections of Scholarly Communication and Information Literacy, 2013; Auckland, 2012).

Academic libraries fulfil their educational role with formal and informal learning strategies which need to be established in such a way that they are able to evolve and complement other capabilities accrued by individuals (ALA, 2008a, 2008b; ALIA, 2002, 2006, 2008a, 2008b; Bundy, 2002, 2004; IFAP, 2000; IFLA, 2006). To respond to the changing nature of work and life learning needs, shaping personalised opportunities is essential (Bryce, 2006; Longworth, 2003; Skilbeck, 2006). Evans et al. (2013, p. 42) emphasise that "there is significant evidence of the potential of lifelong learning to influence life chances ... new opportunities that may be opened up through learning in adult life".

In higher education the provision of opportunities is enhanced when these opportunities are structured to acknowledge *know-how*, the expertise to support work-life, and *know-who*, the work-life networks to support and supplement capabilities (Taylor, 1999, p. 112). These types of work participation knowledge are also stated in the broader literature of workplace learning (Evans, 2009; Hager & Halliday, 2006; Niehaus & O'Meara, 2014). Recent work by Niehaus and O'Meara (2014) found that “professional networks clearly matter in the professional lives of faculty” and furthermore, that “faculty members get different things, however, from different kinds of professional relationships at different points in their careers” (p.11). The HEI workplace is additionally increasingly characterised by the specific technologies utilised, which necessitate a complementary evolution of skills for the technological systems and applications (Longworth, 2003; McNamara, 2013; Rymarz, 2006; Tamarkin & The 2010 EDUCAUSE Evolving Technologies Committee, 2010, November/December, p. 36).

The RIN (2011, April) report, *Reinventing research? Information practices in the humanities*, explores the information literacy of humanities researchers and the effect of related technologies on their practices. Five policy challenges requiring support were identified and reported in this research. Foremost, training, both subject specialist and technological, is emphasised as a necessity that is maintained by ongoing support (p. 8). The other challenges distilled from the study address the concept of the infrastructure of research, from the aspect of development, maintenance, and sustainability. These aspects of the infrastructure of research examine data, digital resources, tools and methods, standards of practice and the participation and recognition of individuals and their affiliated organisations or institutions, to support this infrastructure (p. 8). These findings were compared with previous studies of scholars in the life sciences to identify that “scholars in humanities and life sciences share similarly high expectations of digital resources” and “share surprisingly similar practices in information management, collaboration, and creation” (RIN, 2011, April, p. 10). In these circumstances it is imperative for individuals and institutions to assess learning strategies with consideration for professional and personal

aspirations, both present and future (Aspin et al., 2001; Chapman, Cartwright, & McGilp, 2006; IFLA, 2006; Longworth, 2003; Skilbeck, 2006).

In HEIs it has become urgent to practice lifelong learning (Bradley, Noonan, Nugent, & Scales, 2008, December, p. xii). Lifelong learning is indispensable for tertiary educators personally, professionally and as they prepare their students in a timely fashion in a range of competencies needed to achieve their individual, civic and professional aspirations (Bryce, 2006; Chapman et al., 2006; Connaway et al., 2010; Longworth, 2003; Moyle & Owen, 2009, p. 43). Students look within universities and to the university staff for both learning role models and role models for lifelong learning (Bryce, 2006; Candy, 2000). The lifelong learning attitudes and values demonstrated by staff affect the likelihood of students becoming lifelong learners (Candy, 2000). For academic libraries providing learning opportunities that engage with the needs of academic staff, general staff and students, the underpinning learning of lifelong learning values is fortified and embedded across the ever diminishing boundaries of educator-learner (Carnaby, 2010, p. 20; Duskatsch, 2003, p. 111; Jordan, 1998; Secker, 2004, p. 62).

Academic libraries and librarians are well positioned to observe and respond to the needs of individuals working, learning, teaching and conducting research within HEIs (Brophy & Craven, 1998; Coyne, 2010, p. 105; Creighton, 2011; Fister, 2009; March, Hayes & Kent, 2010, p. 141; Secker & Price, 2004; Siess, 2010). Hayes and Kent (2010, p. 141) report that “increasingly library staff are becoming trusted partners in the academic enterprise in both knowledge management and knowledge transfer by helping to locate new sources of information beyond traditional resources and forming alliances to share knowledge and information held within and beyond the institution”. Facilitating the tailoring of learning opportunities required to navigate the increasing complexity and volume of scholarly information relevant to academic staff is of increasing demand (Bundy, 2004, p. 3; Hahn, 2009; Ithaka S+R et al., 2013; McKnight, 2010, p. 204; Neal & Jaggars, 2010, p. 55; Tillman, 2008; Whatley, 2009).

Complementary to these endeavors is academic libraries' continuing role as the chief provider of the underpinning skills for work-life and lifelong learning, namely information literacy and its contemporary counterpart e-literacy (ALA, 2008a, 2008b; ALIA, 2002, 2006; Bundy, 2004; Doskatsch, 2003; IFAP, 2000; IFLA, 2006; Law, 2010; McSwiney & Parnell, 2003; RIN & RLUK, 2011, March; Secker, 2004). The evolving complexity of scholarly information is such that information literacy skills are of increasing significance in HE (McKnight, 2010, p. 204) and "an essential element for lifelong learning" (Bundy, 2004, p. 1).

Concluding Comments

In this chapter a range of scholarly literature relevant to the concepts central to this study has been reviewed. Literature from the disciplines of library and information science, higher education and lifelong learning has been investigated for the key concepts of academic libraries, literacies, lifelong learning, HEIs, and academic staff. This review has examined the nexus between academic libraries and lifelong learning, specifically regarding the needs of academic staff in the context of changes in HEIs and the nature of academic work. The values associated with lifelong learning and academic library-facilitated learning opportunities have been explored to identify the evolving and expanding range of learning required to respond to the evolving context of knowledge and understanding required in academic work (AAUP, 2013; ALA, 2008a, 2008b; ALIA, 2002, 2006; IFLA, 2006).

The review of literature has pointed to the influence of higher education institutional cultures, views and values in shaping attitudes and lifelong learning, academic libraries and academic work and these have informed the design of this research. Additionally, the ownership, opportunity and support for lifelong learning and the accumulation of capacity will be analysed in this study. As suggested by Chapman et al (2006, p. 173) there are opportunities to fill learning spaces left vacant by other learning providers.

Using a Popperian approach to mixed methods research design this thesis explores what conceptual spaces academic libraries currently occupy, and investigates the role of academic libraries in lifelong learning of academic staff.

Informed by the literature review, this study has focused on examining the highly specialised job-specific skills necessary to meet the current form of academic work and the skills that are adaptable for a generic work-role, future unknown work-role and the evolving character of knowledge work in HEIs. The examination of academic staff learning opportunities (including literacies) will also identify and compare the influences in the changing HE environment such as the competing underpinning values of convergence in learning and compartmentalisation in HEIs.

The next chapter of this thesis will describe the research methodology informing this research and an outline of the research methods identified to address the aims of this study.

Chapter 3

Research Methodology and Methods

The objective of this study has been to explore the relationship between academic libraries, literacies and the lifelong learning needs of academic staff in HEIs. In particular, the study focused on the academic library learning opportunities in a range of literacies for academic staff responding to the changing context of HEIs.

This study aimed:

- To undertake a conceptual and empirical analysis of the impact of the changing context of higher education, changes in the management of higher education institutions and the nature of academic work on academic libraries and their provision of lifelong learning opportunities for academic staff.
- To identify the perceptions of academic staff regarding current issues and future priorities in higher education and their implications for academic libraries and the provision of learning opportunities for academic staff.
- To examine the capacity of academic libraries to provide information services and learning opportunities in a range of literacies relevant to the perceptions of academic staff regarding their lifelong learning needs.

The specific aims guiding research were:

- To explore the ways in which HEIs' impact upon the form and nature of lifelong learning opportunities provided by academic libraries to academic staff.
- To analyse how learning opportunities for a range of literacies are situated within HEIs and to examine the opportunities for learning a range of literacies in academic libraries.

- To investigate the relevance of academic library lifelong learning opportunities across the working life of academic staff.

This research sought to explore the availability of learning opportunities in HEIs and the foreseeable role for academic libraries in the lifelong learning of academic staff. This study aimed to give voice to academics in identifying their current and future needs in relation to learning opportunities for information-related literacies and skills, and library services. This process of identification aims to be of benefit to the individual and their employing institutions in helping to shape their responses to the changing nature of their academic work, for their lifelong learning and life chances.

Theoretical Framework

Evolutionary Epistemology

An approach derived from the evolutionary epistemology and meta-theoretical perspectives of the Austrian philosopher Karl Raimund Popper (Popper, 1972, 1973 [1966], 1974, 1974 [1966], 1994a, 1994b, 1995 [1959]) informed the study and the process of refining the research questions for this thesis. Popper's commitment to the ongoing, iterative process of challenge, conjecture, and refutation was utilised throughout the study. The Popperian "method of conjecture and refutation" is guided by the following equation (1974, p. 164) :

$$PS \rightarrow TT \rightarrow EE \rightarrow PS$$

This method begins with the identification of a 'problem situation' (PS), followed by the conjecture of a 'tentative theory' (TT), next a critical process to refute or 'eliminate error' (EE) from the tentative theory, and then a reduced condition of the 'problem situation' (PS). The conjecture and refutation equation has no solution or endpoint. The state of the 'problem situation' is always provisional. As our understanding of a problem evolves we see the problem in a new way. Thus, identification of the 'problem

situation’ denotes the beginning of the method of conjecture and refutation for a new way of seeing the ‘problem situation’.

The direction of the research was guided, from the outset of the study, by Popper’s (1972, 1974) theory of critical rationalism. Critical rationalism is an approach to the identification of errors in a researcher’s theory and error eliminated by criticising and scrutinising that theory. In adopting the theory and disposition of critical rationalism in this study, my objective was to seek negative instances, counter examples, refutations, and to judge critically my own tentative theories and findings (Popper, 1972, p. 20). This theory was of vital importance for guiding the application of a multiphase approach to data collection and data analysis.

At the core of the study’s application of critical rationalism and an evolutionary epistemology, was my view that all facets of this research should be exposed to the analytical examination process of ‘falsification’ (1972, p. 36). Falsification is central to Popper’s characterisation of the possible outcome from refutation testing of a tentative scientific theory. A theory or hypothesis, which is not tested for falsifiability by raising doubt through experiment, observation and critical rationalism is categorised as ‘non-scientific’. Additionally, Popper (1952, p. 125) suggests that “we are not students of subject matter but students of problems. And problems may cut right across the borders of any subject matter or discipline”. The implementation of that view is demonstrated in the use of a mixed method design and in particular in the phase two application of the modified Delphi method.

Theoretical Perspective

The theoretical perspectives of Popper, in particular his iterative method of conjecture and refutation as an approach to problem reduction and problem solving, are central to the research methods adopted in this study. The study adopted several research methods, including both qualitative and quantitative research methods, to iteratively and critically address the aims of

and findings from the study (Creswell, 2003, 2007; Creswell & Plano Clark, 2007; R. B. Johnson & Onwuegbuzie, 2004; McGrath & Johnson, 2003). The selection of methods utilised in this study was based on their capacity to support and act in accordance with the notions of the provisional character of knowledge, research, truth and the importance of criticism to bring about the elimination of error (Popper, 1974; Pring, 2005). The significance of the Popperian approach of making research accessible to criticism parallels in particular the use of the modified Delphi method and advocacy for the acceptance and design of mixed method and mixed model research (R. B. Johnson & Onwuegbuzie, 2004; R. B. Johnson, Onwuegbuzie, & Turner, 2007).

In this research, qualitative and quantitative research methods have been adopted in a multiphase mixed methods design. These research methods have been used to collect data in a particular way, with the aim of addressing the specific research questions of this study. Presented in Figure 3.1 is Popper's (1994a, p. 13) 'Elaborated Tetradic Schema', which illustrates his 'method of conjecture and refutation' replicated (P: problem, TT: tentative theory, EE: error elimination, P: problem) and culminating in a *Central Evaluative Discussion* (CED).

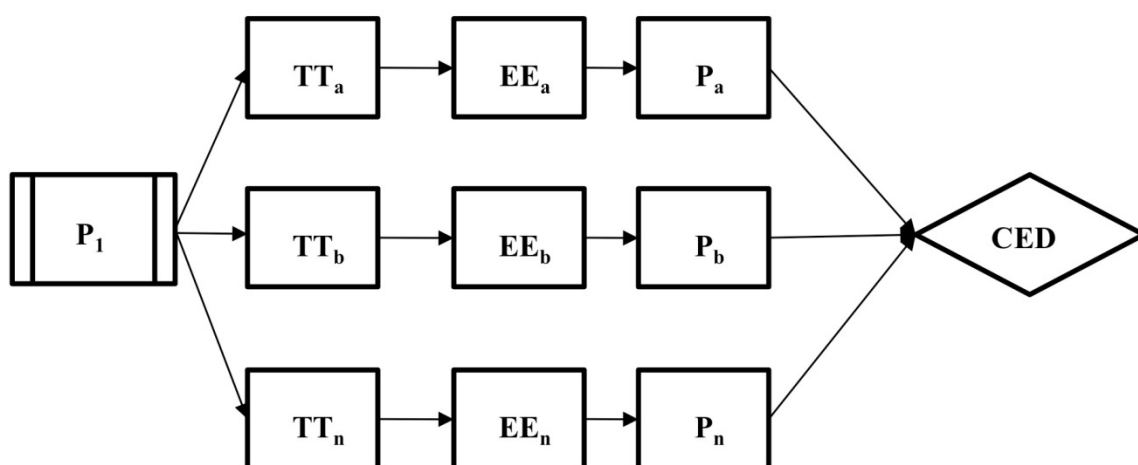


Figure 3.1. Elaborated Tetradic Schema Karl Popper (1994a).

To attend to the research aims of this study, Figure 3.2 illustrates my adaptation of the schema as applied to this study. This adaptation is further ‘elaborated’ for a four-phase approach in the first instance, shown in the four numbered sets of the PS-TT-EE equation. Secondly, the adaptation emphasises four aspects or facets of the ‘problem situation’ (PS_n), corresponding to the multiphase mixed method design of the research, that are addressed by the method of conjecture and refutation. The tentative findings that remain after the process of ‘eliminating error’ (EE_n), are included in the ‘central evaluative discussion’ (CED). Following from the central evaluative discussion, forecast measures which shape the reduction of the ‘problem situation’ (PS₁) are suggested and recommended (PS₂).

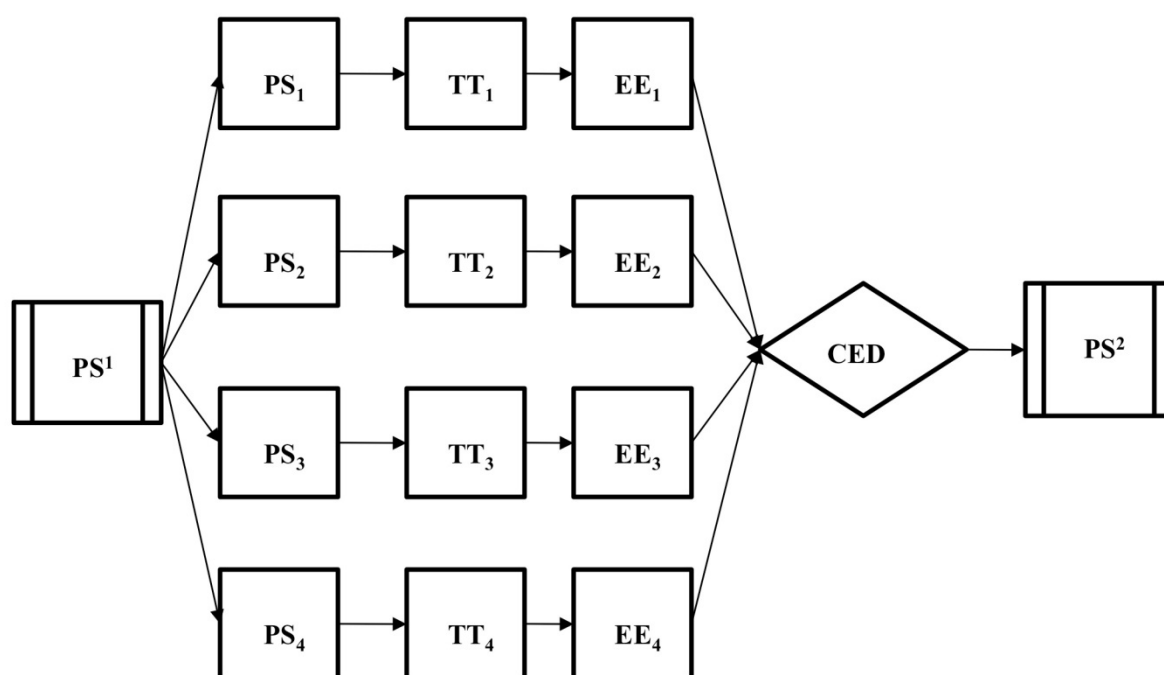


Figure 3.2. Adapted Popperian approach to the progression of this research.

The Design of the Study

The Popperian approach as applied to my research study on academic libraries and lifelong learning is comprised of a four-phase design in which different but complementary data were collected on the overall research

question. The evolutionary aspect of the design is demonstrated in the ways in which both the progressive phases of the design and the progressive collection, analysis and integration of data are presented. This translation of the approach, showing the specific elements of this study, is illustrated in Figure 3.3 which is structured in an ‘elaborated tetradic schema’ and arranged in four phases that are composed consecutively. The first phase is qualitative and ‘exploratory’, the second phase is designed with an embedded mixed methods model of quantitative and qualitative data and concludes with two qualitative ‘explanatory’ phases (phases three and four) (Creswell & Plano Clark, 2007, 2011).

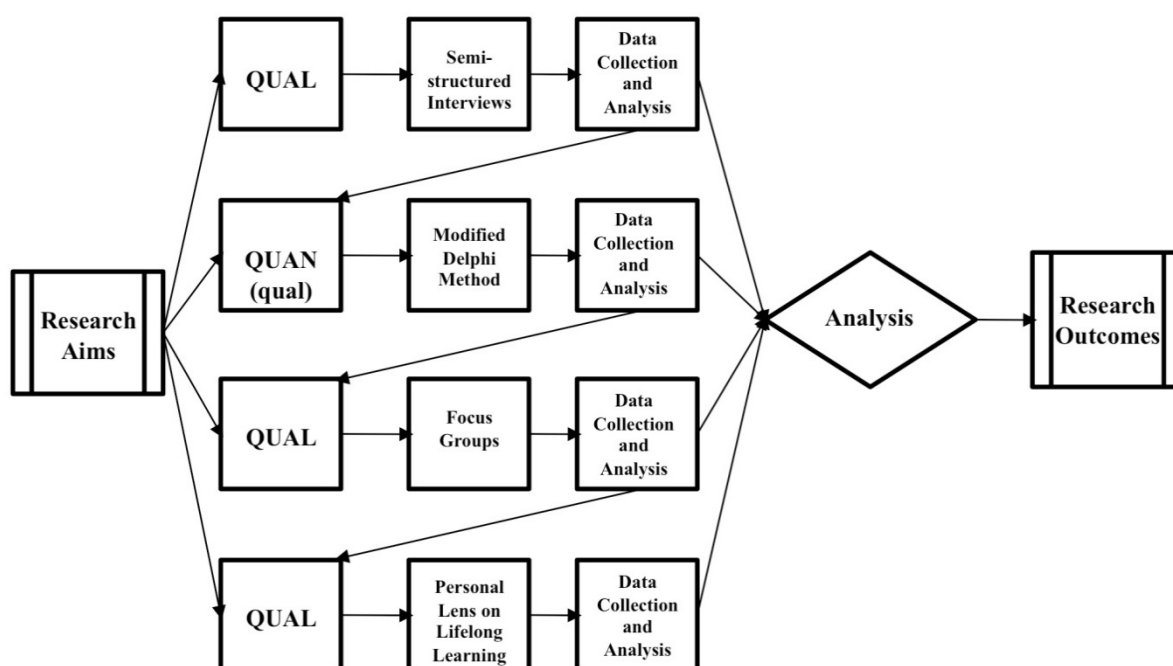


Figure 3.3. Illustration of the adapted Popperian approach utilised in the Research Methods.

The multiphase mixed methods design used in this study shown in Figure 3.3 and is structured in an ‘elaborated tetradic schema’. The figure is read from the left and commences with the ‘research aims’ and questions into the problem situation. Next, the four mixed methods phases are presented as ‘QUAL’ qualitative research method and ‘QUAN(qual)’ embedded mixed

methods phase emphasising quantitative research data with embedded qualitative data. Following in the schema is the ‘analysis’ and central evaluative discussion. The design concludes with the ‘research outcomes’ of findings, conclusions and recommendations.

Semi-structured interviews were used in the first phase of data collection. These were guided by the research questions and informed by the scholarly literature, language, and concepts from the relevant academic disciplines library information science, lifelong learning and higher education. The full data gathering instrument for the semi-structured interviews is included in Appendix B.

The modified Delphi method used in the second phase of the study was informed by the recurring tentative themes identified and selected from the first phase of data collection and analysis. These tentative findings from phase one of the research guided the modification of the Delphi approach to fit the purpose of the study and the process of reducing the problem situation. The Delphi questionnaire instrument, which is included in Appendix C, drew from the conceptualisations and language of the phase one participants and the disciplines of their academic work. There were three applications of Delphi questionnaires during phase two of the study.

The Delphi method implicitly observes Popperian rules for the conduct of scientific investigations and his adherence to his “method of conjecture and refutation” (1974, p. 164) :

$$PS1 \rightarrow TT1 \rightarrow EE1 \rightarrow PS2.$$

The Delphi method is structured to facilitate the anonymous collaborative criticism of phenomena [PS1] by the Delphi panel of experts. During the cyclic processes of analysis and critique using iterative questionnaires, theories are tested [TT1] for validity in the context of the problem situation [PS1]. The falsification of potential theories and concepts results in their elimination at every evolution of the cyclic process [EE1]. The conclusion of the Delphi method results in a priority list that meets the anticipated needs of a provisional tentative ‘truth’ [PS2]. The resultant tentative ‘truth’ is taken as a

criterion until proven false. When falsification occurs, the Delphi method can be resumed for the testing of theories that are appropriate to the current state of the problem situation [PS2].

In the third phase of the study the recurring tentative findings and prioritised tentative themes identified from phase one and phase two of the study were addressed in focus group interviews. The focus group instrument is included in Appendix D and was informed by the language and conceptualisation of the key concepts of this study accrued and examined from the preceding phases.

The personal lens interviews on lifelong learning conducted in the fourth phase of the study draw upon the tentative findings of the preceding phases of the study. The questions used to inform the discussion with participants in the development of the personal lenses on lifelong learning is included in Appendix E.

The mixed method design of this study adheres to Popper's (1974, p. 164) "method of conjecture and refutation" in the elaborated tetradic schema adapted for this research. Figure 3.4 presents the progression of the research method phases augmented to convey the time sequence of the study. Reading the figure from left to right and top to bottom shows the connections between the multiple phases of research methods and how they consecutively inform a Popperian approach to problem reduction and problem solving.

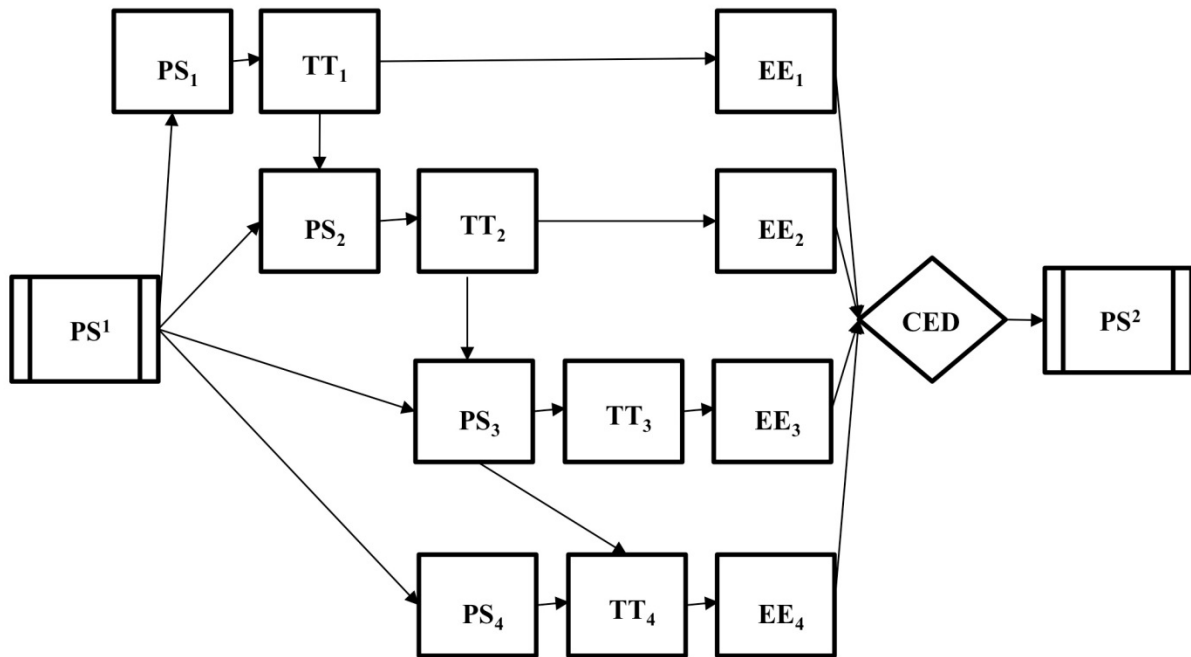


Figure 3.4. Progression of research method phases.

In Figure 3.4 the aims of this research and the tentative theories to be addressed (PS^1) have informed the design of mixed research methods and selection of research questions. The qualitative data collected to address the research questions were gathered from the results afforded by the methods of semi-structured interviews (PS_1), focus groups (PS_3), and personal lens interviews (PS_4). A modified Delphi method collected quantitative and qualitative data to attend to the research questions. The research instruments and data collection procedures are underpinned by the aims of this study (TT^n) informing the close examination and critique of aspects of the tentative theories responding to the problem situation. Analysis of the data collected (EE^n) tests the tentative theories, either proposed by the literature or by participants in a preceding phase of the study, for falsification and verisimilitude (nearness to truth). The remaining tentative findings reconceptualise and reform the problem situation for synthesis (CED) to suggest recommendations for problem reduction and further research.

Philosophical Perspective

It is from the theoretical perspectives of Popper and with a Popperian disposition to problem solving that my philosophical perspectives are informed. Popper stated in his autobiography (1976, p. 30):

Always remember that it is impossible to speak in such a way that you cannot be misunderstood: there will always be some who misunderstand you.

With this in mind, I examined how this study might encounter misunderstandings related to the language of the research and the spoken language of the 43 participants in this multiphase study. Whilst, as Popper suggests, it might be impossible to prevent being misunderstood, I believe that when misunderstandings do occur they can hinder the problem solving process if suitable mitigating measures have not been established.

The measures I have established for this research is the late work of Ludwig Wittgenstein (1967 [1953]) on ‘language in use’ and the ‘language-game’. In the ‘language-game’, Wittgenstein suggested “that one can know something and not be able to say it” (p. 36, para 78). In spoken language, with the purpose of communicating with another party, the participants address the difference between *knowing* and *saying* by “*seeing what is common*” (p. 34, para 72), using gestures or non-verbal cues, and considering the context of the language in use.

This context, the ‘language-game’, is local to the community of communicating participants. Participants ‘play’ the ‘language-game’ by having a general understanding of the “natural law governing the play” (p. 27, para 54) and with a specific understanding in this ‘game’ or context from “watching how others play” (p. 27, para 54). The ‘language-game’ becomes more *meaningful* when participants engage with “processes resembling language” (p. 5, para 7) or actions to establish or negotiate a shared understanding of the *language in use*. Wittgenstein additionally suggested that in certain situations the participant ‘using language’ is as important as the *language in use*, thus *meaning* “is sometimes explained by pointing to its

bearer” (pp. 20-21, para 43). These interactions “consisting of language and the actions into which it is woven, the ‘language-game’” (p. 5, para 7) influence our facility to communicate with a specific community or more generally with the world.

I have adopted Wittgenstein’s philosophical perspective on *language in use*, which is against universality or precise expressions of *resembling* concepts and equivalent conceptualisations. In the way that there are “various resemblances between members of a family: build, features, colour of eyes, gait, temperament” (p. 32, para 67) there are similar ways of *seeing what is common* and recognising the ‘family resemblances’ of language and in *language in use*. From this perspective, what is important for communication is that “there must be agreement not only in definitions but also (queer as this may sound) in judgements” (p. 88, para 242). The definition of a word or expression is of less relevance in communication if there is not a shared agreement on the judgement of how that word or expression is being used. If people attempting to communicate are able to agree on the ways in which language is used and the ‘family resemblances’ of the language in use, then there is *less* chance of being misunderstood when different language is used to refer to same thing.

In this study I have embraced language “without a *fixed* meaning” (p. 37, para 79) where the language used does not detract from its ability to communicate. The individuals involved in this study are part of the *academic community*, which conditions our *language in use* and the conduct of our *language-game*. More specifically as we communicate over the duration of this study we negotiate the conduct of our particular *language-game* based on local ‘know-how’ accrued from recognising patterns and resemblances in our *language in use*. This philosophical perspective of “not *striving after* an ideal ... and a perfect language” (p. 45, para 98) has facilitated opportunities for evolving definitions of terms based upon their use by all individuals cooperating in this study. My role, informed by this perspective, was to facilitate cooperation by participants to engage in our *language-game* by encouraging critical disputation of the use of terms and concepts, and of the

range of definitions. As I accept the difference between *knowing* and *saying* (p. 36, para 78), I have also supported participants in the study to put forth different expressions of *resembling* terms as the *meaning* of our *language in use* changes with our evolving knowledge.

Wittgenstein described the aforementioned set of circumstances as “the *philosophical question*” (p. 22-23, para 47) for which the “correct answer ... depends on what you understand” (p. 22-23, para 47) and that the answer in the form of a clarifying question “is of course not an answer but a rejection of the question” (p. 22-23, para 47). This form of critical engagement is welcomed within the Popperian approach to problem-solving. My responsibility in conducting this research was to examine the criticisms that stalled the problem-solving process, and to negotiate the elimination of error from our *language-game* based on our *language in use*. One of the formal ways in which I examined the language in use in this study was by using the data analysis tactics of Miles and Huberman (1994) discussed later in this chapter and illustrated in Figures 3.13 and 3.17.

Methods: Justification for the use of Mixed Qualitative and Quantitative Methods of Data Collection and Analysis

Educational research, as in the majority of the social sciences, engages in a range of research approaches in the collection of qualitative and quantitative data. A mixed methods research approach within educational research is advocated by Johnson and Onwuegbuzie (2004, p. 15) as a complementary response to the changing nature of research:

Today’s research world is becoming increasingly interdisciplinary, complex, and dynamic; therefore, many researchers need to complement one method with another, and all researchers need a solid understanding of multiple methods used by other scholars to facilitate communication, to promote collaboration, and to provide superior research.

A compatible or mixed position approach to research (R. B. Johnson & Onwuegbuzie, 2004, p. 15) was adopted for this study to facilitate criticism and correspondingly facilitate error elimination, corroborate scholarly collaboration, and respond to the dynamism, complexity, and increasingly interdisciplinary state of research.

Mixed methods research, design, and notation have evolved during the course of this study, which commenced in October 2008 (Bryman, 2009; Creswell, 2014; Creswell & Plano Clark, 2007, 2011; R. B. Johnson et al., 2007; Morse & Niehaus, 2009). For the purpose of this thesis, I have updated the design names and notations in accordance with recently published literature (Creswell, 2014) for clarity and consistency. A ‘multiphase mixed methods design’ is an approach to research methods used in evaluation and program intervention (Creswell, 2014, p. 16). The design was deemed appropriate for use in this study as the research aims to identify and evaluate the role of academic libraries in the lifelong learning of academic staff. Possible intervention or future priorities for academic libraries to meet academic staff lifelong learning needs are also addressed within this study.

Multiphase mixed methods are comprised of consecutive phases that address an overall objective. Each phase informs the next phase of the design. An individual phase can consist of a qualitative research method, a quantitative research method, or a mixed method in any combination (Creswell, 2014, p. 228). Mixed methods notation and symbols are used by researchers to communicate their design and procedures (pp. 228-229). This study uses four mixed methods notations to convey important aspects, as detailed below:

- QUAN, QUAL: Uppercase prefix indicates an emphasis on quantitative or qualitative data.
- quan, qual: Lowercase prefix indicates a lesser emphasis on quantitative and qualitative data.
- → : An arrow indicates the direction or sequential methods.

- (): Parentheses indicates embedded data within another form of data.

The design of multiphase mixed methods for this four-phase study is shown in Figure 3.5 adapted from Creswell (2014, p. 221 Figure 10.2).

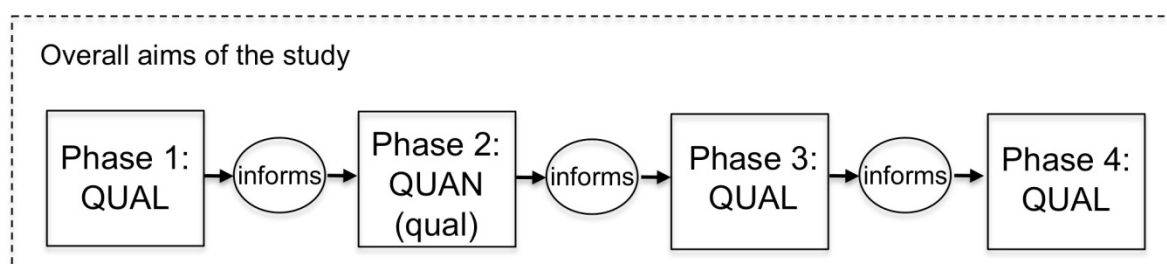


Figure 3.5. Multiphase mixed methods design adapted from Creswell (2014) for this study.

Figure 3.5 demonstrates this study's design of multiphase mixed methods (Creswell, 2014; Creswell & Plano Clark, 2011) using qualitative, quantitative, and mixed methods. This design enabled the development of a conceptual overview from the data collected from the first phase QUAL 'exploratory' semi-structured interviews, and the development of a questionnaire instrument for application in the first round of the collection of data by the modified Delphi method QUAN(qual) in the second phase.

The first phase of the study using a qualitative method enabled an exploration of the relationship between academic libraries, literacies and lifelong learning in higher education, particularly in the context of the changing nature of academic work. The second, mixed methods collection phase was undertaken for the purposes of triangulating the collected data. In the mixed methods phase, a modified Delphi method collected three rounds of quantitative questionnaire data with embedded qualitative data to facilitate multiphase data validation (Creswell, 2014; Creswell & Plano Clark, 2011).

In phase two, the modified Delphi method was used to ascertain priorities, and to assist in forecasting and shaping a consensus of the concepts

of academic libraries, related skills and literacies, and lifelong learning, within the context of higher education for academic staff. Concurrent quantitative and qualitative data collection in this phase was used to explore the required and potential responses of academic libraries and lifelong learning opportunities in relation to the provision of support, personal opportunities, and individual ownership, in the current context of higher education institutions. The rationale for collecting both quantitative and qualitative forms of data was to bring together the strengths of both forms of research to validate the results informed by phase one, and to explain their conditions and ramifications.

The application of the ‘explanatory’ phases (Creswell, 2014; Creswell & Plano Clark, 2011) used for the third QUAL and fourth QUAL phases of the study, involved the collecting of qualitative data after the mixed methods phase, to explain or follow up on the quantitative data in greater depth. In the second phase of the study which emphasised quantitative data, the modified Delphi method ranked, refined and prioritised data derived from the appraisal of a panel of experts, academic staff participants, to establish prioritisation, forecasting, and consensus on the key concepts of academic work, academic libraries, and lifelong learning opportunities and support, within the context of higher education. The ensuing qualitative third and fourth phases was conducted to explain the findings of the modified Delphi method and provide a platform for participants to present a personal dimension to the study. In these exploratory follow-up phases, the provision of support, personal opportunities, and individual ownership, in the context of higher education institutions, was explored with academic staff. The reason for the exploratory follow-up phases, comprising a series of two focus groups in phase three and five lifelong learning personal lenses in phase four, was to engage with the personal and individual dimensions of the central concept areas, as well as the organisational properties of HEIs.

The internal validity of this mixed methods approach was demonstrated in the design structure which emphasises the dependent relationship between quantitative and qualitative data (Creswell, 2003, p. 221). The analysis of phase one qualitative data informed the collection of phase

two quantitative data, and in turn, the analyses of phase two quantitative data refined and explained the qualitative findings. Figures 3.3, 3.4, and 3.5 illustrate the structures, sequences and connections between phases, methods, and data. Creswell (2014, p. 230) describes this strategy as the ‘connected’ technique for mixed methods integration. The subsequent collection of phase three and four qualitative data was prioritised by the phase two quantitative findings. The analysis of phase three and four qualitative data culminated in findings that are derived from the enmeshment of qualitative and quantitative data.

Instrumentation

In order to address the aims of this study a four-phase design was developed. As noted earlier, an evolutionary epistemology and the meta-theoretical perspectives of Popper (Popper, 1972, 1973 [1966], 1974, 1974 [1966], 1994a, 1994b, 1995 [1959]) and Johnson and Onwuegbuzie (2004), informed the four-phase design. The study adopted a mixed method approach to data collection and analysis informed by the writings of Creswell (Creswell, 1994, 2003, 2005, 2007, 2013, 2014) and his collaboration with Plano Clark (2007, 2011).

The multiphase mixed methods research was designed in a sequential structure (Creswell, 2003, p. 16) consisting of four phases of data collection and analysis. These consisted of: phase one semi-structured interviews; phase two modified Delphi method; phase three focus groups; and phase four lifelong learning personal lenses. Data collected in the first phase were used to inform the development of the instrument for the second phase of data collection. The data collected from the second phase were in turn used to inform the development of the instrument for the third phase of data collection. The accumulated data syntheses of the first, second and third phases of data collection were used to inform the development of the instrument for the fourth phase of data collection.

Illustrated in Figure 3.6 is the sequence, connection, and informed development of the data collected and analysed from the semi-structured interviews in the first phase; the Delphi technique in the second phase; the focus groups in the third phase; and the lifelong learning personal lens interviews in the fourth phase.

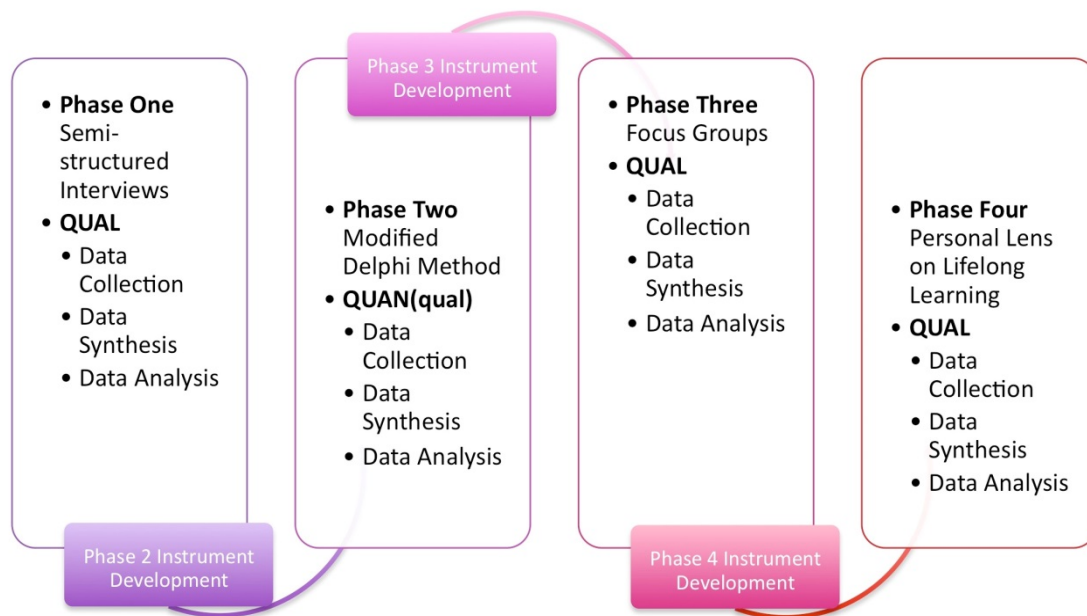


Figure 3.6. Mixed methods model of data collection and analysis.

This study has made use of a range of qualitative and quantitative research methods. A series of preliminary semi-structured interviews were conducted to explore the key subject matter and incorporate the range of conceptualisations of the subject matter by participants. The analysis of these data was used to inform and develop the subsequent research instruments. Central to the design of data collection was the incorporation of the modified Delphi Method. The specifically modified Delphi method combined the use of questionnaires, qualitative content analysis and quantitative measurement and Likert scaling to refine and validate the data collected. On completion of the application of the Delphi questionnaires, two focus groups were conducted to prioritise, explain, and elaborate upon the findings of the second phase of data collection and analysis. The documentation of five lifelong learning personal lenses in the fourth phase of data collection aimed to explain further the

tentative findings of the previous phases from the personal perspective of academics.

Phase 1: Semi-structured Interviews

Semi-structured interviews were identified as the research method to primarily identify and respond to the conceptualisations of the subject matter of the study by participants. Gray (2004, p. 214) proposes that interviews employed as a data-gathering research method are able to give participants the “opportunity to reflect on events without having to commit themselves in writing”. This is of particular significance when the subject matter may be personally revealing or confidential. The semi-structured format allows a degree of flexibility for both the participant and the researcher to probe and expand upon topics that may not have been initially incorporated.

In the first phase of data collection a purposive sample of participants was approached with a letter of introduction setting out and explaining the focus of the research project, the intended aims and the methods of the study. A second letter of introduction accompanied this letter from my PhD supervisors, a formal letter of invitation to participate and a consent form. The receipt of the signed consent form confirmed participation for this phase of the study. The interview questions (shown in Appendix B) set out to explore the key concepts of academic libraries, literacies and lifelong learning as they related to the selected interviewees and their experiences of the changing context of academic work. Interviewees were asked to examine and identify the principal elements of the changing nature and requirements of their academic work pertaining to lifelong learning.

The conduct of interviews was informed by Gray’s (2004, pp. 222-226) techniques for conducting interviews, including: preparation, preliminaries (outline purpose), building rapport, impression management, use of language, maintaining control, improvising, questioning technique, active listening, observing, testing and summarising understanding. This technique also emphasises the importance of closing the interview “with a positive sense

of achievement” (Gray, 2004, p. 226) shared by both the participant and the researcher. The application of this technique was important due to the length of duration of four-phases of data collection and the possibility of participants contributing to multiple phases of the study.

Interviewees were encouraged to guide the process of the interview, in order to establish the aims of ensuring a shared contribution, shared vocabulary and to elaborate upon their personal interests and concerns (Gray, 2004). The phase one semi-structured interview findings were analysed and presented in terms of their response to the key questions and concepts examined. Informed by Gray’s interview techniques, the tentative findings were organised and interpreted individually, based on each participant’s perceptions of the key concepts.

The interviews conducted during the first phase of data collection were analysed to better develop the research instruments for use in the modified Delphi method. Interview data were analysed in order to represent the range of views significant to the key concepts and the context of the study. The first phase facilitated the appropriate pitch, frame, and scope to be applied to the Delphi questionnaires and following methods of data collection. Qualitative content analysis of the interview data resulted in the identification of the factors for the Delphi questionnaire. Synthesis of the interview data was refined and generalised to appeal and apply to a broader range of academic staff. The tentative findings were collapsed for organisation and classified into three thematic hierarchical groups. Based on participants’ conceptualisation of the subject matter of the study, the three thematic hierarchical groups were: academic work; academic libraries; and lifelong learning. The ‘academic work’ group encompassed factors related to higher education, HEIs and the academic work facets of teaching, research, administration, service, and community engagement. The factors in the ‘academic libraries’ group related to the facilities, resources, staffing and learning opportunities in academic libraries. The ‘lifelong learning’ group factors detailed a broad range of learning opportunities with an emphasis on long-term learning needs.

The tentative findings from the first phase of data collection and the proposed Delphi instruments were presented at the conference of the Standing Committee for University Teaching and Research Education Association (SCUTREA) at Warwick University in the UK in 2010. The aim of this presentation was to extend the international reach of my thesis and to ensure that the research was abreast with the latest developments in the field. The presentation of this conference paper facilitated discussion with the delegates to identify their reactions to the proposed Delphi instrument, revise challenged or contested conceptualisations, and enquire about their international relevance. Additionally, tentative findings were also presented to senior librarians at Cambridge University for consultation during my time as a visiting PhD student. Feedback was received from five senior librarians from: Cambridge Judge Business School; Faculty of Education Library; Faculty of Divinity Library; and the Cambridge University Library. These meetings further informed the design of the questionnaire with additional modifications to respond to considerations including developing international external professional challenges; international internal managerial evidence procedures; and international internal managerial experiences. These exchanges enhanced my ability to reshape the research conducted in the Australian setting to maintain relevance and pace with international developments.

Phase 2: The Modified Delphi Method

In phase two a modified Delphi method informed by the tentative findings from the first phase of the study was used. The Delphi technique combines the research methods of questionnaires, content analysis, measurement, and scaling. The combination of these methods contributed to the identification of literacies to which academic staff are accustomed, in which they have personal confidence, and through which they can demonstrate capacity. The modified Delphi technique was designed by Dalkey and Helmer (1963) with further development and improvements proposed by Delbecq, Van de Van, and Gustafson (1975). The application of a modified Delphi method in this study incorporated the recommendations and accomplishments

from the literature within the design (Barnette, Danielson, & Algozzine, 1978; Bodish-Lynch, 1983; Burns, 2000; Eggers & Jones, 1998; Franklin & Hart, 2007; Hilbert, Miles, & Othmer, 2009; Keeney, Hasson, & McKenna, 2011; Loo, 2002; McMillan & Schumacher, 2006; O'Neill, Scott, & Conboy, 2010; Okoli & Pawlowski, 2004; Skulmoski, Hartman, & Krahm, 2007).

In the application and analysis of the Delphi questionnaire technique it was essential to maintain the perspective that this was a component of a multiphase mixed method design. Therefore, a modified Delphi method was identified as fit for purpose within this design. In a modified Delphi method, questionnaires are informed by the existing literature or formulated using focus groups or interviews (as adopted in this study). The Delphi panel itself does not participate in an open-ended first round to assemble a list of concerns to critique and prioritise (Keeney et al., 2011, p. 83).

The Delphi method is self-auditing, whereby the content provision, analysis and revision process also serve to continuously validate and refine the collected data. Within the multiphase mixed method design, as the second of four methods, it was essential to maintain the integrity of this mixed methods composition. Thus, the validity of the sequence of collection, integration of data between qualitative and quantitative, and back to qualitative, and the progressive evolution of data collected to inform the instruments for the next phase of data collection has been assured and maintained. Keeney et al. support the application of the Delphi method within a mixed method composition (2011, p. 30) to address criticisms of the method, such as concern regarding the volume of questions and identification of *expert* participants. The Delphi method in itself is designed to prevent researcher bias, single participant dominance, and subsequently “the bandwagon effect” (Barnette et al., 1978).

This quantitative approach adds to, and refines, the control and precision in which the research can be conducted (Burns, 2000), and questionnaires allow researchers asynchronously to collect a credible and large volume of structured data in a comparatively small amount of time (McMillan

& Schumacher, 2006; Thomas, 2003). The design of questionnaires establishes focus, whilst blending the acquisition of facts and/or opinions, and facilitates participation with the use of Likert scale answers making completion easier for participants. Likert scale use for ranking responses also minimises the amount of data processing required prior to analysis. A four-point Likert scale was used in the modified Delphi method to eliminate the neutral middle point response, thus emphasising the identification of priority factors by the panel (Brill, 2008; Fabrigar & Wood, 2006). The use of an electronic medium is recommended for contemporary use of the Delphi method to facilitate a quicker turn-around time between rounds (Franklin & Hart, 2007; Okoli & Pawlowski, 2004). Electronic medium use presents no bias to the study as the research questions are conceptually and contextually informed by the impact of technology (Franklin & Hart, 2007; Okoli & Pawlowski, 2004). The use of a method unbounded by participants and researchers time zones and geography, and unburdened by the resources and finances required by other face-to-face means of data collection, is shown to enhance participation by Hilbert et al.'s (2009) application of the Delphi technique.

The Delphi approach utilized in phase two is informed by the literature from disciplines related to this study, as follows:

- Librarianship (Busha & Harter, 1980);
- Strategy and Management (Loo, 2002);
- Information Systems (Okoli & Pawlowski, 2004);
- Education (Barnette et al., 1978; Eggers & Jones, 1998; O'Neill et al., 2010);
- Education Policy (Franklin & Hart, 2007);
- Educational Technologies (Dillon-Marable & Valentine, 2006);
- and
- Policy Priorities Delphi Method (PPDM) (Hilbert et al., 2009).

The use of the modified Delphi method helped to structure and guide academic staff in sharing their expert opinions as they considered and

evaluated the concepts central to this thesis across a range of faculties and disciplines at the research site. The collaboratively structured dialogue and subsequent reflection of experts within an anonymous environment, furnished this study with essential internal data, in areas such as individual, personal and organisational subtleties of motivation, perception and application. In addition, the modified Delphi method offered individuals and the group an opportunity to reflect on the discrepancies between actual, believed, and ideal behaviours, made more effective by the ranking exercise to reveal both precedence and preference.

The modified Delphi method uses a repetitive, iterative process. Data were obtained from individual participants who were unknown to each other. There followed an internal data synthesis process, which combines, collapses and de-identifies the data. The data were then returned to the participants for further refinement. This process continues, guided by the predetermined analysis target, until consensus is reached or dissension eliminates error. Figure 3.7 presents this process identified by the questionnaire rounds and the objective of each round. Round one aims to refine the range of Delphi factors with ranking; round two aims to rate the number of Delphi factors with scaling; and round three aims to rank the remaining Delphi factors with prioritising.

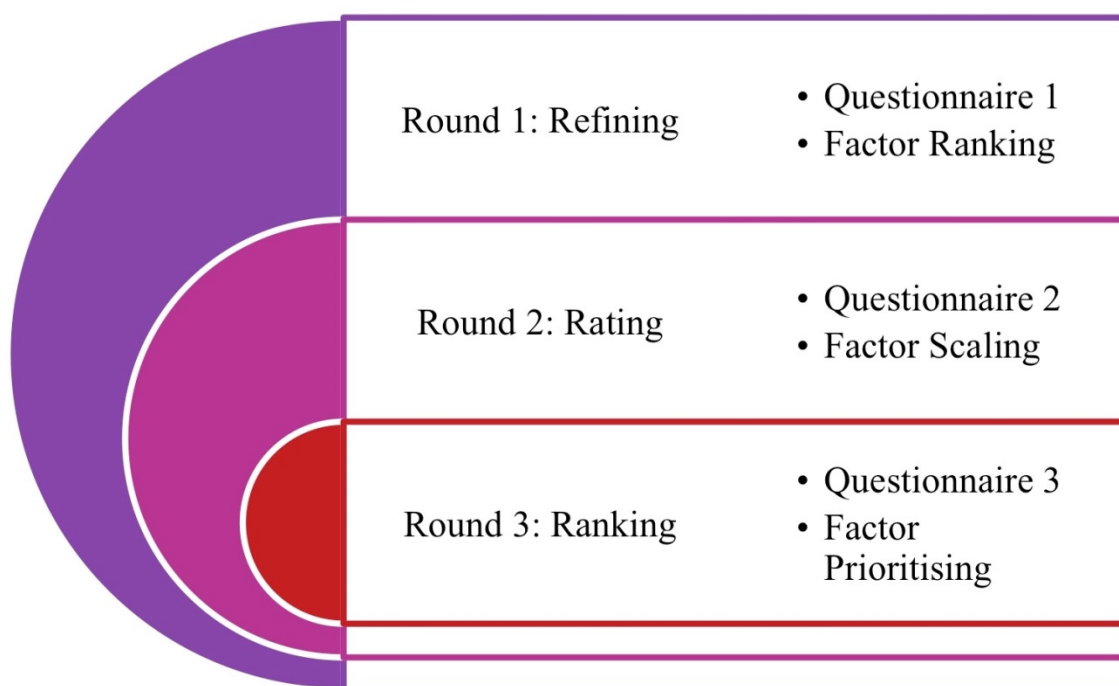


Figure 3.7. Modified Delphi Method procedure.

The design of the three-round modified Delphi method instrument (shown in Appendix C) was based on the tentative findings from the first phase of data collection to inform the appropriate scope, frame, and pitch of the Delphi factors. The Delphi questionnaire was arranged to correspond to the three thematic groups identified within the interview transcripts, with twelve factors present for each thematic category. Participants collaborating in the modified Delphi method were requested to complete several questionnaires and were given the option to write short to medium length descriptive answer responses, with the captured data analysed and applied to the next iteration. The questionnaire factor rating scale used ranged from 1= *High Significance* or *High Importance* to 4= *Not at all Significant* or *Not at all important*.

The Delphi method pays attention to ethical considerations and lays down prescriptions for ensuring the anonymity of participants both during and after the data collection has been completed. Coding and pseudonyms are used

for all data wherever possible, along with maintenance of the researchers' subordinate role, as prescribed by the Delphi Method.

The application of the Delphi technique in this study has incorporated the recommendations and accomplishments from the literature within the design. Key circumstances for assuring the accuracy of the method and participant performance included in the design are namely:

- the active role of the research supervisors in the provision of a letter accompanying the researcher's letter of invitation and introduction (Eggers & Jones, 1998),
- acknowledging the significance of group dynamics in the composition and selection of Delphi panel participants (Keeney et al., 2011; O'Neill et al., 2010; Okoli & Pawlowski, 2004),
- the participation motivation and incentive of a summary of analysed research outcomes upon completion (Eggers & Jones, 1998; Loo, 2002),
- use of an electronic medium (Franklin & Hart, 2007; Okoli & Pawlowski, 2004),
- maintaining contact with participants between questionnaire rounds (Franklin & Hart, 2007),
- definition of constructs, creation of a common language for discourse, and identification of causal conceptual relationships (O'Neill et al., 2010; Okoli & Pawlowski, 2004),
- use of the technique to generate research priorities and not to form consensus (Keeney et al., 2011, pp. 30, 81; Skulmoski et al., 2007), and
- establishing a predetermined target for data analysis (Keeney et al., 2011).

The Delphi method, and its various adaptations such as the modified Delphi method, all contain and conform to the fundamental design principles of a democratic, participative, resource efficient, transparent, confidential, anonymous, forecasting and decision analysis/making tool that is informed by

expert opinions (Barnette et al., 1978; Busha & Harter, 1980; Dillon-Marable & Valentine, 2006; Eggers & Jones, 1998; Franklin & Hart, 2007; Hilbert et al., 2009; Loo, 2002; Okoli & Pawlowski, 2004). The Delphi method demonstrates the combined benefits of the control and precision of quantitative research methods and the reliability and validity of qualitative methods research (Burns, 2000; McMillan & Schumacher, 2006). This design approach to achieve these combined benefits is encouraged by Bodish-Lynch (1983, p. 464), who states: “evaluators should consider non-traditional mixes of inquiry, data, and methods when these could yield information unobtainable by more conventional approaches to evaluation”. This study responds to this advice and aims to advance the notion in the design of a mixed methods approach.

The Delphi Method deconstructed consists of multiple rounds of questionnaires during which data are collected and analysed by means of internal validity assessments that include participant review and checking, verbatim accounts, and multiple method strategies (McMillan & Schumacher, 2006, p. 324). The Delphi Method is designed with method triangulation (mixed methods), source triangulation (inclusion of stakeholders), and theory and perspective triangulation (cross-faculty expert participants from across a range of appointments) for the greatest validity potential. Similarly concerns for scientific integrity have shaped the research design with the simultaneous collection of qualitative data, recorded in the comments column, and quantitative data, recorded by the use of the Likert-scale within the questionnaire rounds. Moreover, intrinsic to this method is the embedded strategy of analytical triangulation within the three interior questionnaire rounds. On the virtue of analytic triangulation, Patton (1990, p. 468) contends that “evaluators can learn a great deal about the accuracy, fairness and validity of their data analysis by having the people described in that data analysis react to what is described”. The modified Delphi method in this study facilitates the three instances of analytic triangulation, of method, source, and theory and perspective, by participants.

Phase 3: Focus Groups

For the third phase of this study, the group interview technique of Gray (2004) was employed to address the tentative findings from the modified Delphi method. This focus group technique is similar to the semi-structured interview format of the first phase, with modifications to incorporate the use of an instrument shown in Appendix D. The focus groups instrument was informed by the preceding phases of data collection and analysis. The instrument was designed to elicit conversation and provide participants with an additional opportunity both to elect and eliminate contradictions between attitudes and behaviours identified in relation to the central concepts of academic libraries, literacies, and lifelong learning.

The third phase of the study consisted of two focus groups with a total of five participants who discussed five pairs of correlated themes identified from the data synthesis and analysis of the Delphi questionnaires. The relationship between paired factors from the modified Delphi method was presented for discussion and elaboration from two differing perspectives, one an emphasis on library service provision and the second an emphasis on lifelong learning opportunities. Content analysis of focus group data was conducted separately in the first instance, followed by a process of synthesised and accumulative analysis to summarise the phase and contribute to the sequential analysis techniques of the study. The overarching procedure for data analysis was characterised by an emphasis on the thematically and conceptually ordered synthesis of the perceptions and perspectives of academic staff participants.

Phase 4: Personal Lenses on Lifelong Learning Interviews

The research method in the fourth phase of this study facilitated the construction of personal lenses on lifelong learning. A narrative approach was selected for the purpose of “capturing the lived experiences of participants” (Gray, 2004, p. 341). It is for that reason that Gray (2004) cites extensive use of this research method in studies of the life of organisations and in education.

The form of the qualitative narrative is additionally informed by Creswell's (1994, p. 159) outline of "the realist tale, a direct, matter-of-fact portrait without information about how the Field-worker produced the portraits".

This phase comprised semi-structured interviews on the thematic category of lifelong learning to establish a personal lens of each participant. The lifelong learning personal lenses were designed within the research process to encourage further richness of data collected from a qualitative approach. The personal lens on lifelong learning instrument, a semi-structured set of guiding interview questions, shown in Appendix E, was informed by the tentative findings of the three previous phases. Potential participants were invited to narrate their conceptualisation of their personal history of lifelong learning. To facilitate the sharing of participants' personal lens on lifelong learning a semi-structured interview was conducted using the technique of Gray (2004) to explore these key concepts.

Participants

A total of 43 academic staff participated in this study. The first phase comprised eight participants, phase two comprised 25 participants, the third phase comprised five participants, and phase four comprised five participants. Academic staff were invited to participate in multiple phases of the study however, this proposal was only taken up by two participants. The purposive sample of participants encompassed females and males; professors, associate professors, senior lecturers and lecturers; an age range of academic staff over 65 to under 30 years; and sessional contract part-time and continuing full-time employment. A range of numerical pseudonyms has been applied to ensure the anonymity of participants throughout the four phases of the study (Cohen et al., 2011, p. 91; Creswell, 2013, p. 173), for example *Primus*, *Secundus*, *Treis*, and *Tessares*.

All participants voluntarily, and with informed consent, chose to contribute to this research. This study was approved by the Human Research

Ethics Committee (HREC) of Australian Catholic University and assessed as presenting *negligible risk* to participants. Participants were informed during each phase of this study of their ability to revoke consent and withdraw their contribution at any time should they desire. Participants were also reminded of the Employee Assistance Programme (EAP) provided by the University, in the event that they required a referral for counselling or other appropriate support.

Collection of the Data

The sequential procedure (Creswell, 2003, p. 16; 2014, p. 230) for the collection of research data was initiated with semi-structured interviews (N=8) in the first phase of the study. The second phase, which employed a modified Delphi method, collected data from a larger sample of participants (N=25). Data collection in the third and fourth phases, was gathered from focus groups (N=5) and personal lens interviews (N=5).

The collection of data was conducted across a range of faculties and disciplines at the research site, 'Glendalough' University. Academic staff participated in the study and data were analysed using a range of qualitative and quantitative methods facilitated by SPSS (IBM, 2009) and NVivo (QSR International, 2008) data analysis software packages.

For the first phase of the study, eight semi-structured interviews were conducted between December 2009 to February 2010. Interviews were conducted in the offices of participants, and were recorded for professional transcription. Field notes were also taken by the researcher at the time of the interview and after the interview.

Twenty-five respondents volunteered to form the Delphi panel of participants for the second phase of this study. A Delphi questionnaire distribution schedule was devised for this phase of data collection. The modified Delphi method administered between January and May 2011. Participants were initially directed to an Excel format questionnaire to be

completed and submitted in an electronic format, which was redesigned in a paper-and-pen format at the request of the Delphi panel.

The third phase of the study comprised two focus groups that were conducted in May 2011 in a ‘neutral’ office space at the research site. The focus groups were recorded for professional transcription and field notes were also taken at the time of the group discussion and immediately afterwards.

Five personal lens on lifelong learning semi-structured interviews were also conducted in May 2011 for the fourth phase of the study. Potential semi-structured interview questions were developed initially to introduce the subject matter, to facilitate discussion, and build rapport. Interviews were conducted in the offices of participants and were recorded for professional transcription. Field notes were also taken at the time of the interview and immediately afterwards.

Analysis of the Data

The approach to analysis of qualitative data applied throughout the four phases of this study was the content analysis techniques of Miles and Huberman (1994). Their qualitative data techniques have been identified by Phillips (1999, pp. 181-182) as compatible with a Popperian epistemology in the application of their refutation tactic of “looking for negative evidence”. This approach was consistent with the aims of the research and aligns with the context described by Miles and Huberman of “trying to solve an unstated or ambiguous problem, which has to be framed and reframed as we go” (p. 91). The exploratory mode of framing and reframing was applied throughout both the data collection and analysis of this study as depicted in Figure 3.8.

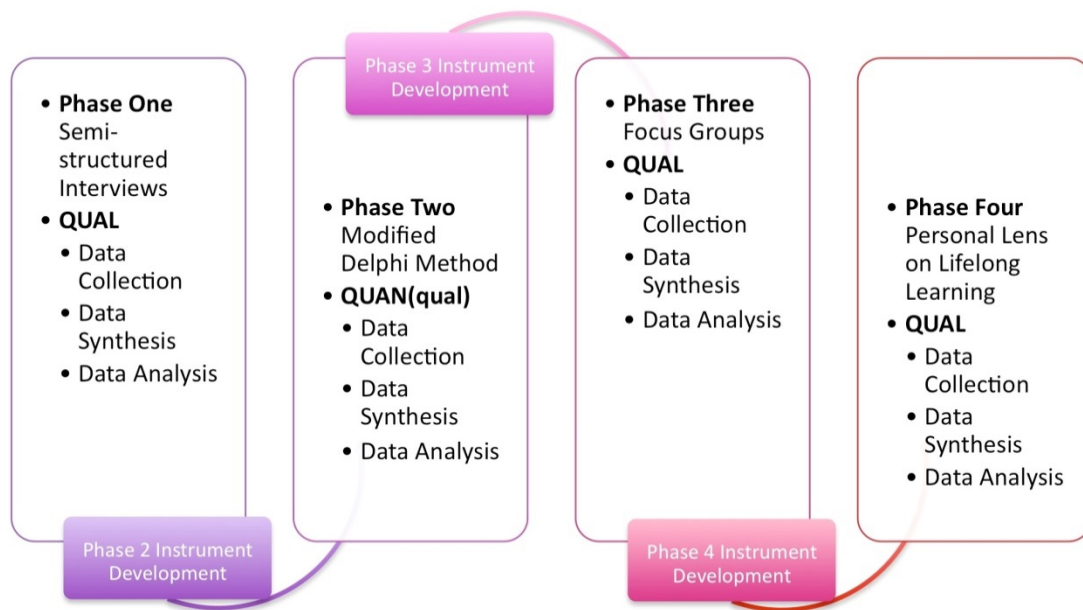


Figure 3.8. Overview of analyses.

The 13 specific tactics for the content analysis of qualitative data as identified by Miles and Huberman (1994, pp. 245-246) were applied as illustrated in Figure 3.9.

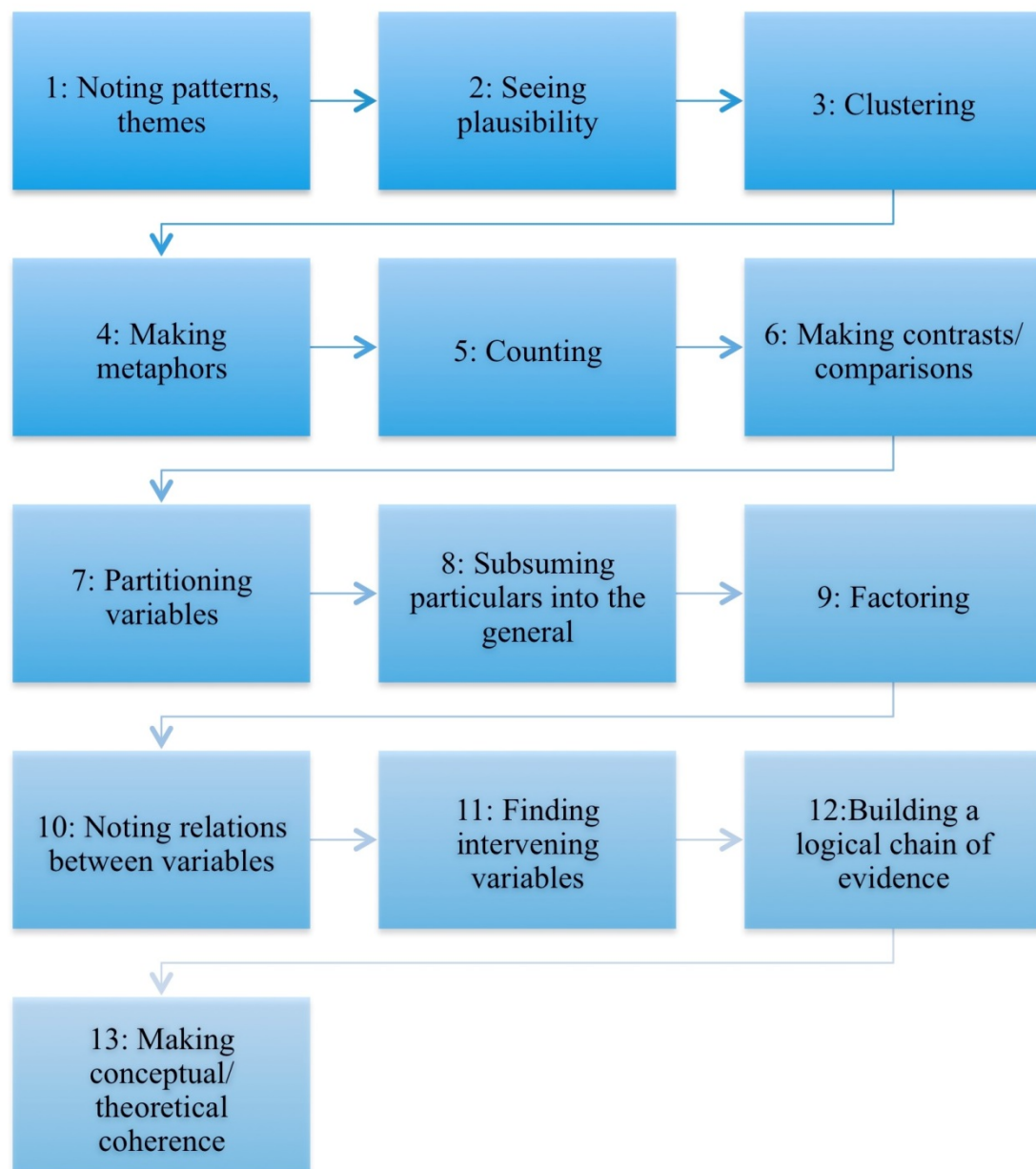


Figure 3.9. 13 specific tactics for the content analysis of qualitative data derived from Miles and Huberman's (1994, pp. 245-246).

Detailed in Table 3.1 are the procedures conducted in this study for each of the *13 specific tactics for the content analysis of qualitative data*.

Table 3.1. Miles and Huberman's (1994) procedures of the 13 tactics for content analysis of qualitative data

Tactic	Procedure
1. Noting patterns, themes	<p>“Affixing codes, noting reflections, sorting and sifting materials to identify similar phrases relationships patterns common sequences and distinct differences” (p. 9)</p> <p>“patterns of variables involving similarities ... patterns of processes involving connections in time and space within a context” (p. 246)</p>
2. Seeing plausibility	<p>“a conclusion is plausible”, “makes good sense”, “fits” (p. 246)</p>
3. Clustering	<p>“data reduction refers to the process of selecting, focusing, simplifying, abstracting, and transforming the data that appear in written-up field notes or transcriptions: (p. 10)</p> <p>“dealing with a specialised population” (p. 247)</p>
4. Making metaphors	<p>“Exploring, scanning, ordering, reviewing, selecting” (p. 248)</p> <p>“metaphors, seen as one major type of trope or literary device, involve comparing two things via their similarities and ignoring their differences ... they are data-reducing devices” (p. 250)</p> <p>“pattern-making devices ... excellent decentering devices ... finally metaphors or analogies are ways of connecting findings to theory” (p. 252)</p>
5. Counting	<p>“Happens a number of times; consistently happens in a specific way; based on counting. When we say something is “important” or “significant” or “recurrent”, we have come to that estimate, in part, by making counts, comparisons, and weights” (p. 253)</p>
6. Making contrast / comparisons	<p>“draw a contrast or make a comparison between two sets of things – persons, roles, activities, cases as a whole – that are known to differ in some other important respect ... the <i>practical</i> significance is what you need to access” (p. 254)</p>
7. Partitioning variables	<p>“data reduction is a form of analysis that sharpens, sorts, focuses, discards, and organises data in such a way that “final” conclusions can be drawn and verified” (p. 11)</p> <p>“percentage of use”; “Trust your “plausibility” intuitions, but don’t fall in love with them” (p. 247)</p> <p>“qualitative data analysis is toward integration”; “there are many times when differentiation is more important than integration” (p. 254)</p>
8. Subsuming particulars into the general	<p>“Qualitative data can be reduced and transformed in many ways: through selection, through summary or paraphrase, through being subsumed in a larger pattern, and so on” (p. 11)</p> <p>“there must be a clear linkage to the study’s conceptual framework and research questions” (p. 256)</p>
9. Factoring	<p>“hypothesising that sound disparate facts are all words and do something in common or are something in common” (p. 256)</p>
10. Noting relations between variables	<p>“isolating patterns and processes commonalities or differences, collaborating a small set of generalisations, confronting generalizations” (p. 9)</p> <p>“The basic analysis tactic here involves trying to discover what sort of relationship – if any – exists between two (or more) variables. The important thing to keep in mind is that we are talking about <i>variables</i>, concepts, not necessarily specific acts or behaviours” (p. 258)</p>
11. Finding intervening variables	<p>“It often happens during analysis that two variables that “ought” to go together according to your conceptual expectations, or your early understanding of events in the case have only a tepid or inconclusive relation” (p. 258)</p>
12. Building a logical chain of evidence	<p>“You construct this evidential trail gradually, getting an initial sense of the main factors, plotting the logical relationships tentatively, testing them against the yield from the next wave of data collection, and modifying and refining them into a new explanatory map, which then gets tested against new cases and instances. This is the classic procedure of analytic induction” (p. 261)</p>
13. Making conceptual / theoretical coherence	<p>“We need to tie the findings of our study to overarching, across-more-than-one-study propositions that can account for the “how” and “why” of the phenomena under study” (p. 261)</p>

The content analysis terminology used in this study was informed by Bazeley's (2007) qualitative data analysis technique for the NVivo computer software (QSR International, 2008). Across the phases of this study, the mode of analysis encompassed manual or hand sorting and analysis facilitated by NVivo. NVivo models and graphs, such as visualisations of tree maps and cluster analysis, were trialled during phase one. However, during this early phase, such analyses made little contribution to the development of the modified Delphi method questionnaire instruments, and were not used in the study proper. For the purpose of consistency in this study, a set of terms was applied throughout the four phases of the study. The equivalence between the qualitative analysis approach of Miles and Huberman (1994) and the terminology of Bazeley (2007) is outlined by a definition of terms. Table 3.2 sets out a definition of the terms of analysis applied in this study:

Table 3.2. Definition of the terms of qualitative data analysis

Term	Definition
Open-coding	The tentative application of codes during the process of applying Miles and Huberman's 13 specific tactics for the content analysis of qualitative data (1994, pp. 245-246).
Closed-coding	The outcome resulting from the procedures for testing data quality and confirming findings in 13 tactics (Miles & Huberman, 1994, pp. 263-275).
Codes Sub-codes	Following the identification of closed-codes, these entities are distinguished as <i>codes</i> and <i>sub-codes</i> . For the most part for this multiphase mixed methods study, <i>codes</i> and <i>sub-codes</i> indicate a <i>developing</i> or <i>tentative theme</i> in the data analysed. The theoretical approach of Popper (1972, 1974) and philosophical approach of Wittgenstein (1967 [1953]) have informed the rigorous disputation of <i>tentative themes</i> until accumulative analysis is conclusive in Chapter Eight and Chapter Nine of this thesis.
Memoing	A discrete process of "building a logical chain of evidence" and "making conceptual/theoretical coherence". These two tactics were repeated from Miles and Huberman's 13 tactics for drawing meaning from a particular configuration of data in a display, applied during the preliminary open-coding process (1994, pp. 245-246).

Qualitative data display techniques of Miles and Huberman (1994, p. 11) were explored to best represent the findings, described as “you know what you display” in the clear, concise, arrangement of analysed data. Identified for the presentation of data analysis was the ‘within-case display’ approach (Miles & Huberman, 1994, p. 90) developed for the exploration and description of qualitative data. The ‘within-case display’ approach selects and tests for accurate descriptive conclusions about the research concepts within the contextual situation of the study to form a single ‘case’ (p. 90). For the purpose of this study, the current context of higher education institutions comprised the ‘case’ within which the concepts were explored and displayed.

The ‘within-case display’ of the process and presentation of analysed data was conceptually ordered in a matrix format. Miles and Huberman define conceptually ordered matrices as presenting conceptual coherence with “rows and columns arranged to bring together items that ‘belong together’” (1994, p. 127). The identification and arrangement of items that ‘belong together’ follow the empirical method in that “during early analysis you may find that informants answering different questions are tying them together or are giving similar responses” (Miles & Huberman, 1994, p. 127).

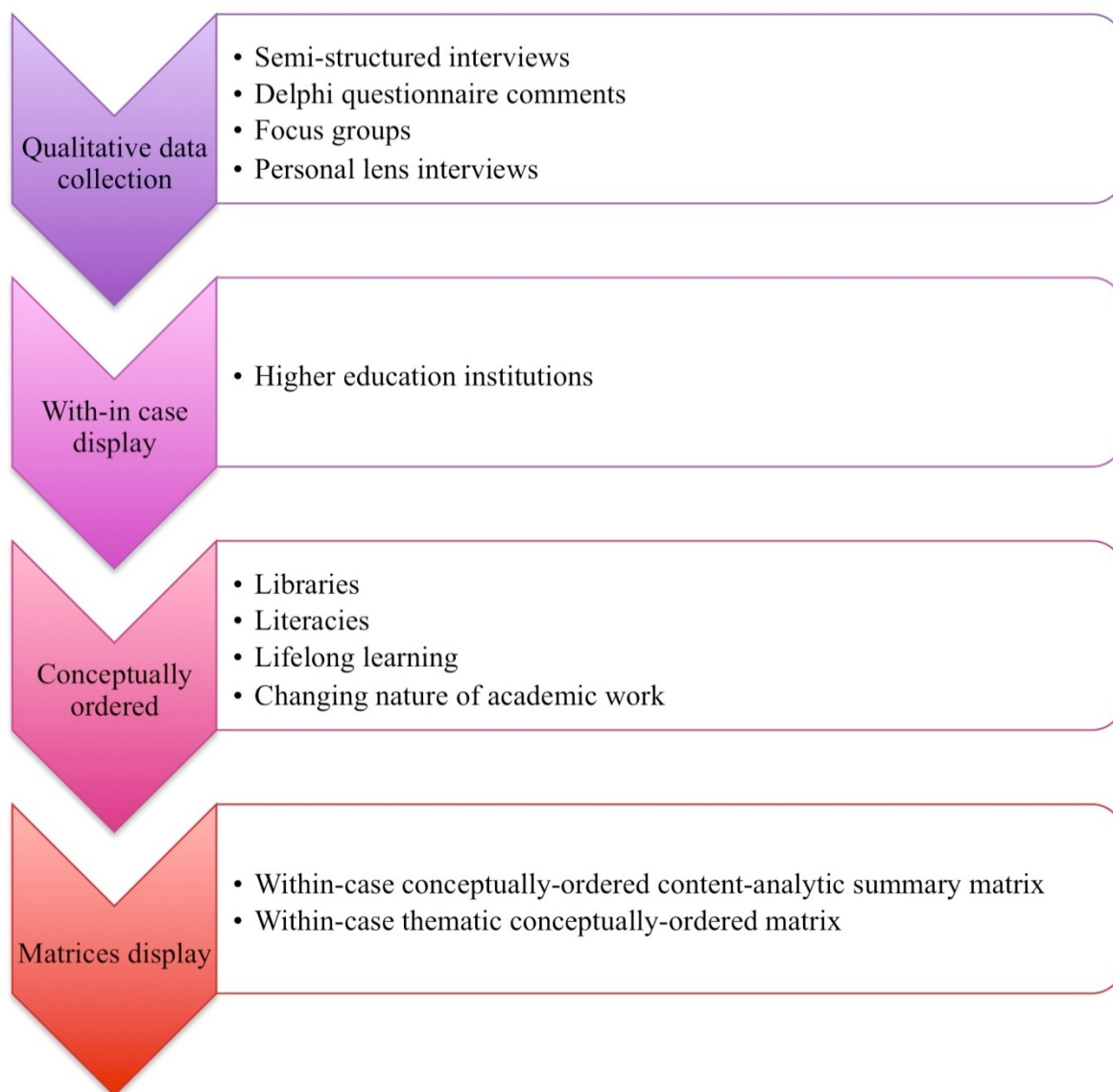


Figure 3.10. Qualitative data analysis and display procedure.

Figure 3.10 describes how the two matrix formats of a ‘conceptually ordered within-case display’, shown at the bottom of the figure, have been used for the presentation of analysed data in this study. Qualitative data from the first, second, third and fourth phases of the study are read down the column to give a ‘conceptually ordered content-analytic summary’ of a key concept area. ‘Conceptually ordered content-analytic summary’ matrices do not reference the case or participants of the study in order to direct the focus on the conceptual content (Miles & Huberman, 1994, p. 183). Qualitative data from the fourth phase of the study are also displayed in a ‘thematic conceptually ordered matrix’ that is read down the column to give a miniature

personal lens of each participant. Reading across the ‘thematic conceptually ordered matrix’ rows facilitates making comparisons and noting relations between participants. Both matrix formats make consistent use of the reduction of text into codes and labels, supply representative quotations to ground the analysis, and provide summary phrases or memoing for explanation (p. 129). In Figure 3.11 details of the qualitative data display matrices employed to present the analysed data are shown.

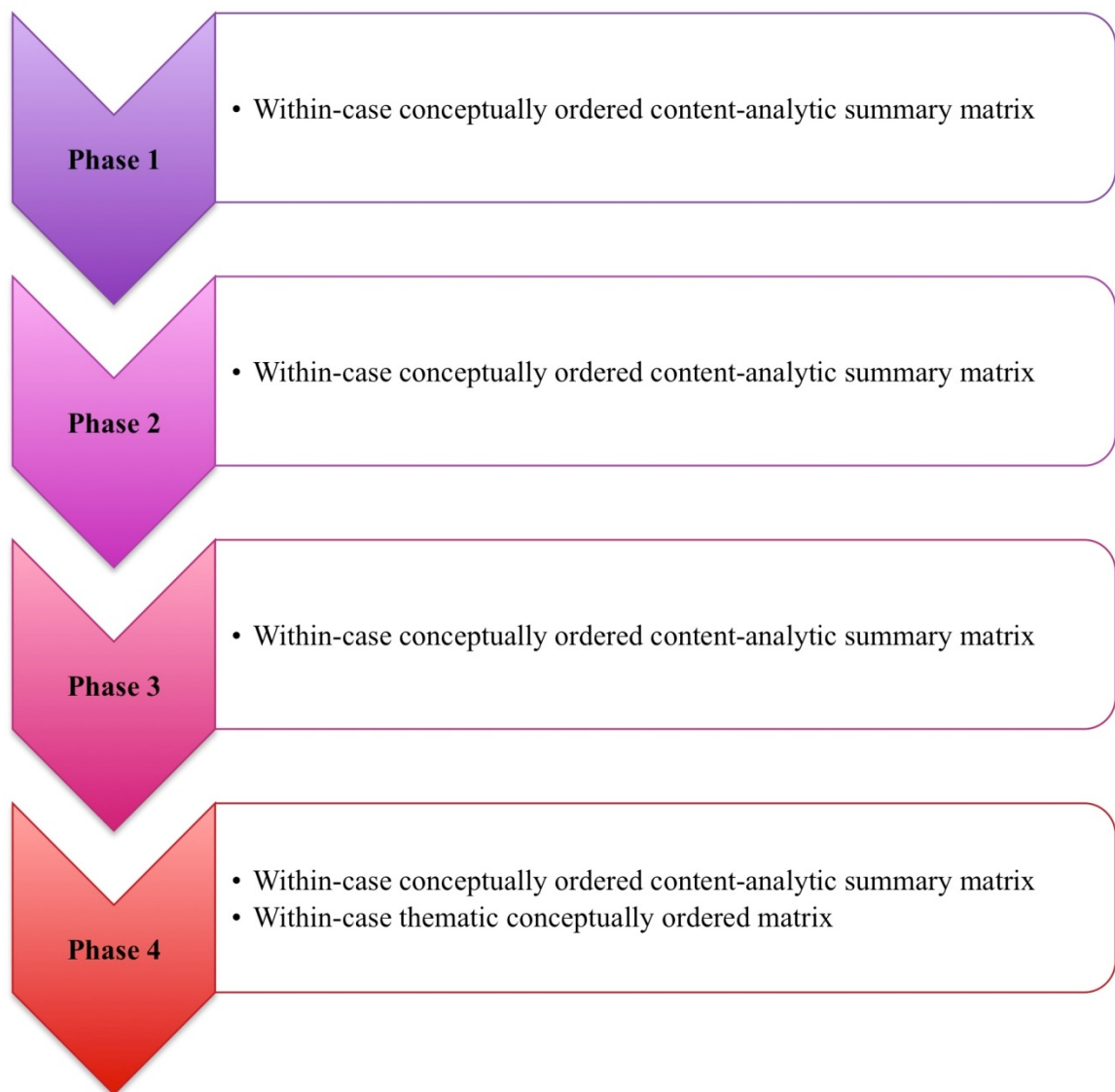


Figure 3.11. Qualitative data display formats.

Quantitative analysis in the second phase of the study used the software SPSS (IBM, 2009). Data collected from the modified Delphi method

were analysed to produce descriptive statistics of the participants and summary statistics of two of the three rounds of the questionnaires. The third round questionnaires were analysed for summary statistics with the objective of identifying factors that could help towards achieving a consensus rate of 75%, the nominated valid per cent of combined high and medium significance or importance (Keeney et al., 2011). Statistical analysis was performed to develop the focus group instrument as a non-parametric procedure, using Spearman's rank order correlation coefficient (i.e., Spearman's rho) of five pairs of variables. Figure 3.12 illustrates the quantitative data analysis procedure for the second phase of this research.

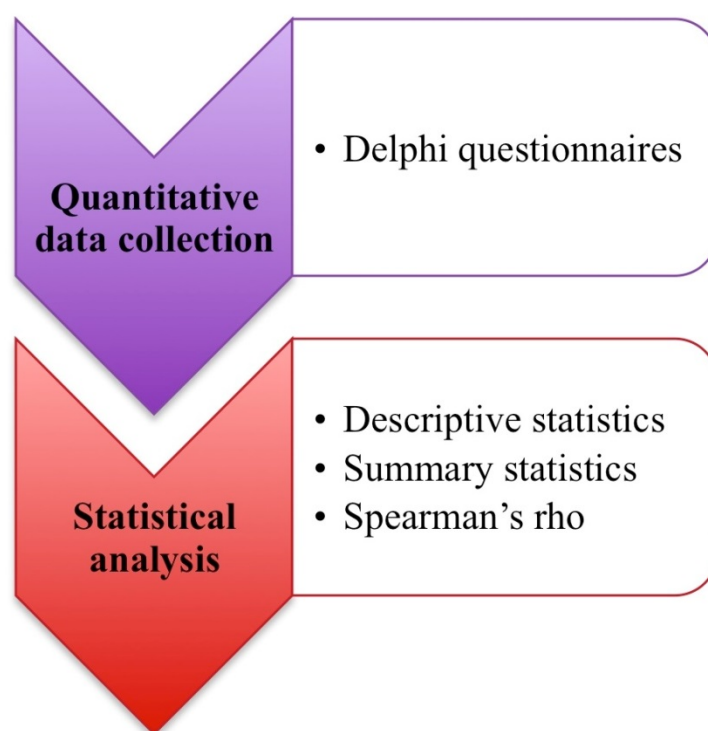


Figure 3.12. Quantitative data analysis procedure.

Verification

Data verification and internal validity of the data collected were attended to by means of the following strategies: participatory modes of research including multiple phase participation; and member checking of the data collection, interpretation, analysis, and conclusions. This research design

incorporated interviews for the collection of unstructured data to complement the collection of structured data obtained using questionnaires. The use of oral semi-structured, face-to-face, one-to-one interviews encouraged participants' elaboration of the concepts introduced in the questionnaires and provides a forum for interpretation. There is a qualitative emphasis to the use of interviews in this research, with the aim of exploring the beliefs and reasoning of participants, as well as assessing the breadth of experiences and individual explanations.

This approach supports the validity and reliability measures (Burns, 2000) of the second phase and the combined outcome of the research methods. The use of semi-structured group and individual interview techniques was of benefit to the overall data collection as their mode is flexible, personable, controllable, extensible, and efficient in gathering direct information (Thomas, 2003). The noted limitations of conducting interviews include reference to the organisation, planning, resources required and time, both in the preparation and conduct of the interviews. Thomas (2003, p. 66) suggests that interviews may be ineffective for the collection of sensitive data, such as the participants' emotional state/s and experience/s. This factor was attended to by the application of Gray's (2004, pp. 222-226) interview technique and a rigorous approach to multiphase mixed methods research design and data analysis.

Particularly explicit within the modified Delphi method, and underpinning the four phases of this research, was the strategy of member checking (Miles & Huberman, 1994). Member checking was most prominent during the modified Delphi method in which participants were able to make iterative comments and thus modify the content of the questionnaires. Throughout the duration of the application of Delphi questionnaires, member checking framed and reframed the tentative conclusions drawn from the first phase of data collection, and the interpretations and analysis of the second phase. Triangulation of data was intrinsic to this mixed methods approach with the collection of qualitative and quantitative data through multiple research methods (Creswell, 1994, pp. 167-168).

The 13 tactics for testing data quality and confirming findings as identified by Miles and Huberman (1994, pp. 263-275) were additionally applied throughout the four phases of data collection and analysis in this study. The processes of testing data quality and confirming findings tactics are illustrated in Figure 3.13.

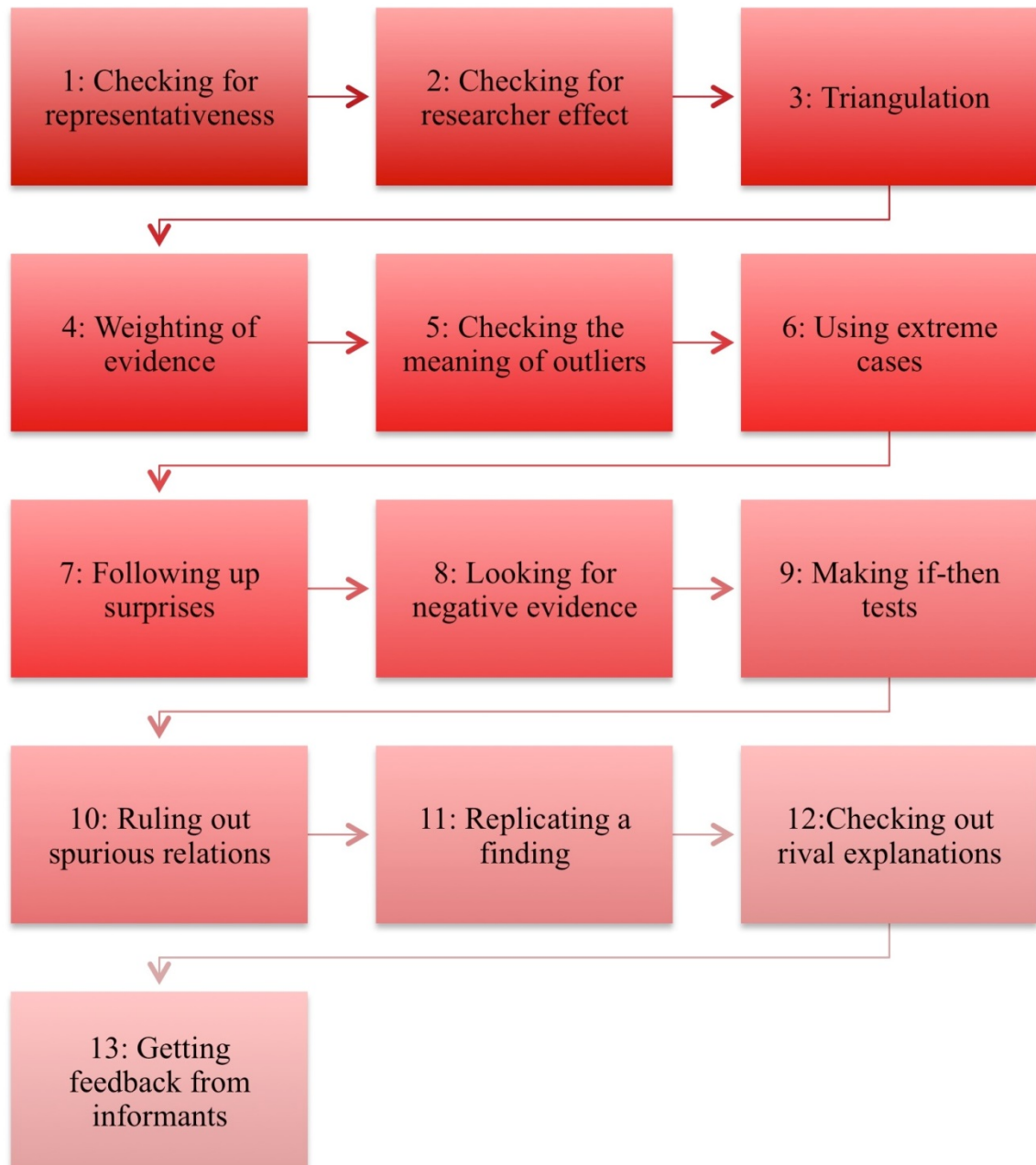


Figure 3.13. 13 tactics for testing data quality and confirming findings derived from Miles and Huberman's (1994, pp. 263-275).

Detailed in Table 3.3 are the procedures conducted in this study for each of the *13 tactics for testing data quality and confirming findings*.

Table 3.3. Miles and Huberman's (1994) procedures of the 13 tactics for testing data quality and confirming findings

Tactic	Procedure
1. Checking for representativeness	“in looking for underlying processes explaining what you’ve seen and heard, you draw heavily from the people, events, and activities you have sampled. But if the samples are faulty, the explanation cannot be generalized beyond them” (p. 264)
2. Checking for researcher effect	“the basic issue here can be framed as one of relative neutrality and reasonable freedom from unacknowledged researcher biases – at the minimum, explicitness about the inevitable biases that exist” (p. 278)
3. Triangulation	“Do the findings of the study make sense? Are they credible to the people we study and to our readers? Do we have an authentic portrait of what we were looking at?” (p. 278)
4. Weighting the evidence	“If the data on which a conclusion is based are known to be stronger, more valid than the average, then the conclusion is strengthened. Stronger data can be given more weight in the conclusion. Conversely, a conclusion based on weak or suspect data can be, at the least, held lightly and, optimally, discarded if an alternative conclusion has stronger data back of it” (pp. 267-268)
5. Checking the meaning of outliers	“A good look at the exceptions, or the ends of a distribution, can test and strengthen the basic findings” (p. 269)
6. Using extreme cases	“...not just looking for empirical outliers ... conceptually defining extreme cases, and looking at whether they exist” (p. 270)
7. Following up surprises	“Following up surprises has three aspects. You (a) reflect on the surprise to surface your violated theory, (b) consider how to revise it, and (c) look for evidence to support your revision” (p. 271)
8. Looking for negative evidence	“When a preliminary conclusion is in hand, the tactic is to say, “Do any data oppose this conclusion, or are any inconsistent with this conclusion?” This is a more extreme version of looking for <i>outliers</i> and <i>rival explanations</i> ; you are actively seeking <i>disconfirmation</i> of what you think is true” (p. 271)
9. Making if-then tests	“If-then statements are a way to formalize ‘ <i>propositions</i> ’ for testing. The method of generating <i>predictions</i> involves linking together a large number of ‘if’s’ to a single major ‘then’” (p. 272)
10. Ruling out spurious relations	“We need to know whether the conclusions of a study have any larger import. Are they transferable to other contexts?” (p. 279)
11. Replicating a finding	“The underlying issue here is whether the process of the study is consistent, reasonably stable over time and across researchers and methods” (p. 278)
12. Checking out rival explanations	“The competent field researcher looks for the most plausible, empirically grounded explanation of local events from among the several competing for attention in the course of fieldwork. You are not looking for one account, forsaking all others, but for the best of several alternative accounts” (p. 274)
13. Getting feedback from informants	“Even if a study’s findings are ‘valid’ and transferable, we still need to know what the study does for its participants, both researchers and researched – and for its consumers” (p. 280)

Ethical Issues

Ethical considerations have been carefully examined and implemented within the design and conduct of the research. Voluntary informed consent was central to the chosen research methods for this study.

Voluntary informed consent was perceived to be of specific significance to participants of the Delphi panel due to the duration of commitment requested for the successful conduct of the technique. The cyclical structure of the modified Delphi method addresses the ethical considerations of conscientiousness, honesty, and equity throughout the data collection and analysis stages. The progression of participant contribution and feedback established the significance of the panel's expert opinion and maintained that distinction as the panel reviewed the contributions of both the researcher and themselves. These rounds of data collection and analysis encourage equity by offering participants the possibility of reviewing and filtering their personal and faculty related concerns, with those representative of other academic disciplines, thus providing a better survey of the situation, as opposed to that of the faculty or institution. Utilising self-selection for participation in the focus groups and lifelong learning personal histories maintained the distinction of the significance of participants' expert opinion and voluntary informed consent.

Concluding Comments

Chapter three has elaborated upon the role of an evolutionary epistemology and the meta-theoretical perspectives of Karl Raimund Popper in this research. The theory of critical rationalism informed the design of a four phase mixed method approach to data collection and analysis. The selection of research questions and variation of research methods were guided by sequential phases of 'conjecture and refutation'. Qualitative and quantitative methods of data collection and analysis were utilised with semi-

structured interviews in phase one; a modified Delphi technique in phase two; focus groups in phase three; and personal lenses in phase four.

Research was conducted at the research site 'Glendalough' University between 2009-2011 with participation from 43 academic staff. Data were analysed using the approaches of qualitative content analysis and quantitative statistical analysis. Ethical issues, limitation and delimitation were paramount to the design and conduct of this study. In the next Chapter the first phase of data collection for this study will be explored in detail.

Chapter 4

Perceptions: Phase One Semi-structured interviews

This study of academic libraries and lifelong learning set out in phase one to identify characteristics that form the literacies required to respond to the workplace needs of academic staff working within higher education institutions (HEIs). The first phase of the study was designed to establish a shared vocabulary with which interviewees could use to elaborate upon their concerns and interests relevant to the central thematic groups. Literacies have been identified in the research literature as contributing to retention of skills for lifelong learning (AAUP, 2013; ACRL & Working Group on Intersections of Scholarly Communication and Information Literacy, 2013; Auckland, 2012; IFLA, 2006; Johnston & Webber, 2003; Longworth, 2003; UNESCO, 2009). However, individuals are poor at assessing the currency of their literacies and their capacity in more than one context or setting (Connaway et al., 2010). Academic staff learning opportunities for literacies that respond to the changing nature of academic work and individual lifelong learning needs were explored to identify the role of academic libraries and HEIs.

Chapter four details the semi-structured interviews with academic staff that were conducted in the first phase to identify the concepts and issues relevant to the perceptions of participants within the context of higher education. The chapter addresses the data collection, data synthesis, and the process of instrument development, which laid the basis for the subsequent phases, data analysis and results. This structure has also been used to organise the following chapter five (phase two), chapter six (phase three), and chapter seven (phase four) which address each of the phases of the research.

Data Collection Phase One: Semi-structured Interviews

In the first phase of data collection a purposive sample of participants was approached with a letter of introduction setting out and explaining the focus of the research project, the intended aims, and the methods of the study (See Appendix A). A second letter of introduction from my PhD supervisors, a formal letter of invitation to participate and a consent form accompanied this letter. The receipt of the signed consent form confirmed participation for this phase of the study. The interview questions were designed with the intention to explore the key concepts of academic libraries, lifelong learning and learning opportunities for a range of literacies as perceived by the selected interviewees' experiences of the changing nature of academic work (See Appendix B). Interviewees were first asked to identify and examine their perceptions of the changing nature of their academic work. The components identified were then further explored within the context of their current employment requirements. Next, the notion of keeping up-to-date within HEIs was explored.

Participants were then asked to identify which literacies they knew well, were able to apply within their role, and considered fundamental to their employment within a HEI. Interviewees were asked to examine these literacies, in order to expand upon the process by which they were able to adopt and maintain their currency. Further examination of their conceptualisation of lifelong learning and what factors resulting from the changing nature of academic work have had the greatest impact upon this learning were probed to gain a fuller representation.

Interviewees were also asked to reflect on their current work situation and where they saw the current role of the academic library in that situation. Additionally participants were encouraged to predict and describe a foreseeable future role for academic libraries that would be of the most benefit to the ways in which they anticipated their academic work would evolve. The phase one data collection instrument is located in Appendix B. Following is a sample of the questions asked:

- During your employment in higher education, how would you characterise your expectations for ongoing learning?
- How would you describe the level/s of support and instruction that ideally academic libraries should provide?
- How would you describe your experience of the relationship between learning and working in a higher education institution?
- How do you perceive the university's support of lifelong learning of academic staff?

Data Collection Procedures

Eight semi-structured interviews were conducted between December 2009 to February 2010. Participants were identified and selected to form a purposive sample of the academic community at 'Glendalough' University. This sampling technique was necessary to capture the characteristics of the issues and concerns of participants experiencing changing intrinsic and extrinsic expectations concomitant with lifelong learning. Academic staff interviewees were purposively selected to represent the different academic disciplines (schools, faculties and research areas), academic appointments and experience ranging from lecturer to professor, and a variety of age ranges of females and males. Interviews were conducted in the offices of the participant for their comfort, and were recorded for professional transcription. The researcher also took field notes at the time of the interview.

The phase one semi-structured interviews resulted in the collection of richer data than anticipated. Participants were extremely generous in providing rich responses to both the general conceptual interview questions, and then further providing specific examples that depicted their own personal situations and circumstances within the context of the changing nature of academic work. The semi-structured format in a familiar environment appeared to put participants at ease and facilitated a comfortable exchange between the interviewer and interviewee. As evidence of this no interviewee passed or

refused to respond to any of the questions asked during the conduct of the phase one data collection.

Due to the semi-structured and conversational format of these interviews, participants often steered our interviews in various directions that were meaningful to their experiences. I had anticipated that allowing space for these discussions during the process of the interviews would allow participants to benefit from the interview process. All participants made use of this opportunity to ask their own questions and all subjects raised related to the core concepts of this study. Most frequently, participants would verbalise their preoccupation with seeking ways to explore how to improve their working patterns and academic workflows in relation to library services and personal skill development.

The location of the interviews, within participant offices, greatly enhanced the interview process. Interviewees exhibited a high level of comfort within their own environment and in particular, they were able to use the items within their office to assist their participation and to provide the interviewer with clarification. For example, some participants were keen to demonstrate their interview responses on their computers, whilst others used books, documents, and objects to illustrate their views. Such was the tone of the interviews that almost all participants would speak in hushed tones or whisper perceived 'controversial' comments, despite being in their own private, and occasionally locked, offices.

Several participants engaged in the interview process in a deeply personal way. Whilst many interviewees explicitly stated that they felt comfortable and safe in revealing such information whilst being recorded, three participants stated that they would continue their train of thought after the formal interview and off-the-record. In these cases, I was asked to stay for further informal and off-the-record discussion of the central topics. In one particular instance, the ensuing conversation continued for a further 90 minutes off-the-record.

Despite the letters of introduction and information about the study that were provided to participants prior to the interviews, I had not anticipated the depth and length of conversations that would be centred on the thematic group of literacy and literacies. The concept of “literacy” was discussed by all participants and in a range of different ways. This discourse corresponds with the literature on the various interpretations and the ‘elasticity’ of the term literacy (Albitz, 2007; Bruce et al., 2007; Nimon, 2002). Some participants insisted on a finite use of the term, asserting that “literacy” has a singular, rudimentary, and elementary connotation. Other interviewees made mention of the prevalence and continuance of the term “literacy” in combination with numeracy. Participants’ conceptualisations of ‘literacies’ is explored in fuller detail in Table 4.7 later in this chapter. As all interviewees were extremely generous with their time and level of engagement, I felt it was important to make the best use of this opportunity to discuss the subject, concept, and language of literacy whenever the circumstances presented themselves. Not only was this of benefit to the first phase of this study, due to the exploratory nature of the semi-structured interviews, I anticipated that I would be able to achieve greater clarity with the quantitative component of this study within which exploratory qualitative tentative themes would be distilled into quantifiable factors. Furthermore, the unstructured exchange surrounding ‘literacy’ served to function as an icebreaker in the early part of the interview. Participants maintained this mode of exchange throughout, whereby they did not hesitate to dispute, ask for clarification, or disagree with any of the terms or statements presented throughout the course of the interview.

As these phase one interviews primarily responded to the perceptions and conceptualisations of the subject matter of the study, I became aware in the first interviews that the linear approach to each interview and the linear design of the interview questions would be difficult to maintain without stiling the conversational nature and flow of the interview. Therefore, a series of minor changes, enhancements, reshaping for each individual participant was carried out in the preparation, as well as a range of minor modifications to the overall conduct of the interviews. For example, the need for these minor

changes related to embedding the central concepts of my study within the specific discipline or research areas for each participant.

My delineation of concepts and tentative themes in the interview questions did not in the first instance correspond to interviewees' lateral responses to the interview questions. The chief difference was my positioning of the questions within the context of HEIs and interviewees positioning of them inside a discipline within the context of HEIs. Furthermore all participants preferred and requested that the concepts be described within the central context of their specific academic work and not the general context of the academic institution. Re-contextualising each question for individual participants made it difficult to collapse uniformly the primary interview questions across all the interviews. However, thematic and conceptual consistency was maintained throughout the interview phase.

Based on my experiences during the first interview conducted in December 2009, I was able to better prepare specific contextual examples for each participant in the subsequent interviews carried out in January - February 2010. This preparation required me to conduct preliminary research on each participant to identify appropriate work situation examples and their discipline-specific context. The overall interview structure, thematic groups, and questions generally remained consistent for all phase one participants. This technique and process was refined throughout the course of the interviews. The benefit of this enhancement became apparent as early as the second interview as less and less time was spent clarifying questions and explaining concepts.

My participation as the interviewer concurrently developed over time. Throughout the interviews phase, I became able to adapt my approach during the interviews to suit the participants' preferences. For example, some interviewees preferred to adopt a professional and formal yet still conversational mode for their interviews, whereas other participants engaged in a friendly, relaxed, and informal manner.

Phase One Data Synthesis

All phase one interview audio recordings were professionally transcribed. Interview transcripts were then tentatively open-coded to identify participants' conceptualisations of the key concepts and central thematic groups and the relationships that connect them. The open-coding process as informed by Miles and Huberman (1994) began with an analysis of the transcripts to identify patterns within each individual interview. As this was the first phase of data collection, extensive open-coding was applied to explore thoroughly the range and breadth of participant responses, as detailed in Chapter 3 Table 3.2. Open-coding included the identification of participant attitudes, which were then cross-referenced with the researcher's notes about physical expressions and gestures, their use of symbols, and the summarising of participant's *language in use* (Wittgenstein, 1967 [1953]), resembling terms, analogy and metaphor. This process led to the development of a working list of closed-codes, which were organised within the thematic hierarchical groups of academic work, academic staff relationships with academic libraries and lifelong learning.

In Table 4.1, the coding summary illustrates in the first column the thematic hierarchical groups of codes, followed by the closed-codes in the second column, and finally memoing in the third column. Memoing was used to elaborate upon or define the meaning of a specific code and its relationship to other codes (Bazeley, 2007). The need for memoing during this phase of analysis was minimal and only used when several very specific and less frequently represented open-codes could be collapsed to address an overarching code. Additionally there was minimal elimination of redundant codes during this phase of analysis, as the purpose of the semi-structured interviews was to explore the thematic groups from the participants' perspective. All of the thematic hierarchical groups, open-coding, memoing, and closed codes were retained for their application in the second, third and fourth phases of both data collection and data analysis.

Table 4.1. Phase 1 Coding Summary

Thematic Groups	Closed-Codes	Memoing
Academic Library	Intensification	Enough time.
	Sustainability	If we knew it was there.
	Compliance	More reliant on facilities.
	Performance	Access it straightaway.
	Depersonalisation	It is service; I used to know all the staff.
	Support	Unique friend.
	Personal Networks	Research sources.
	Participation	How the other systems ought to work.
	Reform	Trying to see in advance what might happen.
Learning Opportunities	Fragmentation	I do not see that as a service for me.
	Compliance	Waste of my time.
	Depersonalisation	Generic training.
	Performance	So do not clutter me up.
	Intensification	I cannot cope with all that information at once.
	Sustainability	I need a more personal approach.
	Support	They understand what I am interested in.
	Learning Opportunities	Intuitively; Have a play.
	Personal Networks	Someone who I know and who I'm friendly with.
Lifelong Learning	Participation	It is incumbent on HEIs.
	Reform	Keeping up; Keeping on track; Entwined.
	Support	Encouragement; Needs met; Appropriate resources; Addressed; Supported.
	Learning Opportunities	Look at something differently; Challenge; stimulate.
	Personal Networks	Very supportive; Little groups.
	Intensification	Sufficient time; Demands .
	Sustainability	Constant pressure.
	Managerialism	Bureaucrats.
	Compliance	Performance review boxes.
Academic Work	Performance	Rehire me.
	Intensification	Time crisis managing.
	Sustainability	Done but not as good as you'd like.
	Managerialism	Too-little plus micro-managing.
	Support	Clusters within the school.
	Personal Networks	Positive culture about encouraging staff.
	Participation	Essential to 'know-who'.
	Fragmentation	Silo-ed; All little fragments.
	Reform	Stay up to date; Keeping on.
	Compliance	What is going to look good that you have done them.
	Performance	Pressure to produce.
	Depersonalisation	ICT; Completely baffled.

Table 4.1 displays the key concepts of the semi-structured interview questions in the thematic groups column. These Phase one tentative findings are displayed in terms of their responses to the key questions and concepts examined. The findings are interpreted, coded, and organised based on each individual participant's perceptions of a concept. Where appropriate, interviewee responses have been summarised in order to collapse repeated tentative themes. Where anonymity or de-identification was not at risk, relevant quotes from participants were used verbatim or expanded upon to form the closed-codes. The term 'literacies' has been subsumed into the broader concept area of learning opportunities in Table 4.1. Further in Table 4.8, the findings which support this treatment of the term 'literacies' are set out and discussed.

Stemming from these conceptual categories, the closed-codes identified are shown in the second column. The representation and repetition of the closed-codes across conceptual categories was instructive for my understanding of participants' perceptions. For instance, the closed-code 'intensification' was represented in each of the thematic groups. Perceptions broadly corresponding to 'time' and 'demands' were identified as characteristic of 'intensification'. Tentatively I interpreted 'intensification' as linked to the context of the HEI workplace, however I did not make this relationship explicit in the coding for two reasons. Firstly, as this data was collected from phase one of four phases, there would be later opportunities to support or refute this tentative interpretation. Secondly, the influence of 'the demands of HEI intensification on academic staff time' was not explicitly linked in the individual interviews of participants and in the collective data for this phase.

The Delphi instrument as informed by the tentative findings of Phase One

The interviews conducted during the first phase of data collection were analysed to develop the research instruments for use in the modified Delphi method. Interview transcripts were analysed in order to represent the range of views significant to the key concepts and the context of the study. The open-

coding of the interview transcripts facilitated the appropriate pitch, frame, and scope to be applied to the Delphi questionnaires and resulting methods of data collection. The closed-codes and memoing of the interview data resulted in the identification of the factors for the Delphi questionnaire. One hundred and forty-four factors or statements were extracted from the phase one semi-structured interview transcripts and analysis (See Appendix B).

This list of statements devised as part of the analysis of the interview data was refined for repetition and concepts or specific terms were generalised to appeal and apply to all participants. The questionnaire factors were collapsed for arrangement within the thematic hierarchical group established in phase one transcript analysis. Resulting from this process, 36 factors were identified, which were classified into the three thematic hierarchical groups of academic work, academic libraries, and lifelong learning. Each hierarchical group presented 12 factors related to the thematic category.

First Trial and Tentative Findings for Phase One

The Delphi instruments were trialled with two pilot audiences as part of my time at Cambridge University in the summer term of 2010 as a visiting PhD. student at St Edmund's College. With the aim to extend the international breadth of my thesis and to ensure that the research was abreast of the latest developments in my field, the tentative findings from the first phase of this study were presented to five Cambridge University senior librarians.

- Cambridge University Library, Research Librarian
- Divinity Library, Cambridge University, Librarian
- Judge Business School, Information and Library Services Manager
- Education Library, Cambridge University, Library Manager
- Education Library, Cambridge University, Librarian

These meetings further informed the design of the Delphi questionnaire with additional modifications to respond to considerations including: developing international external professional challenges; international internal

managerial evidence and accountability procedures; and international internal managerial experiences. The modifications identified from this first trial of the Delphi instruments helped with the scoping of the questionnaire factors to respond to commonalities within the context of HEIs as opposed to distinctive aspects of 'Glendalough' University.

Second Trial and Tentative Findings for Phase One

Tentative findings from the first phase of data collection and the proposed Delphi instruments were presented at the conference of the Standing Committee for University Teaching and Research Education Association (SCUTREA) at Warwick University, in July 2010. The presentation of this conference paper facilitated discussion with the delegates to identify their reactions to the proposed Delphi instrument, revise challenged or contested conceptualisations, and test the international relevance. This exchange enhanced my ability to reshape my research conducted in the Australian setting, to maintain relevance and pace with international developments. The suggested refinements to the framing and phrasing of questionnaire factors from the international instrument trialling opportunity were adopted and applied.

Phase One Data Collection and Synthesis Summary

The first phase of the study consisted of interviews composed in a semi-structured format, in which participants were introduced to a series of central subjects and concepts. Interviewees were encouraged to guide the process of the interview, in order to establish a shared contribution, shared vocabulary, and elaborate upon their personal interests and concerns. The phase one semi-structured interview findings were analysed and are presented in terms of their response to the key questions and concepts examined. The tentative findings were organised and interpreted based on each individual participant's perceptions of a concept. The tentative findings were also interpreted and synthesised for overall thematic and conceptual perception and perspective.

Where appropriate, individual participant responses were summarised and generalised to be representative of the overall phase and in order to collapse repetitive tentative themes. For example, identification of faculties, schools, disciplines, and specific research interests have been generalised in or omitted from the data summaries. Where anonymity and de-identification were not at risk, relevant quotes from participants were expanded upon to form the factors for the Delphi questionnaires in the next phase of the study.

Data Analysis Phase One: Semi-structured Interview

Phase one qualitative data analysis was conducted using NVivo. Phase one interview audio, transcripts and field notes constituted the collection of qualitative data assembled for content analysis, in this phase of the study. Field notes were logged during and post-interview, and subsequently synthesised and summarised throughout the phase of data collection. A new stand-alone project was created with the internal source material in NVivo. The project comprised of the interview audio MP3 files, interview transcripts in Word documents and interview field notes in Word documents. Prior to coding phase one data, several nodes were established in NVivo corresponding to the key concepts and subjects of this study derived from the literature. Initial nodes created were libraries, literacies, lifelong learning, academic work, and higher education institutions. These initial nodes, or parent nodes in the node hierarchy, were elaborated upon with sub-nodes, or child-nodes informed by a content analysis “start list” (Miles & Huberman, 1994, p. 58) which evolved during the process of data analysis.

Presented in Table 4.2 is an extract of the content analysis procedure used in phase one and informed by Miles and Huberman (1994). The table represents the application of some of the tactics for content analysis, and for testing data quality and confirming findings. Table 4.2 shows the ways in which ‘concepts’ and ‘subsidiary concepts’ were classified. This classification results from the content analysis procedure.

The following explanation is designed to assist the reader in understanding the table. *Compliance*, closed-code in the third column from the left, is identified by the defining tactics used in the first column from the left. The last column on the right, memoing, details the quotes and memos which inform the classification from the data collected. *Patterns* noted and *counted* in the data collected were *clustered* together, tested for *plausibility* by *comparing* and *contrasting* for *logical connections* and *resemblances*. The use of *factoring* and *metaphors* facilitated the careful examination of participant word choice, overall context, and *data-reduction of commonalities*. *Intervening variables*, of *outliers*, *rivals* or *negative evidence*, were reviewed and maintained to *test the data quality* and tentative findings. Following *compliance* in Table 4.2 are the two subsidiary concepts, *performance* and *depersonalisation*, which were *derived* from *compliance* using the tactics of *partitioning*, *intervening variables*, and *subsuming smaller patterns* in the data. In chapter three is a detailed description of Miles and Huberman's 13 tactics for content analysis (1994, pp. 245-246) and 13 tactics for testing data quality and confirming findings (pp. 263-275) displayed in Table 3.1, Table 3.3, Figure 3.9, and Figure 3.13.

Table 4.2. Phase One Content Analysis Coding Procedure informed by Miles and Huberman (1994)

Content Analysis Tactics	Group	Closed-Codes	Memoing
Clustering; Factoring Variables	Concept	Compliance	More reliant on facilities; Performance review boxes; What is going to look good that you have done them; Waste of my time.
Partitioning; Variables	Subsidiary Concept	Performance	Access it straightaway; Rehire me; Pressure to produce; So do not clutter me up.
Subsuming	Subsidiary Concept	Depersonalisation	It is service; I used to know all the staff; Generic training; ICT; Completely baffled.
Clustering; Factoring	Concept	Intensification	Enough time; I cannot cope with that information at once; Sufficient time; Demands; Time crisis managing.
Partitioning	Subsidiary Concept	Sustainability	If we know it was there; I need a more personal approach; Constant pressure; Done but not as good as you'd like.
Subsuming	Subsidiary Concept	Managerialism	Bureaucrats; Too-little plus micro-managing.
Clustering; Factoring	Concept	Support	Unique friend; They understand what I am interested in; Encouragement; Needs met; Appropriate Resources; Addressed; Supported; Clusters within the school.
Partitioning	Subsidiary Concept	Personal Networks	Research sources; Someone who I know and who I'm friendly with; Very supportive; Little groups; Positive culture about encouraging staff.
Subsuming	Subsidiary Concept	Learning Opportunities	Intuitively; Have a play; Look at something differently; Challenge; Stimulate.
Clustering; Factoring	Concept	Participation	How the other system ought to work; It is incumbent on HEIs; Essential to 'know-who'.
Partitioning; Metaphors Factoring	Subsidiary Concept	Reform	Trying to see in advance what might happen; Keeping up; Keeping on track; Stay up to date; Keeping on; Entwined.
Subsumed	Subsidiary Concept	Fragmentation	I do not see that as a service for me; Silo-ed; All little fragments.

Note. Shaded cells indicate the recurring concepts and subsidiary concepts identified across the eight semi-structured interviews conducted for phase one of this study.

The purpose of the phase one semi-structured interviews was to inform the scope and the conceptualisation of the key concept areas perceived as most important by the participants in the study. As noted earlier in this chapter, the analysed data from phase one is presented in a display technique, ‘within-case’ (Miles & Huberman, 1994, p. 90), for the exploration and description of content analysed qualitative data. The ‘within-case’ approach is displayed in a matrix format that has been conceptually ordered to demonstrate coherence of the findings.

Tables B1, B2, B3, B4, and B5 are shown in Appendix B. The matrices are read down the column to convey a conceptually ordered content-analytic summary of a key concept area. Each matrix has been arranged with three columns to present two levels, code and sub-code, of thematic conceptual reduction and representative quotations to substantiate the rationale.

The tabular summaries presented in Appendix B show the data collected arranged by: Academic Libraries; Learning Opportunities (including literacies); Lifelong Learning; and Academic Work. These additional matrices present the reader with further examples of the nuanced and rich descriptions of the attributes of the concept area, whilst also maintaining the recurring codes and sub-codes. Further these codes within the matrices also identify the similarities and connections between concept areas for contrast and comparison as is shown in the example which is used in this chapter. These matrix displays were particularly important for testing data quality and confirming tentative findings, in that outliers, rival explanations, negative evidence or surprises in the data were able to be checked, examined, and weighted within context prior to arrangement of the data into conceptually ordered displays in the following tables 4.4 – 4.7 (Miles & Huberman, 1994).

Table 4.3. Lifelong Learning thematic group summary Phase One

Thematic Group: Lifelong Learning		
Code	Sub-code	Quote
Participation	Reform	“We [academics] shouldn’t ever stop learning particularly because things are moving so quickly in terms of technology and in terms of, I mean what we’re teaching, if we taught what we did 20 years ago, we’d be completely out of date. So keeping on track of new innovations, I think is really important”
		“ My learning [and] other people’s learning ... I think if one is serious about being an academic then they’re all entwined so much you can’t really pull them apart”
		“I think it’s incumbent on them [HEIs] to do that, if they want us to be our best , we need to be keeping up , we don’t need to adopt every new thing that comes along ... But it needs to be ... looked at and tried it and see where, how could this help staff and students ”
Support	Learning Opportunities	“I can stimulate them to think along those [paths] or open new [types] of knowledge if you like or ask them to look at something differently but they will challenge me as well ”
	Personal Networks	“I don’t see much in the form of overt encouragement and support [for lifelong learning]. Um, I mean to me for lifelong learning to occur, there needs to be two things. One the individual has to be motivated to be involved in that and then there’s the need for the appropriate resources to have that met and addressed and supported ”
Intensification	Sustainability	“Now I’m fortunate in that there are a few people in this University that are able to , are willing to challenge me about my thoughts and ideas and what I’m doing and how I’m doing it and are very supportive, are very supportive little group do that... And to me that’s a critical part of lifelong learning .”
	Managerialism	“I’ve often thought in the past that I didn’t have sufficient time or the demands placed upon me in a teaching role to learn as much as I wanted to learn because I constantly felt under pressure to write lectures and see students and all the other things that go with academic work ”
Compliance	Performance	“[For some staff] this is a nine to five job and that’s it, take the money and go ... and in terms of professional development, they’ll do the minimum they have to ... in terms of lifelong learning ... we’ve got bureaucrats running those sorts of areas where it might come from. Rather than people, who are competent, well informed and well educated in those sorts of things...”
		“there are some days when what I’m thinking about is, [what is] in the boxes [for performance review] so that they decide to re-hire me ”

Shown in Table 4.3 is one of the thematic group summaries of content analysed data collected during phase one of this study. The lifelong learning thematic group is presented in this chapter with a further three summaries displayed in Appendix B for the thematic groups of: academic libraries; learning opportunities; and academic work. These matrices focus on a single thematic group, for example lifelong learning, within the context of HEIs. The arrangement of analysed data is ordered by identified concepts and substantiated by representative quotations from participants.

Table 4.3 provides an overview of the recurring conceptualisations linked to lifelong learning in HEIs by the eight interview participants. The summary begins with the concept of *participation*. Participants describe their *participation* by noting that they *shouldn't ever stop learning*, they *need to be keeping up and keeping on track* in order *to be our best*. Linked to *participation* is the concept of *reform*, which depicts the ways in which academics might change and improve their conditions for lifelong learning in HEIs. *Reform* is encouraged in the summary *because things are moving so quickly* and a *new thing* could potentially *help staff and students*. Furthermore participants suggest that meeting the lifelong learning needs of academic staff is *incumbent on* HEIs as lifelong learning has an impact on academic staff performance and the *entwined* nature of academic staff learning and *other people's learning* within the HEI.

The concept of support in the matrix is shown as related to learning opportunities and personal networks. Participants described motivated academics supported by individuals and little groups who were able and willing to challenge and stimulate new knowledge, thoughts, and ideas. Whilst this critical part of lifelong learning is occurring within HEIs, it was noted that overt encouragement and support for lifelong learning was not seen at an institutional level.

Phase one interview participants in Table 4.3 spoke of the impact of *intensification* of the HEI workplace on lifelong learning. Noting that within this context participants were not able to *learn as much as they wanted*, because of *the demands placed upon* them, not having *sufficient time with all the other things that go with academic work*, and that they *constantly felt under pressure*. Their expressed

difficulty to *sustain* lifelong learning within this workplace culture and context of *intensification* was exacerbated by HEI *managerialism*.

Managerialism was described by participants as an approach to doing *the minimum* amount and extended to all aspects of academic work and lifelong learning. *Bureaucrats running* the departments that *might* support lifelong learning opportunities was expressed in the interviews as problematic. Participants' concerns were that the *bureaucrats* were not *competent, informed, and educated* to provide the required opportunities to support lifelong learning.

Participants described the concept of *compliance* during phase one interviews. *Compliance* of academic staff to the expectations of HEIs was also linked to the notion of *performance*. Participants asserted the need to reprioritise lifelong learning pursuits in light of the need to *comply* with HEI workplace *performance* expectations. Specifically, participants reported *thinking about* their *performance* review when considering lifelong learning opportunities *so that* the HEI will *decide to re-hire me*.

Summary of Phase One Analysis

NVivo qualitative data analyses were used to sort and search the interview transcripts for patterns using the program's tools, functions, queries and standard project processes. All ongoing analyses used the tentative synthesis from NVivo as the foundation for manual analysis and hand sorting in the proceeding phases. This approach was identified from the first phase of analysis, in which it was found that participants' definitions of terms were not consistent throughout the conduct of the interviews. These inconsistencies provided participants with the opportunity to discuss their conceptualisations of the terms and descriptive language without limitation.

Phase One Results

The data analysed from the first phase interviews were used to develop the research instruments for the modified Delphi method. The analysis focused on identifying the breadth of participants' conceptualisations of the key concepts and

context of the study. In doing so, data was coded to inform a suitable framing, scope, and pitch to be applied to the Delphi questionnaires and the accompanying methods of data collection.

The content analysis tactics of Miles and Huberman (1994) use an exploratory mode of framing and reframing the qualitative data collected and analysed in this study. This approach to qualitative data is underpinned by Wittgenstein's philosophical perspective of *language in use*, whereby language is "without a *fixed* meaning" (1967 [1953], p. 37, para 79) and the critical disputation of the use of terms, equivalent expressions, *resembling* conceptualisations, and their range of definitions is negotiated in a *language-game*. A Popperian theoretical approach informed my undertaking in examining the expressions of criticism that interrupted the problem-solving process, and in moderating the elimination of error from the *language-game* based on participants' *language in use*. Themes identified in the analysed data are acknowledged as *tentative* during the conduct of the interconnected sequence of multiphase mixed methods.

For the most part in this multiphase mixed methods study, *codes* and *sub-codes* indicate a *developing* or *tentative theme* indentified in the qualitative data. Tentative themes derived from the analysed data, shown in Table 4.4, are distinguished by the use of italics in the remainder of this chapter. The theoretical approach of Popper (1972, 1974) and philosophical approach of Wittgenstein (1967 [1953]) have informed the rigorous disputation of *tentative themes* until accumulative analysis is conclusive in chapters eight and nine of this thesis.

The results of the exploration and description of the context analysed qualitative data is shown in the 'within-case' (Miles & Huberman, 1994, p. 90) display technique. The 'within-case' approach is displayed in a conceptually ordered matrix format to demonstrate coherence of the findings. The Table 4.4 matrix is read across the row to convey a conceptually ordered (code and sub-code) and content-analytic (quote) summary. The matrix has been arranged with three columns to present two levels, code and sub-code, of thematic conceptual reduction and representative quotations to substantiate the rationale.

Table 4.4. Phase One Perceptions Conceptually Ordered

Phase One Semi-structured Interview Tentative Themes		
Code	Sub-code	Quote
Support	Personal Networks	<p>“But in terms of research sources, really [the librarian] is my unique friend.”</p> <p>“Someone who I know and who I’m friendly with and who I know they get what I’m interested in.”</p> <p>“Now I’m fortunate in that there are a few people in this University that are able to, are willing to challenge me about my thoughts and ideas and what I’m doing and how I’m doing it and are very supportive, are very supportive little group do that... And to me that’s a critical part of life-long learning.”</p> <p>“There’s clusters within the school where obviously there’s a really positive culture about encouraging each other to do [our work] and others where there’s not and I think that probably has a more profound impact on people than anything.”</p>
Intensification	Sustainability	<p>“I know that sounds really basic, but I think sometimes we don’t have enough time to like investigate [the library and] what’s out there and I think we would use it [resources] more if we knew it was there.”</p> <p>“I feel I am not getting a lot of benefit from [training] because of the group programs. I really need more personal [support].... It’s also really a time problem. I am very busy.”</p> <p>“I’ve often thought in the past that I didn’t have sufficient time or the demands placed upon me in a teaching role to learn as much as I wanted to learn because I constantly felt under pressure to write lectures and see students and all the other things that go with academic work.”</p> <p>“So you find yourself the whole time crisis managing or getting stuff done in the nick of time to just get it done, never as good as you’d like.”</p>
Compliance	Performance	<p>“I’ve just become more reliant on online [library] facilities, so I can sit there and I can think of something and access it straightaway.”</p> <p>“There’s a whole stack of online databases I’m never going to touch. They’re totally out of my ballpark. So don’t clutter me up with just any training session.”</p> <p>“There are some days when what I’m thinking about is, [what is] in the boxes [for performance review] so that they decide to re-hire me.”</p> <p>“It sounds really simple but I think, go to the training sessions that you think are going to look good that you’ve done them. You know like, go do the powerpoint training session even if you know you know how to use powerpoint because when you come up for review, you can say [that you have completed the training session].”</p>

The three matrices presented in Table 4.5, Table 4.6, and Table 4.7 address a single coded concept and are conceptually ordered by the sub-codes consistent across the research subject areas of academic libraries, learning opportunities (including literacies), lifelong learning, and academic work. Three codes: support, intensification, and compliance, were identified across the four central subject areas of this study. These single code matrices are arranged with three columns to present sub-code, quote, and thematic group. Each matrix is read across the row to convey the conceptually ordered (sub-code), content-analytic summary (quote), and context (thematic group).

Support

Table 4.5 shows the concept of *support* was identified in the interview transcripts of the eight academic staff participating in phase one of the study. *Support* was closely linked with the subsidiary concept of *personal networks*. Both concepts were identified across the four thematic groups of: academic libraries; learning opportunities (including literacies); lifelong learning; and academic work. The aforementioned concepts and thematic groups were analysed and displayed in Table 4.5 within the broader context of academic staff lifelong learning experiences in HEIs.

Table 4.5. Support Phase One Summary

Code: Support		
Sub-Code	Quote	Thematic Group
Personal Networks	“But in terms of research sources, really [the librarian] is my unique friend.”	Academic Library
	“Someone who I know and who I’m friendly with and who I know they get what I’m interested in.”	Learning Opportunities
	“Now I’m fortunate in that there are a few people in this University that are able to, are willing to challenge me about my thoughts and ideas and what I’m doing and how I’m doing it and are very supportive, are very supportive little group do that... And to me that’s a critical part of lifelong learning.”	Lifelong Learning
	“There’s clusters within the school where obviously there’s a really positive culture about encouraging each other to do [our work] and others where there’s not and I think that probably has a more profound impact on people than anything.”	Academic Work

Participants indicated that *little groups*, *clusters*, and *people* who were arranged in one’s *personal network* were the chief sources of support for lifelong learning. The individuals referred to in table 4.5 were described as *able*, *willing*, *friendly*, *encouraging*, *interested*, *intellectually challenging*, contributing to a *positive culture*, and *supportive*. These characteristics were associated with the people who form an academic’s *personal networks* of *support*.

Personal networks described in Table 4.5 *support* academics across purposes, including lifelong learning and work related assistance. In addition, personal networks are reported functioning across the HEI with support from *people in the university*, *unique friends in the library*, and *clusters within the school/faculty*.

Intensification

The concept intensification is shown in Table 4.6 to have been identified in association with the subsidiary concept sustainability. These concepts were consistently established across the four thematic groups displayed in the third column on the right.

Table 4.6. Intensification Phase One Summary

Code: Intensification		
Sub-Code	Quote	Thematic Group
Sustainability	“I know that sounds really basic, but I think sometimes we don’t have enough time to like investigate [the library and] what’s out there and I think we would use it [resources] more if we knew it was there.”	Academic Library
	“I feel I am not getting a lot of benefit from [training] because of the group programs. I really need more personal [support].... It’s also really a time problem. I am very busy.”	Learning Opportunities
	“I’ve often thought in the past that I didn’t have sufficient time or the demands placed upon me in a teaching role to learn as much as I wanted to learn because I constantly felt under pressure to write lectures and see students and all the other things that go with academic work.”	Lifelong Learning
	“So you find yourself the whole time crisis managing or getting stuff done in the nick of time to just get it done, never as good as you’d like.”	Academic Work

Participants describe that the intensification of academic work is having a negative impact lifelong learning. Academic staff reported *not having enough time to investigate* learning opportunities because they *constantly felt under pressure from the demands placed upon them and all the other things that go with academic work*. Table 4.6 shows that the *intensification* of academic work has expanded to the *intensification* of the HE environment and culture within which academic work is undertaken. Academics comment on the momentum to *just get academic work done*, although *never as good as*

they would like. The driving force of this outcome was perceived by participants to be the reallocation of time to *managing crises*.

The subsidiary aspect of *intensification* was the concept of *sustainability*. *Sustainability* is presented in Table 4.6 as the measures that participants take action on in order to keep up with the *intensification* of HEIs. Limiting what is known and undertaken, when possible, was explained to be some of the ways in which academic staff kept up with their *very busy* schedules and *insufficient time*. Additionally, one of the phase one participants shown in the table, indicates that for academic staff considering learning opportunities there is a relationship between *sustainability*, *personal networks*, and *support*.

Compliance

Table 4.7 shows the identification of the concept of *compliance* across the four thematic groups of: academic libraries; learning opportunities; lifelong learning; and academic work. Academic staff participants associated *compliance* with the subsidiary concept of *performance*. These concepts and thematic groups were analysed within the broader context of academic staff lifelong learning experiences in HEIs.

Table 4.7. Compliance Phase One Summary

Code: Compliance		
Sub-Code	Quote	Thematic Group
Performance	“I’ve just become more reliant on online [library] facilities, so I can sit there and I can think of something and access it straightaway.”	Academic Library
	“There’s a whole stack of online databases I’m never going to touch. They’re totally out of my ballpark. So don’t clutter me up with just any training session.”	Learning Opportunities
	“There are some days when what I’m thinking about is, [what is] in the boxes [for performance review] so that they decide to re-hire me.”	Lifelong Learning
	“It sounds really simple but I think, go to the training sessions that you think are going to look good that you’ve done them. You know like, go do the powerpoint training session even if you know you know how to use powerpoint because when you come up for review, you can say [that you have completed the training session].”	Academic Work

The concepts of *compliance* and *performance* are entwined in the representative statements presented in Table 4.7. Participants were perceptive of a ‘double meaning’ associated with lifelong learning in HEIs. Interview participants noted the expectation of academic staff compliance with the training sessions provided by HEIs. However, this concept was closely linked with the expectation for academics to use these learning opportunities (including literacies) to enhance their workplace *performance* and meet *performance* assessment expectations.

Performance assessment expectations were observed by participants to be *training sessions that would look good*, meet the criteria of the *performance review check boxes* so that academics are *re-hired*. The entwined experience of *compliance* and *performance* for academic staff was understood by participants to have encouraged participation in *training sessions* when the learning outcomes *were already known*. Moreover, the perceptions displayed

in Table 4.7, *compliance* and *support*, and Table 4.6, *intensification* and *support*, infer to the mutually inconsistent circumstances within HEIs.

Academic Staff Conceptualisation of Literacies

Preliminary investigations for this research indicated different interpretations or a lack of agreement on the central terms and their definitions in the existing literature (Albitz, 2007; Nimon, 2002). Subsequent phases of data collection reaffirmed these different interpretations. Lifelong learning competencies within the context of HE extend along a continuum of general to specialised skills, with a sequence unique to each individual. In the discipline of Library and Information Science (LIS) this continuum of skills is called literacies (Sproles et al., 2013). Chief among them is information literacy (ALA, 2008a; ALIA, 2002; 2006; IFAP, 2000; IFLA, 2006; UNESCO, 2009).

The aims of this study include the examination of learning opportunities for a range of literacies in academic libraries and in response to the context of higher education. A specific objective for the first phase of data collection and analysis was to establish a shared vocabulary to inform and shape the subsequent research methods. An unanticipated finding during content analysis was the breadth and dissensus of conceptualisations of literacies by academic staff. For example, the pseudonymous interviewees *Tessares* and *Hex* display in Table 4.8 the breadth of engagement with the concept. Whilst incidental, these tentative findings were not insignificant and thus shaped the ways in which the term ‘literacies’ was applied or subsumed into the broader concept area of learning opportunities for the duration of the study. These unforeseen results are presented in Table 4.8, where numerical pseudonyms and data reduction techniques have been applied to ensure the anonymity of participants.

Table 4.8. Conceptualisations of 'Literacies' phase One

Participant	Phase 1 Quote
Prōtos	<p>"You mean substituting literacy in place of skill?"</p> <p>"I thought of my own capabilities."</p>
Duo	<p>"I don't use that term. Yeah, really the only time I've heard it used is in terms of technology."</p> <p>"...the automatic thing that's coming to me about what literacy would mean, would be an ability or an understanding of."</p>
Treis	<p>"No I wouldn't use the word. I have certain literacies or would need certain literacies. When I hear it being said, what I sort of understand it to mean is a competence with an understanding of something."</p> <p>"And what's so different in what you're saying when you say literacy as opposed to competence or?"</p> <p>"What's your understanding of? Why say literacy as opposed to something else? I guess. Is it actually just a different word for the same thing or is it saying something slightly different?"</p>
Tessares	<p>"It's used occasionally, I don't tend to use it because I probably don't know enough about what it means myself, when we talk about like information literacy and that sort of thing?"</p> <p>"So I suppose it's saying are they able, can they do it. So that's in a sense literacies but I've not called it that so it's the ability to read something so I'll probably talk about it more as the ability to do something or the skill of such and such."</p> <p>"So they're getting it but I'm not really sure that they're calling it a literacy, it's all these little fragments ... but if we say 'you're going to have this skill and that skill and the other skill'. ...but what we don't do is tell them at the end is 'you are now information literate', you know they don't understand and that's like I don't either... I've got an overarching feel of them but I've no idea of the specifics."</p>
Pente	<p>"I have no problems with the use of literacy but it's probably not something that I would use. I'd be telling someone to use their, to develop their computer skills ..."</p> <p>"It's not in my vocabulary."</p> <p>"When you talk to me about the word literacy, I'd see it as skills. Do many people see it or would you see it as literacy?"</p> <p>"Okay I can, yeah alright and I would see it as a skill. No, if you ask me literacy or skill, I see that as skills, okay. I'd see it as skills."</p>
Hex	
Hepta	<p>"Literacy and numeracy?"</p> <p>"Yeah, yeah, yeah, yeah skills would be the word to use, yeah."</p> <p>"But that requires a special set of skills."</p>
Oktō	<p>"Yeah it's pretty straightforward for me, well my computer literacy skills are pretty good."</p>

Concluding Comments

This study of academic libraries and lifelong learning set out to identify the nature and characteristics that form the learning opportunities required to respond to the evolving context of higher education institutions. One objective of the first phase of the study was to establish a shared vocabulary. A second objective was to encourage interviewees to elaborate upon their concerns and personal interests within the central thematic groups. Eight semi-structured interviews conducted with academic staff of Glendalough University were collected as data for the first phase of this research. Participants were introduced to a series of central thematic groups and concepts for exploration and description.

Structuring this research in a multiphase mixed methods design each phase must inform the proceeding phase. Analysis of the phase one interview data resulted in the identification of 144 statements or factors informing the phase two Delphi questionnaires. Statements constructed during the process of analysis were refined for duplication, generalised, then clustered and collapsed for arrangement by thematic category for the larger participant sample in the second phase of data collection. This process resulted in the identification of 36 factors, which were assigned into three thematic hierarchical groups of academic work, libraries, and lifelong learning. Each hierarchical group presented 12 questions, Delphi factors, related to the thematic group informed by academic staff perceptions examined in phase one.

The first phase of this study resulted in the identification of three codes and three sub-codes consistent across the research subject areas. The three concepts (codes) identified were:

- support,
- intensification, and
- compliance.

The three subsidiary concepts (sub-codes) identified were:

- personal networks,

- sustainability, and
- performance.

The tentative findings from phase one were used to conceptually order, frame and inform the subsequent conduct of the research. These findings will be discussed in conjunction with findings from the other three phases of the study in chapters eight and chapter nine.

The next chapter is devoted to the second phase of the study, which comprehensively describes the use of the modified Delphi method.

Chapter 5

Issues, Concerns and Priorities: Phase Two Modified Delphi Method

Chapter five addresses the second phase of the study which tested current and future issues and concerns and measured their priority by participants using the modified Delphi method. The modified Delphi method generated rank-ordered priority statements of present ‘academic work’ issues and concerns and future ‘library service’ and ‘learning opportunity’ issues and concerns. To understand the prioritised questionnaire items, I investigated the relationship between academic library services and learning opportunities through statistical analysis. From the results of this analysis my focus narrowed to the two statistically significant pairs of surveyed items resulting from the Spearman’s rho analysis.

The structure of this chapter mirrors that of chapter four. The chapter details the data collection, data synthesis, data analysis, procedures for instrument development for the proceeding phases of the study, and the results.

Data Collection Phase Two: The modified Delphi method

The Delphi method was identified as an appropriate approach to realize, in part, the purpose and aims of this thesis. The Delphi technique combines the research methods of questionnaire, content analysis, measurement, and scaling. The application of the modified Delphi method in this study has incorporated the recommendations from the literature within the design (Barnette et al., 1978; Bodish-Lynch, 1983; Burns, 2000; Eggers & Jones, 1998; Franklin & Hart, 2007; Loo, 2002; McMillan & Schumacher, 2006; Okoli & Pawlowski, 2004). The Delphi instrumentation was informed by the tentative findings from the first phase of the study.

Design of the modified Delphi method questionnaire

The design of the modified Delphi method was based on the tentative findings from the first phase of data collection and was modified to exclude the open-ended first-round questionnaire, which can be used to identify the issues and concerns of participants. The Delphi questionnaire was arranged to correspond to the three thematic groups identified within the interview transcripts of phase one, with 12 factors present for each thematic group. The questionnaire factor rating scale used ranged from 1= *High Significance* or *High Importance* to 4= *Not at all Significant* or *Not at all important*. A total of 36 factors were accompanied by a supplementary binary question and the opportunity for participants to contribute additional comments (shown in Tables 5.1-5.3).

Participants were requested to respond to the Delphi questionnaire as follows:

Please make your judgements in regard to:

- the changing nature of your academic work,
- your learning across your lifespan,
- your acquisition, maintenance, development and accumulation of a variety of related literacies, (e.g. information literacy skills, digital literacy skills, library literacy skills, ICT literacy skills)
- the resource services, access services and client services of academic libraries.

The first thematic group to be addressed in the Delphi questionnaire was *academic work*. Participants were presented with 12 factors that were identified as impacting upon the changing nature of academic work, particularly as it pertains to the functioning of academic libraries. Participants were asked to consider how significant each of the factors listed in Table 5.1 had been in the changing nature of their work within universities over the last three years.

Table 5.1. Modified Delphi method Academic Work factors

Round 1 Delphi Questionnaire <i>Academic Work Factors</i>	
1.	Diversification and changing priorities of responsibilities
2.	Level of responsibility
3.	Increased accountability
4.	Closer nexus between teaching and research
5.	Changes in organisational culture
6.	Knowledge of and availability of people and services for provision of support
7.	Position held in the organisation (level in hierarchy)
8.	Increased workload
9.	Increasing research emphasis in universities
10.	Support from IT services
11.	Increasing vocational emphasis in universities
12.	Changing government policy in higher education

The supplementary question accompanying this thematic group asked participants to indicate (Yes/No) whether each factor had affected their level of stress in exercising their academic responsibilities.

The second thematic group to be addressed in the Delphi questionnaire was *libraries and literacies*. Participants were presented with the proposition that, as the nature of work in universities has undergone change in recent years so too have university libraries in the services they are able to provide to academic staff. Participants were asked to indicate the extent to which the university library and its services might better be able to assist them in addressing changes in their academic work. To do so participants were asked to judge the importance they would attach to the academic library offering support in the 12 factors listed in Table 5.2.

Table 5.2. Modified Delphi method Libraries and Literacies factors

Round 1 Delphi Questionnaire <i>Libraries and Literacies Factors</i>	
1.	Keeping up-to-date with scholarly knowledge which necessitates keeping up-to-date with other skills to access information resources
2.	Data curation skills to support the constantly changing knowledge base in an academic field
3.	Keeping up-to-date with information resources which requires contextual legal knowledge e.g. copyright, intellectual property, open access
4.	Troubleshooting, incorporating tracing challenges when locating, identifying and accessing information
5.	The transfer of scholarly knowledge for eLearning e.g. BlackBoard
6.	Constantly changing technological processes employed in teaching, learning and knowledge acquisition and transfer e.g. changing use of mobile devices
7.	The transfer of scholarly knowledge for lecturing and teaching purposes e.g. PowerPoint, Echo360/Podcast, Video
8.	Support for individuals managing their own information including folksonomies and synchronisation
9.	Scholarly communication via micro content including atom, aggregation and social media
10.	Identification and application of database content for syndication and aggregation
11.	Support in the technical aspects of advanced search skills including alerts for searches, journals and RSS feeds to deliver specific information
12.	Provision of data storage, archiving and preservation techniques/skills

The supplementary question accompanying this thematic group asked participants to indicate (Yes/No) whether they were aware of these developments in the listed areas.

The third and final thematic group to be addressed in the Delphi questionnaire was *lifelong learning*. Participants were presented with the proposition that university libraries are able to offer academics a range of learning opportunities (including literacies) and experiences that might not only enhance an academic's response to the changing nature of work, but that might also be of benefit in their lifelong learning. Participants were asked to judge the importance that they would attach to the academic library offering support to them in the 12 factors outlined in Table 5.3.

Table 5.3. Modified Delphi method Lifelong Learning factors

Round 1 Delphi Questionnaire <i>Lifelong Learning Factors</i>	
1.	Provision of Personal Information Management (PIM) skills
2.	Provision of Personal Knowledge Management (PKM) skills
3.	Opportunity to identify literacies and skills for development
4.	Opportunities to explore, experiment with and experience new modes of working
5.	Opportunities to explore, experiment with and experience new modes of learning
6.	Support in the development and management of personal files and collections, and their digital surrogates
7.	Opportunities to explore the role of corporate influence on electronic information, both scholarly and non-scholarly, incorporating bias data validity, data integrity, disinformation and information neutrality
8.	Provision of analysis of trends in specific research areas and practices generated by university library researchers
9.	Opportunities to explore the metrics that are applied to information, both scholarly and non-scholarly, including bibliometrics, cybermetrics, informetrics and scientometrics
10.	Support of accessible publishing practices including awareness of copyright, intellectual property rights and licensing issues
11.	Provision of information classification techniques/skills including taxonomies, folksonomies, ontologies and controlled vocabularies
12.	Opportunities and support for Open Source applications and software

The supplementary question accompanying this thematic group asked participants to indicate (Yes/No) whether they were aware of these developments for each factor.

The first round Delphi questionnaire included a page of demographic questions which participants were asked to answer in order to assist with the statistical analysis of the data collected. The demographic information sought is shown in Table 5.4.

Table 5.4. Modified Delphi method Demographic questions

Demographic Questions				
a. How many years have you worked in higher education?				
less than 5	5-10	11-20	21-30	31+
b. How many higher education institutions have you been employed by?				
1	2	3	4	5+
c. Are you employed as?				
Permanent continuing	Sessional/Contract/Casual			
d. Are you?				
Male	Female			
e. What is your age range? (<i>optional</i>)				
below 30	31-40	41-50	51-60	61+
f. What is your level of appointment?				
Snr				
Lecturer	Lecturer	A/Professor	Professor	Other

Finally, a glossary of the terms represented in the questionnaire factors was provided in the first round of the modified Delphi method (See Appendix C).

Conduct of the Round One Delphi Questionnaire

Participants for the three-round modified Delphi method were recruited from a range of faculties and disciplines at Glendalough University. Potential participants were approached with an electronic invitation to participate circulated from the office of the Pro-Vice Chancellor of the research site. A document setting out and explaining the focus of the research project, outlining the aims and methods of the research was provided, and accompanied by a letter of introduction from my research supervisors. Additionally a formal invitation to participate, and consent response form completed the introductory information package. Participation was confirmed by the receipt of a signed consent form for this phase of the study.

A total of 25 voluntary respondents were selected to form the Delphi panel of participants for the second phase of this study. The selection criteria for the Delphi panel participants was based on representing the range of academic work experiences at the site of the study and generalisable of the research site (O'Neill et al., 2010; Okoli & Pawlowski, 2004; Skulmoski et al., 2007).

A Delphi questionnaire distribution schedule was devised for the second phase of data collection. The schedule commenced with a two-week window to introduce the study and contact previous participants in addition to the purposive sample. The modified Delphi method was administered between January and May 2011 and is outlined in Table 5.5. The distribution schedule allotted two-weeks for the Delphi panel to complete and return the questionnaire, and 10 days for data analysis and preparation of the proceeding Delphi instruments. The schedule also structured contingency time with a grace period, 'Day of Grace', near the beginning and end of each distribution cycle.

Table 5.5. Proposed Delphi questionnaire distribution schedule

The Proposed Delphi Questionnaire Distribution Schedule:
<ul style="list-style-type: none"> • 14 Days for Introduction to the Study • Questionnaire Distribution Day • 14 Days for participants to complete questionnaire and return • Day 9: Reminder Email to complete questionnaire and return • Day of Grace • 10 Days of Data Analysis and preparation for the next Delphi Round • Day 5: Reminder Email with schedule for next Round Delphi Questionnaire • Day of Grace • Repeat x2

Note. Contingency grace period = Day of Grace

Participants were initially directed to an Excel format questionnaire to be completed and submitted in an electronic format. The electronic questionnaire garnered a low response rate with completion by eight participants. The low ratio of invitation to participation was explained by participants as a result of the electronic format. The difficulties participants

experienced surrounding the electronic format included inconsistency of the questionnaires' appearance when participants accessed the same questionnaire on different computers, a lack of computer expertise, the inability to clarify the instrument and an information overload. All respondents were contacted and made aware of these developments during the first round. A revised Delphi questionnaire distribution schedule shown in Table 5.6 was proposed and accepted with the central modification to adapt the mode of participation. Addressing the difficulties outlined by panellists, a pen-and-paper Delphi questionnaire was developed and distributed shortly thereafter. Adaptation to a paper-and-pen Delphi questionnaire significantly improved the response rate with a total of 25 participants. The revised distribution schedule maintained the two-week window for the Delphi panel to complete and return the questionnaires, and the structured contingency time of a grace period, 'Day of Grace', near the beginning and end of each of the three distribution cycles.

Table 5.6. Revised Delphi distribution schedule as conducted

The Delphi Questionnaire Distribution Schedule	
10.01.2011	Announcement and introduction to the study and invitation to previous participants
27.01.2011	Round 1 Electronic Questionnaire Distribution Day
28.01.2011 – 10.02.2011	Duration for participants to complete questionnaire and return
05.02.2011	Reminder Email to complete questionnaire and return
06.02.2011 – 13.02.2011	Consultation with Delphi panel participants to revise and redistribute Round 1 Delphi Questionnaire
14.02.2011	Round 1 Pen-and-Paper Questionnaire Re-Distribution Day
15.02.2011 - 05.03.2011	Duration for participants to complete questionnaire and return
23.02.2011	Reminder Email to complete questionnaire and return
06.03.2011	Day of Grace
07.03.2011 – 17.03.2011	Duration of Data Analysis and preparation for the next Delphi Round
11.03.2011	Reminder Email with schedule for next Round Delphi Questionnaire
18.03.2011	Day of Grace
19.03.2011	Round 2 Pen-and-Paper Questionnaire Distribution Day
20.03.2011 – 04.04.2011	Duration for participants to complete questionnaire and return
26.03.2011	Reminder Email to complete questionnaire and return
05.04.2011	Day of Grace
06.04.2011 – 11.04.2011	Duration of Data Analysis and preparation for the next Delphi Round
08.04.2011	Reminder Email with schedule for next Round Delphi Questionnaire
-	Day of Grace
12.04.2011	Round 3 Pen-and-Paper Questionnaire Distribution Day
13.04.2011 – 27.04.2011	Duration for participants to complete questionnaire and return
19.04.2011	Reminder Email to complete questionnaire and return
-	Day of Grace
25.04.2011 – 04.05.2011	Duration of Data Analysis and preparation for the next Delphi Round
05.05.2011	Email Thank you to Participants

Note. Contingency grace period = Day of Grace

Data Collection and Synthesis of the Round One Delphi Questionnaire

Upon receipt of the 25 round one Delphi questionnaires, participants' quantitative and qualitative data were collated in an Excel spreadsheet. Qualitative data (participant comments) were open coded during the first round of synthesis and analysis. The supplementary binary stress and awareness questions were collated and tallied in Excel. Quantitative data from the Likert scales were analysed using SPSS to determine the mean scores for all 36 factors present in the questionnaire.

The mean score was utilised as an operational criterion for retaining questionnaire items. Five factors were eliminated from further data collection in the Delphi questionnaire based on the analysis of the round one findings with participants judging these factors to be of low significance/importance or no significance/importance. The results from this analysis were included in the composition of the individually personalised questionnaires for round two of the modified Delphi method.

Round One Delphi Questionnaire Summary

The first round of the Delphi questionnaire overcame the challenges surrounding the initially proposed mode of participation in an electronic format. Adapting the questionnaire to a pen-and-paper format addressed a range of difficulties raised by Delphi panel participants. These difficulties included participant lack of computer expertise, the inability of participants to clarify or modify the instruments themselves, information overload, and inconsistency of the questionnaires' appearance when participants accessed the same questionnaire on different computers. The provision of a glossary of terms with the first round questionnaire had little influence upon the Delphi panel. The low measure of influence was deduced from the qualitative comments provided by participants.

Conduct of the Round Two Delphi Questionnaire

In the second round of the modified Delphi method, the 25 members of the Delphi panel was issued with individually personalised questionnaires. These questionnaires were composed with the central tendency, and mean scores for each factor to reveal the collective panel judgements from the previous round. As shown in Table C1, C2, and C3 in Appendix C, each participants' round one judgements were presented adjacent to the central tendencies. Following on from the round one results the Delphi panel was asked to rank the remaining thirty-one factors a second time, with consideration for the judgement of their peers (central tendency), as well as their own previous judgement. The five factors that were eliminated from further data collection based on the analysis of the round one findings were represented on the round two Delphi questionnaire. The presentation of this data was to inform participants of the panel's mean score of low significance/importance or no significance/importance for these factors and to provide participants with the opportunity to compare the panel's mean score with their personal judgements. A column for qualitative comments was also provided for each factor. The focus of the round two Delphi questionnaire was to scale the remaining factors and thus the supplementary binary stress and awareness questions were eliminated from further data collection. The Delphi panel were not provided with the analysis of the data collected for the supplementary questions during the Delphi method however, all analysis was made available to the panel at the conclusion of the second phase.

Data Collection and Synthesis of the Round Two Delphi Questionnaire

In the second round of the Delphi questionnaire there was a 20% participant attrition rate from the commencing Delphi panel of 25 participants. Consistent with the methods of data collection and analysis applied to the round one questionnaire, upon receipt of the second Delphi questionnaire, quantitative and qualitative data were collated in an Excel spreadsheet. Quantitative data were analysed using SPSS to determine the mean scores for the 31 factors present on the questionnaire. No additional factors were

eliminated from the Delphi questionnaire based on the analysis of the data collected. Qualitative comment data were collated and arranged using the open coding determined during the first round of synthesis and analysis. Using standard data reduction techniques for qualitative data, the responses were grouped and formed into thematic conceptually ordered groups and closed codes based on common elements. The central tendency results of the second round analysis were again included in the composition of individually personalised questionnaires for the third and final round of the modified Delphi method.

Round Two Delphi Questionnaire Summary

The second round of the Delphi questionnaire was successfully completed by 20 participants (80% participation rate). Positive feedback from the Delphi panel participants was received, noting their preference for the paper-and-pen questionnaire format, the provision of a pre-addressed reply envelope and the ease of participation compared to the electronic format.

Conduct of the Round Three Delphi Questionnaire

In the third and final round of the Delphi questionnaire, participants were again issued with individually personalised questionnaires in the same format as the previous round. The five factors that were eliminated from further data collection based on the analysis of the round one findings were not included in the round three Delphi questionnaire. The Delphi panel was asked for their final judgement on the remaining 31 factors; see Appendix C Table C4, C5, and C6.

Data Collection and Synthesis of the Round Three Delphi Questionnaire

In the third round of the Delphi questionnaire, the participation rate of the original 25-person Delphi panel remained at 80 per cent (n=20). Upon receipt of the third questionnaire, the methods of data collection and analysis applied remained consistent with the previous rounds. Qualitative data

collected were collated and arranged using the thematic conceptually ordered groups and closed codes established in the previous round. The three iterations of qualitative data collection and analysis resulted in multiple opportunities to check for validity, consistency, and reliability of the data. The result of the data reduction process was the identification of 13 closed codes. Table 5.7 displays an alphabetical list of the Delphi closed codes with a brief description to reflect the variations in the comments in the second column, followed by the frequency collected in each Delphi questionnaire round.

Table 5.7. Modified Delphi method Qualitative Data Summary

Modified Delphi Method Closed Codes	Closed Code Description	Round 1 Frequency	Round 2 Frequency	Round 3 Frequency
Awareness	Participants perceived that they <i>could be better informed</i> about the subject and that they <i>know only that they want or need to know more</i> .	30	11	0
Balance	Participant perceived the statement as <i>challenging</i> their workload, work variety and work-life balance.	4	2	0
Concept	Delphi panelists were <i>unfamiliar with concept, term or context</i> of the statement.	26	13	0
Duration	Participants perceived that their <i>short length of employment</i> excluded their opinions on the statement. <i>I have not worked in HE long enough</i> .	15	0	0
Independent	Participant <i>seeks and supports</i> their learning and academic work needs independently.	0	0	2
IT Dept (IT)	Academic staff perceived that <i>this is the role and/or responsibility of the IT department</i> .	6	0	1
Learning & Teaching (L&T)	Participants judged statement as a <i>potential library role for learning and teaching with students and staff</i> .	1	2	0
Library	Academic staff thought that the statement was <i>not the role, responsibility or within the capacity of the academic library</i> .	2	0	0
Loading	Judgement of statement is influenced by an <i>increased work load and/or student load</i> .	7	5	2
Positive	Delphi statement <i>has had a positive impact in lowering stress</i> of academic staff.	4	2	0
Same	Statement has had <i>no change and or no impact</i> on participants.	4	1	0
Students	<i>Increased Student numbers and expectations</i> influenced academic staff judgements.	0	3	0
Without	Academic staff were <i>without knowledge or interest</i> in the statement.	14	0	1

Round Three Delphi Questionnaire Summary

The final questionnaire round of the modified Delphi method was successfully completed in accordance with the Delphi questionnaire distribution schedule. Following the receipt of the questionnaires participants were sent a letter containing an expression of appreciation marking the conclusion of the study and were invited to request a copy of a summary of the research findings.

Phase Two Data Collection Summary

A modified Delphi method informed by the tentative findings from the first phase of this study successfully collected three rounds of data. The modified Delphi method is a 'long type' of data collection, with three rounds of questionnaires issued to a participating panel, designed with a combination of qualitative and quantitative forms of data. Participant attrition was not significant in this study with 25 voluntary respondents in round one and 20 voluntary respondents in rounds two and three, of the 25 participants initially consenting to take part in the study. Adverse 'long type' data collection participant signs, such as instrumentation, maturation, and subject effects were not identified nor indicated by participants in the collection of qualitative data.

Data Analysis Phase Two: The modified Delphi method

Data analysis of the first phase semi-structured interviews of this study was used to inform the design and application of a modified Delphi method (Keeney et al., 2011, p. 83). Twenty-five participants consented to participate in three successive rounds of questionnaires; 25 participated in the first round and 20 in each of the second and third rounds. As noted earlier, the questionnaires were designed with 36 factors derived from analysis of the three thematic groups identified from the interview transcripts. Participants were requested to rate the importance or significance of each of the 36 factors identified from the first phase of data collection and analysis. To measure the

relative importance of each questionnaire factor, a four-point Likert scale was used. Twenty-four factors involved an importance judgement and 12 factors involved a significance judgement. The predetermined target in the analysis of the modified Delphi method was to exclude items of low or no significance/importance as a tool for refining factors (Keeney et al., 2011). All rounds of the modified Delphi method were used to validate the data analysis process, in which quantitative judgements on the factor rating scale and qualitative comments on factors were analysed. Summary statistics were computed to reduce and refine the number of questionnaire factors as the concerns of panellists were iteratively identified.

The ranking analysis was reverse-scored for intuitive clarity, with greater numbers signifying more importance or significance and lower numbers signifying less importance or significance. In Appendix C, tables C7-C15 display the transposed Likert scale rankings. Measures of central tendency (mean) were computed to summarise the data for each factor, or variable, of the Delphi questionnaires. Measures of dispersion (standard deviation) were computed to understand the variability of scores for the Delphi factors.

Descriptive Statistics of the Delphi Panel

Demographic data were collected with the first round questionnaire from 25 academic staff who consented to participate in the modified Delphi method to generate descriptive statistics. The demographic data relating to these participants is shown in Table 5.8.

Table 5.8. Demographic Characteristics of the Delphi Panel

Characteristic	n	%
Number of years worked in higher education (n=25)		
less than 5	9	36
5-10	7	28
11-20	1	4
21-30	6	24
31+	2	8
Number of higher education institutions employed by (n=24)		
1	9	37.5
2	8	33.3
3	5	20.8
4	1	4.2
5+	1	4.2
Employment status (n=24)		
Permanent continuing	16	66.7
Sessional/Contract/Casual	8	33.3
Gender (n=25)		
Male	11	44
Female	14	56
Age (n=25)		
below 30	2	8
31-40	6	24
41-50	5	20
51-60	9	36
61+	3	12
Level of appointment (n=25)		
Lecturer	15	60
Snr Lecturer	6	24
A/Professor	2	8
Professor	2	8
Other	0	0

As Table 5.8 shows, nearly a third of participants had more than 20 years' experience working in higher education, with approximately another third having between five and 20 years' experience. More than half of the panel had been employed in more than two higher education institutions. Nearly two-thirds of participants were employed as permanent continuing staff at Glendalough University. Slightly more than half of the Delphi panel were female and slightly more than half were aged 50 or younger. Forty per cent of participants contributing to this study were employed at a level of appointment above lecturer.

Round One Delphi Questionnaire Analysis

Quantitative Delphi questionnaire data were collated and arranged in an Excel spreadsheet in the first instance. An SPSS database was set up for the analysis of the three iterations of the modified Delphi method, with each questionnaire factor established as a separate variable. Quantitative data from the Likert scales were analysed using SPSS to generate the mean scores that were used as an operational definition for retaining questionnaire items. As noted earlier, from the first round of analysis five factors were eliminated from further data collection and analysis; with participants judging these factors as of low significance/importance or not at all significant/important. Analysis of the first round of the modified Delphi method was used to construct individually personalised second round questionnaires presenting the central tendency, mean scores and the panellist's previous judgement for each factor.

Qualitative analysis of the round one data was informed by the content-analysis procedure and tentative findings from the semi-structured interviews in the first phase. The within-case display of a conceptually ordered content-analytic summary matrix from phase one of the study was used as a 'start-list' for coding the comments of participants. Emerging tentative themes were developed around similar statements informing the arrangement and analysis of data that 'belonged together' (Miles & Huberman, 1994, p. 127). Using standard content analysis data reduction techniques for qualitative data, the responses were grouped and formed into factors/categories based on common elements. There were several iterations of this process and along the way it was checked for consistency and reliability. The result of the data reduction process was the identification of 13 thematic conceptually ordered groups for use in the second round of questions.

Summary statistics for the round one Delphi questionnaire are presented in Appendix C, in Tables C7, C8, and C9 with the reverse-scored judgement score of the Delphi panel (n=25).

The quantitative data analysis measurement values presented have been reverse-scored for intuitive reading of the results, with greater numerical values indicating higher importance or significance of a factor. The aggregation score, labelled as the judgement score in the Appendix C tables, have also been reverse-scored for clear presentation.

Round Two Delphi Questionnaire Analysis

Data analysis of the second round questionnaire was consistent with the processes of qualitative and quantitative analysis administered in the first round. Analysis of the second round of the modified Delphi method was used to construct individually personalised third round questionnaires again presenting the central tendency, mean scores, and the panellist's previous judgement for each factor. Qualitative comments were thematically coded based on the categories from the previous round of analysis, before the data were entered into SPSS. For the quantitative data analysis, the measurement values displayed were again reverse-scored for intuitive reading of the results, with greater numerical values indicating higher importance or significance of the factor. The aggregation score labelled as the judgement score in Appendix C, Tables C10, C11, and C12 has also been reverse-scored for clear and consistent presentation of the analysis.

Round Three Delphi Questionnaire Analysis

Data analysis of the third round questionnaire remained consistent with the processes of qualitative and quantitative analysis carried out on the previous rounds. Qualitative data were analysed, tested for data validity and verification using the two sets of tactics identified by Miles and Huberman (1994). A within-case display of the conceptually ordered content-analytic summary matrix was constructed from the three observations of modified Delphi method qualitative data. For the quantitative data analysis, the measurement values presented were reverse-scored for intuitive reading of the results, with greater numerical values indicating higher importance or significance of a factor. The aggregation score, labelled as the judgement

score in Appendix C, Tables C13, C14, and C15 has also been reverse scored for clear presentation of the analysis. Each factor was analysed for consensus from the panel in the third round of the questionnaire. The consensus level was predetermined as having been achieved if 75% or more of panellists judged a factor as medium or high significance/importance (Keeney et al., 2011).

Data Analysis of the qualitative data collected in the modified Delphi method

The three iterations of qualitative data collection and analysis resulted in multiple opportunities to check for validity, consistency, and reliability of the data. The result of the data reduction process was the identification of 13 closed codes. A rank-ordered list of the Delphi closed codes is provided in Table 5.9 with their frequency and a brief description of each closed code to reflect the variations in the participants' comments.

Table 5.9. Rank ordered modified Delphi method Closed Codes

Rank	Frequency	Modified Delphi Method Closed Codes	Closed Code Description
1	41	Awareness	Participants perceived that they <i>could be better informed</i> about the subject and that they <i>know only that they want or need to know more</i> .
2	39	Concept	Delphi panelists were <i>unfamiliar with concept, term, or context</i> of the statement.
3	15	Without	Academic staff were <i>without knowledge or interest</i> in the statement.
3	15	Duration	Participants perceived that their <i>short length of employment</i> excluded their opinions on the statement. <i>I have not worked in HE long enough</i> .
5	14	Loading	Judgement of statement is influenced by an <i>increased workload and/or student load</i> .
5	7	I.T.	Academic staff perceived that <i>this is the role and/or responsibility of the IT department</i> .
6	6	Balance	Participant perceived the statement as <i>challenging their workload, work variety, and work-life balance</i> .
6	6	Positive	Delphi statement <i>has had a positive impact in lowering stress</i> of academic staff.
7	5	Same	Statement has had <i>no change and or no impact</i> on participants.
8	3	Students	<i>Increased Student numbers and expectations</i> influenced academic staff judgements.
8	3	Learning and Teaching	Participants judged statement as a <i>potential library role for learning and teaching with students and staff</i> .
9	2	Library	Academic staff thought that the statement was <i>not the role, responsibility or within the capacity of the academic library</i> .
9	2	Independent	Participant <i>seeks and supports their learning and academic work needs independently</i> .

Summary of Phase Two Analysis

Triangulation was embedded within the three rounds of the modified Delphi method to ensure the legitimacy and validity of the data collected. Similarly, concern for scientific integrity shaped the research design with the simultaneous collection of qualitative data with the free response comments column affording participants the opportunity to describe explicitly the relationships of the presented factors. A four-point Likert scale was used to record quantitative data and measure the relative importance of each questionnaire factor. SPSS was used to generate this statistical analysis, from which statistical measures were redistributed to the Delphi panel in the development of the personalised second and third round questionnaires. Personalised questionnaires presented a visual summary of the panel's previous judgement of a factor and the collective Delphi panel previous judgements of a factor.

Statistical analysis of quantitative data and content analysis of qualitative data was conducted on three rounds of data collected from the modified Delphi method. The second phase of the study had an internal validation process coupled with multiple levels of examination (Creswell, 2003, p. 221) to inform the tentative findings which were applied to develop the research instrument for the following third phase.

Data integrity and validation procedures in mixed methods research (Creswell, 2003, p. 220) were continued in the second phase of the study. The validity and integrity of the sequence of data collection, transformation of data between qualitative and quantitative, and the evolution of data synthesised to inform the instruments for the next phase of data collection were all paramount considerations during the conduct of this study. Data transformation in the modified Delphi method analysis consisted of calculating the frequency of qualitative codes and tentative themes.

Phase Two Results

In the modified Delphi method, 25 participants consented to participate in three successive rounds of questionnaires and 20 completed the process. The questionnaires were designed with 36 factors derived from analysis of the thematic groups identified from the previous interview transcripts. Participants rated the relative importance of each questionnaire factor on a four-point Likert scale. The predetermined target in the analysis of the modified Delphi method was to exclude items of low or no significance/importance as a tool for refining factors (Keeney et al., 2011). Participants had the opportunity to qualify or comment on the 36 questionnaire items. Analysed qualitative data was tested for data validity and verification using the two sets of tactics identified by Miles and Huberman (1994). (See Chapter 3, Figure 3.9 and Figure 3.13.)

The 36 questionnaire factors (items) presented in the modified Delphi method were refined by the three-round process. During the three round process low ranking factors were excluded and the remaining factors were prioritised according to the measure of their rank of relative importance. Appendix C shows in Tables C7-C15 low ranking questionnaire factors refined by the three-round Delphi technique. The resulting 24 ranked questionnaire factors were statistically analysed for correlation.

SPSS was used to generate the statistical analysis of the quantitative data from the three rounds of the modified Delphi method. Descriptive and summary statistical analysis applied in the second phase included the central tendencies (means), levels of dispersion (standard deviation), frequency, valid per cent, aggregation score (sum) and rank. Questionnaire factors, which reached the predetermined level of consensus, have been presented in the findings. The resulting factors that gained consensus from the Delphi panel have formed the final list of research priorities (Keeney et al., 2011, p. 81).

Internal statistical analysis of the three Delphi questionnaires compared findings from participants' grouped level of appointment.

Participants appointed as lecturers (60%) were compared with the 40% of participants appointed as senior lecturers, associate professors, and professors. There was no consistency in importance ratings between academics with the analysis by level of appointment, age, gender, years in higher education employment and number of higher education institutions in which participants had worked. The consistent analysis procedure applied yielded no significant differences in the importance ratings between academics.

The three tables, Table 5.10, Table 5.11, and Table 5.12 display the cumulative results of the modified Delphi method's third round questionnaires. The resulting factors that gained consensus from the Delphi panel formed the final list of research priorities (Keeney et al., 2011, p. 81). The predetermined level of consensus was established at 75 valid per cent, which combined high and medium significance or judgement. The predetermined level of consensus was reached for the factors displayed in the tables 5.10-5.12. Statistical analysis presented includes the descriptive statistics of the central tendencies (means), levels of dispersion (standard deviation), frequency, valid per cent, judgement aggregation score (reverse scored sum), and rank. The rank-ordered priority statements for present issues and concerns related to academic work are shown first (Table 5.10). The second and third tables (Table 5.11 and Table 5.12) display the rank-ordered priority statements for future issues and concerns related to library service responses to the changing nature of academic work and then the lifelong learning opportunities that respond to the changing nature of academic work.

Table 5.10. Modified Delphi method Present Issues and Concerns: Academic Work

Rank	Judgement Score	Academic Work Priority Statements	M	SD	f	%
1	71	Increased workload	3.550	0.826	18	90
2	67	Changing government policy in higher education	3.350	0.813	18	90
3	66	Closer nexus between teaching and research	3.300	0.657	18	90
3	66	Increasing research emphasis in universities	3.300	0.923	16	80
4	62	Level of responsibility	3.100	0.553	18	90
5	61	Increased accountability	3.050	0.887	17	85
5	61	Changes in organisational culture	3.050	0.887	15	75
5	61	Knowledge of and availability of people and services for provision of support	3.050	0.887	15	75
6	60	Diversification and changing priorities of responsibilities	3.158	0.688	16	84.2
7	59	Support from IT services	2.950	0.826	15	75

Note Delphi Panel (n = 25); Rank = Priority; Judgement Score = Delphi Panel reverse scored judgement score; M = Mean; SD = Standard Deviation; f = frequency; % = Valid per cent.

The third and final Delphi questionnaire round prioritised the academic work related concerns of the Delphi panel. In the reporting of the results shown in Table 5.10 several trends in the analysed data are noted. Ninety per cent of the Delphi panel was in agreement on the prioritisation of statements ranked as the first, second and third concern for academic staff. Over 80% of participants judged the ‘closer nexus between teaching and research’ and the ‘increasing research emphasis in universities’ to be of equal concern and the joint third concern. In a similar manner, there was consensus among over 75% of the Delphi panel for the three concerns that were tied in the fifth place priority statement ranking shown in Table 5.10.

Table 5.11. Modified Delphi method Future Issues and Concerns: Library Service

Rank	Judgement Score	Library Service Priority Statements	M	SD	f	%
1	66	Keeping up-to-date with scholarly knowledge which necessitates keeping-up-to-date with other skills to access information resources	3.300	0.865	17	85
2	60	The transfer of scholarly knowledge for lecturing and teaching purposes e.g. PowerPoint, Echo360/Podcast, Video	3.000	1.076	15	75
3	59	Keeping up-to-date with information resources which requires contextual legal knowledge e.g. copyright, intellectual property, open access	2.950	0.826	15	75
4	58	The transfer of scholarly knowledge for eLearning e.g. BlackBoard	2.900	1.021	15	75

Note Delphi Panel (n = 25); Rank = Priority; Judgement Score = Delphi Panel reverse scored judgement score; M = Mean; SD = Standard Deviation; f = frequency; % = Valid per cent.

Table 5.11 shows the ranked academic library service priorities of the Delphi panel from the final Delphi questionnaire round. The four priority statements displayed retained their importance for participants above the initial ten factors presented. Within the four statements of future academic library services issues and concerns, the first and third statements respond to academic staff concerns about the dissemination or ‘transfer of scholarly knowledge’. The second and fourth statements address ‘keeping up-to-date’ with the changing characteristics of scholarly knowledge and information resources.

Table 5.12. Modified Delphi method Future Issues and Concerns: Lifelong Learning

Rank	Judgement Score	Lifelong Learning Priority Statements	M	SD	f	%
1	58	Support of accessible publishing practices including awareness of copyright, intellectual property rights and licensing issues	2.900	.912	15	75
2	57	Opportunity to identify literacies and skills for development	2.850	.671	16	80

Note Delphi Panel (n = 25); Rank = Priority; Judgement Score = Delphi Panel reverse scored judgement score; M = Mean; SD = Standard Deviation; f = frequency; % = Valid per cent.

Shown in Table 5.12 are the prioritised lifelong learning statements ranked by the Delphi panel in the third Delphi questionnaire. To the exclusion of the other eight potential future lifelong learning issues and concerns presented to participants, two priority statements maintained their influence. Three quarters of participants' ranking corresponded with accessible publishing support as the first lifelong learning priority. The second priority for four fifths of the Delphi panel was support in the process of identifying skill development areas.

Correlation 1: New Modes of Learning

To understand the Delphi panel's priority statements for anticipated future issues and concerns, the relationship between 'academic library services' and 'learning opportunities' was investigated with statistical analysis. A Spearman's rho was computed to assess the relationship between 'the library's provision of accessible publishing services' and 'the opportunity for accessible publishing information in the context of lifelong learning'. The same analysis was used to assess the relationship between 'the library's provision of services to address new modes of learning' and 'the opportunity for experiencing new modes of learning in the context of lifelong learning'. Overall, there was a strong positive correlation between 'academic library services' and 'learning opportunities'. The Delphi panel's judgement of the

increased importance of academic library service provision in the anticipated future was correlated with their view of the increased importance of lifelong learning opportunities.

Illustrated in the Figure 5.1, Figure 5.2, Figure 5.3, and Figure 5.4 pie charts are the distributions for Delphi panel judgement in percentages for correlation analysis of *new modes of learning*:

- Importance of new modes of learning provided as a lifelong learning opportunity.
- Impact on stress of new modes of learning provided as a lifelong learning opportunity.
- Importance of new modes of learning provided as a library service.
- Impact on stress of new modes of learning provided as a library service.

Q3LL5 New Modes of Learning Provided as a Lifelong Learning Opportunity

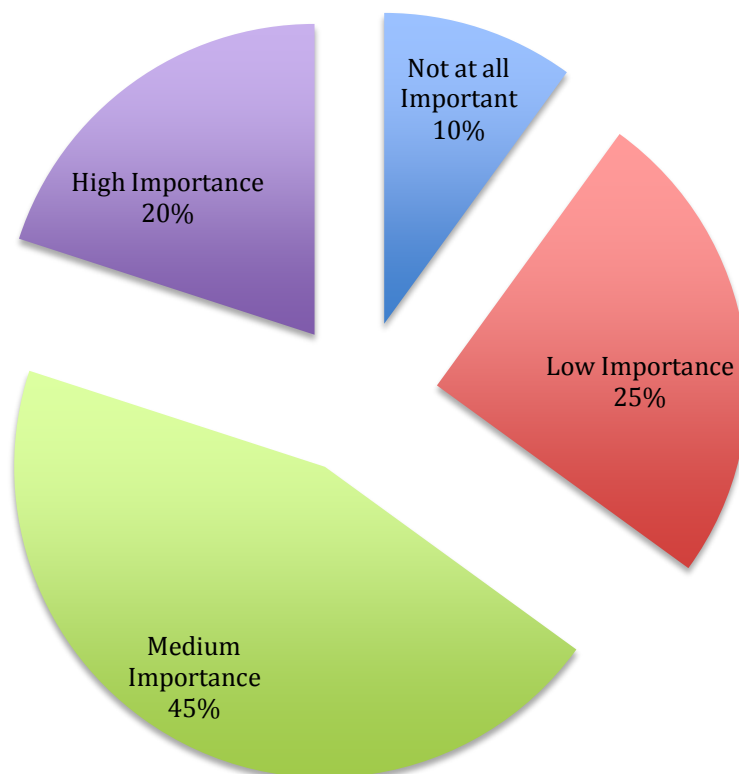


Figure 5.1: Importance of new modes of learning provided as a lifelong learning opportunity.

Figure 5.1 shows 65 per cent of the Delphi panel identified an important link, high importance and medium importance, between opportunities for new modes of learning and their lifelong learning. The importance of the relationship between opportunities for new modes of learning and lifelong learning was perceived by 20 per cent of the Delphi panel to be of high importance. Twice as many participants in the modified Delphi methods identified the 'high importance' of this relationship, compared to 10 per cent who perceived this relationship to be 'not at all important'.

The difference in Delphi panel perspectives is consistent with tentative themes identified in the first phase of the study. The tentative themes of *support*, *intensification*, and *compliance* and the tentative subsidiary themes of *sustainability* and *performance* correspond with the quantitative results shown in Figure 5.1. The tentative themes identified in the qualitative data analysed

are derived from the range of contrasting perspectives and expectations perceived within the context of HEI employment. The following chapter will contribute to elaborating upon these statistical results with the data from two focus groups.

Q3LL5 Stress and New Modes of Learning: Provided as a Lifelong Learning Opportunity

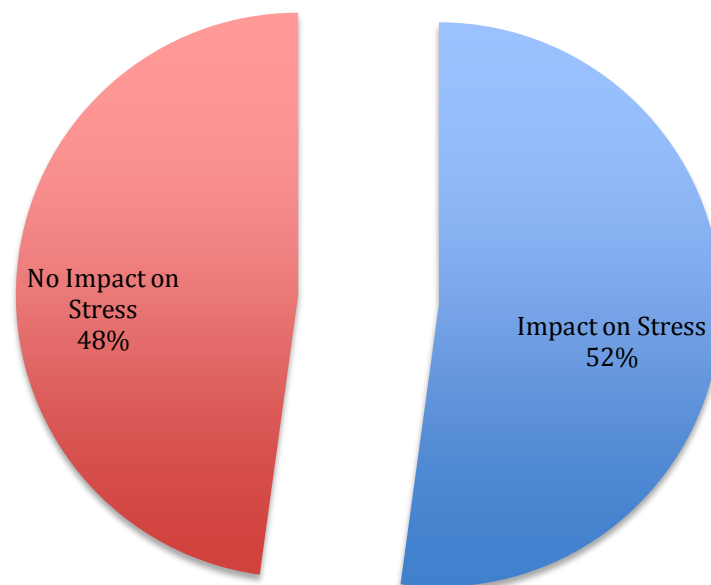


Figure 5.2: Impact on stress of new modes of learning provided as a lifelong learning opportunity.

More than half the Delphi Panel in Figure 5.2 assessed new modes of learning provided as a lifelong learning opportunity to have ‘no impact on stress’. The two per cent difference in perceived impact on stress is not substantial enough in this phase of the study to elaborate upon meaningfully. However, subsequent data collected in focus groups and interviews have sought to address several of the ambiguous quantitative results from the modified Delphi methods.

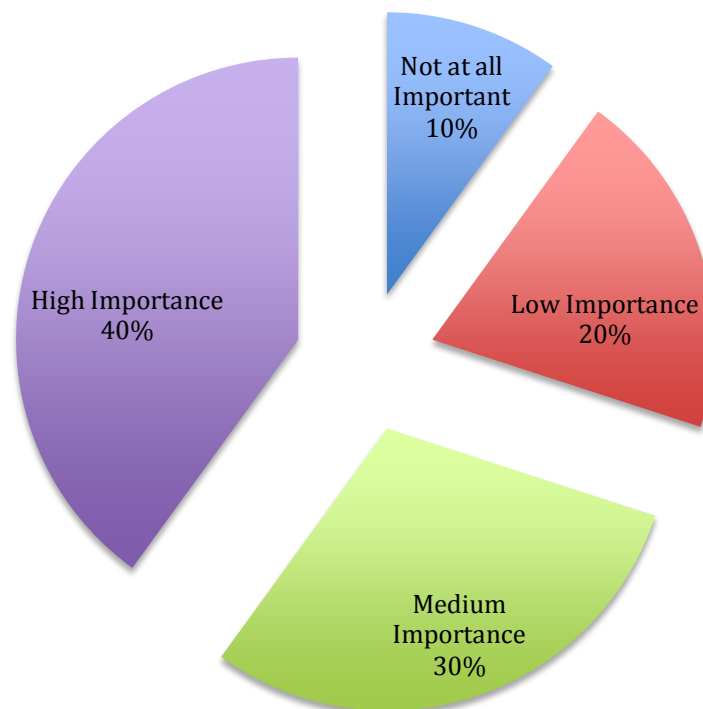
Q3LB6 New Modes of Learning Provided by Library Services

Figure 5.3: Importance of new modes of learning provided as a library service.

Shown in Figure 5.3, 70 per cent of the Delphi panel identified an important link, high importance and medium importance, between new modes of learning and academic library services. Along the continuum of importance measured, four times as many participants perceived this link to be of 'high importance' compared to the 'not at all important' category. 'New modes of learning' displayed in Figure 5.1 as a lifelong learning opportunity and Figure 5.3 as an academic library service shows the general agreement of the Delphi panel on the importance of this factor to meet the anticipated future needs of academic staff.

Q3LB6 Stress and New Modes of Learning: Provided by Library Services

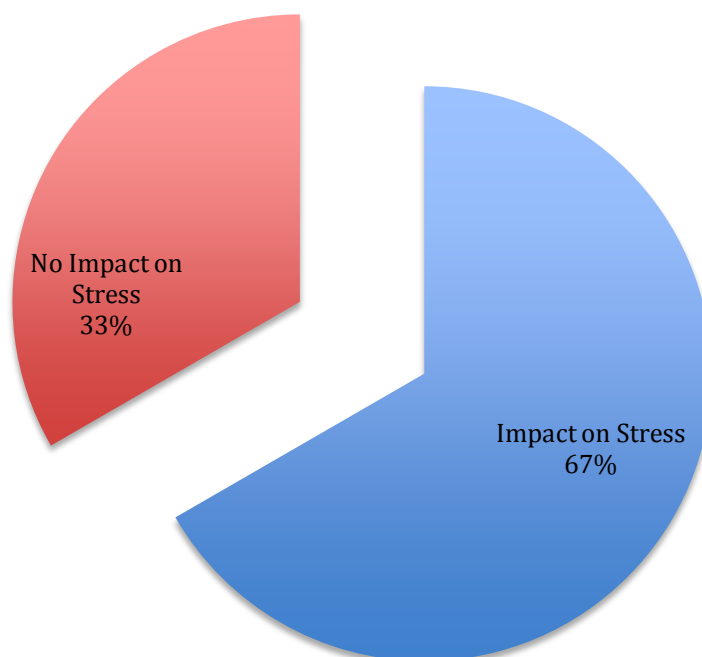


Figure 5.4: Impact on stress of new modes of learning provided as a library service.

Sixty-seven per cent of the Delphi panel depicted in Figure 5.5 assessed an increased impact on stress from the relationship generated by new modes of learning provided as an academic library service. Slightly less than a third of participants anticipated that providing ‘new modes of learning as an academic library service’ would ‘not impact upon the stress’ they experience within the context of HEI employment. An interesting observation between Figure 5.2 and Figure 5.4, which depict the impact on stress, is the distribution of the Delphi panel. Participants were almost equally divided in their perceptions of the anticipated stress associated with ‘opportunities for new modes of lifelong learning’ (Figure 5.2). ‘New modes of learning provided as an academic library service’ shows a more distinct difference in the perceptions of the Delphi panel with twice as many academic staff deciding that this option would negatively impact upon their anticipated stress.

Correlation 2: Accessible Publishing

Illustrated in the Figure 5.5, Figure 5.6, Figure 5.7, and Figure 5.8 pie charts are the distributions for Delphi panel judgement in percentages for correlation analysis of *accessible publishing*:

- Importance of accessible publishing provided as a lifelong learning opportunity.
- Impact on stress of accessible publishing provided as a lifelong learning opportunity.
- Importance of accessible publishing provided as a library service.
- Impact on stress of accessible publishing provided as a library service.

The relationship between ‘academic library services’ and ‘learning opportunities’ was investigated with statistical analysis to understand the Delphi panel’s priority statements for anticipated future issues and concerns. A Spearman’s rho was computed to assess the relationship between ‘the library’s provision of accessible publishing services’ and ‘the opportunity for accessible publishing information in the context of lifelong learning’. The same analysis was used to assess the relationship between ‘the library’s provision of services to address new modes of learning’ and ‘the opportunity for experiencing new modes of learning in the context of lifelong learning’. Overall, there was a strong positive correlation between ‘academic library services’ and ‘learning opportunities’. The Delphi panel’s judgement of the increased importance of ‘academic library service provision’ in the anticipated future was correlated with their view of the increased importance of ‘lifelong learning opportunities’.

Q3LL10 Accessible Publishing Provided as a Lifelong Learning Opportunity

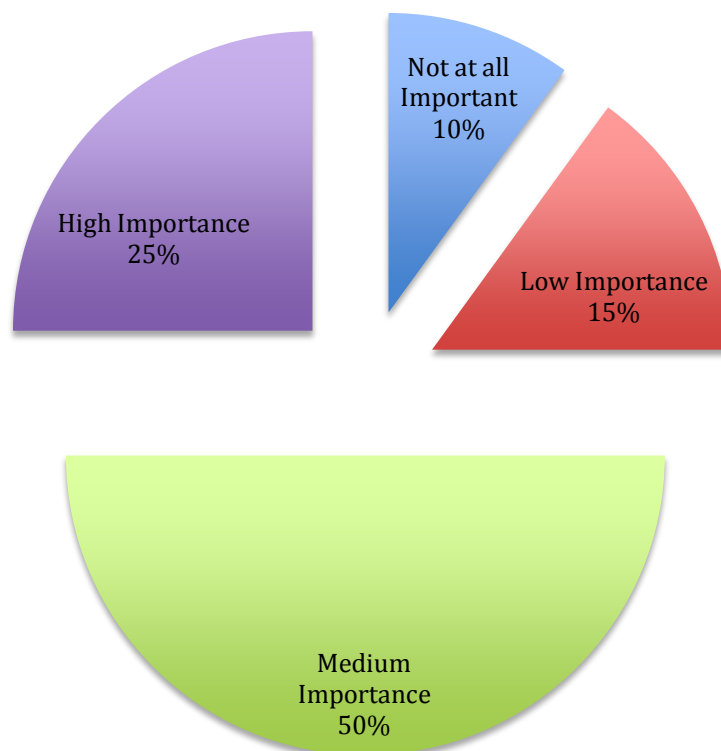


Figure 5.5: Importance of accessible publishing provided as a lifelong learning opportunity.

Figure 5.5 shows 75 per cent of the Delphi panel identified an important link, high importance and medium importance, between learning about accessible publishing and their lifelong learning. More than twice as many participants in the modified Delphi method identified the 'high importance' of this link, in contrast to the 10 per cent who perceived this relationship to be 'not at all important'. The 'high importance' of the relationship between opportunities for learning about accessible publishing and academic staff lifelong learning was anticipated by twenty-five per cent of the Delphi panel.

Q3LL10 Stress and Accessible Publishing: Provided as a Lifelong Learning Opportunity

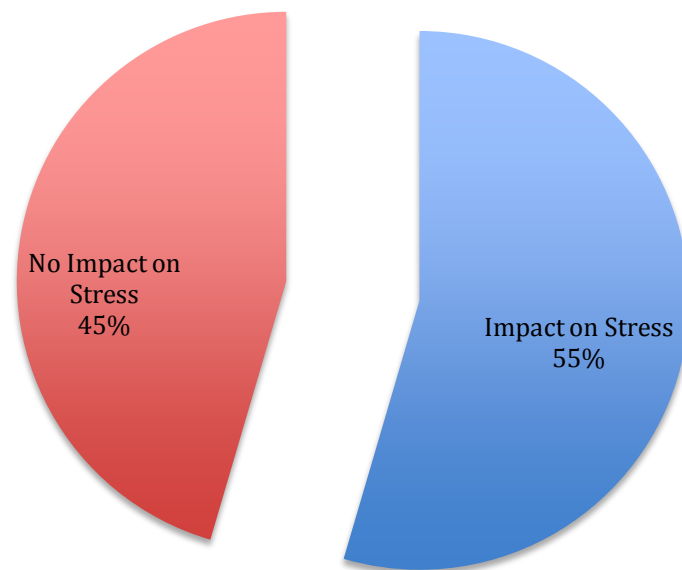


Figure 5.6: Impact on stress of accessible publishing provided as a lifelong learning opportunity.

More than half the Delphi panel represented in Figure 5.6 assessed learning about accessible publishing for lifelong learning to have ‘no impact on stress’. The results displayed in Figure 5.6 resemble those reported in Figure 5.2. In which, the five per cent difference in perceived impact on stress is not substantial enough in this phase of the study to expand upon in this instance. However, the combined relatively equal distribution presented in Figure 5.6 and Figure 5.2 suggest that overall lifelong learning opportunities have less impact on academic staff stress and overall the use of academic library services have a greater impact on academic staff stress.

Q3LB3 Accessible Publishing Provided by Library Services

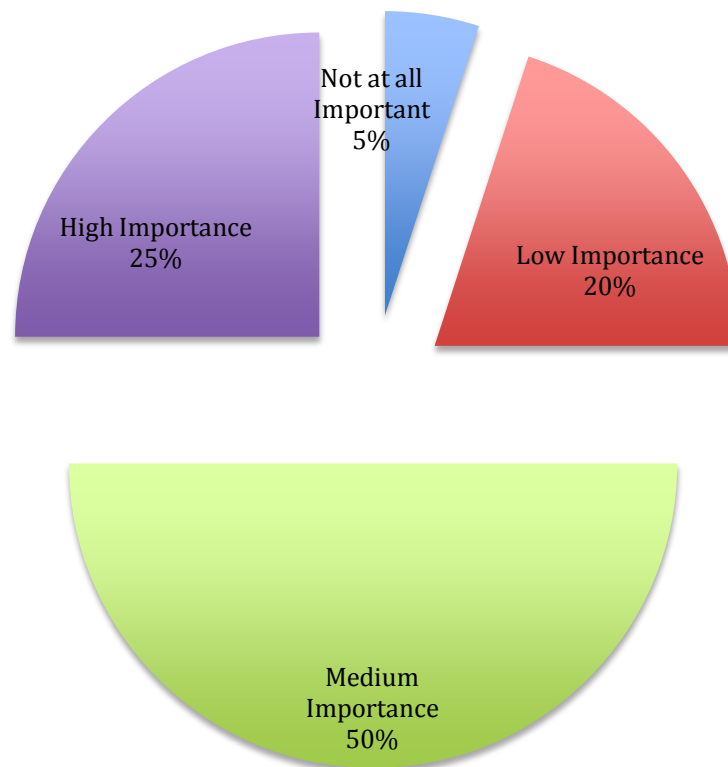


Figure 5.7: Importance of accessible publishing provided as a library service.

Shown in Figure 5.7, 75 per cent of the Delphi panel identified an important link, high importance and medium importance, between accessible publishing provided as an academic library service. Five times as many participants perceived this link to be of 'high importance' compared to the 'not at all important' category. 'Accessible publishing' displayed in Figure 5.5 as a lifelong learning opportunity and Figure 5.7 as an academic library service shows the general agreement of the Delphi panel on the importance of this factor to meet the anticipated future needs of academic staff.

Q3LB3 Stress and Accessible Publishing: Provided by Library Services

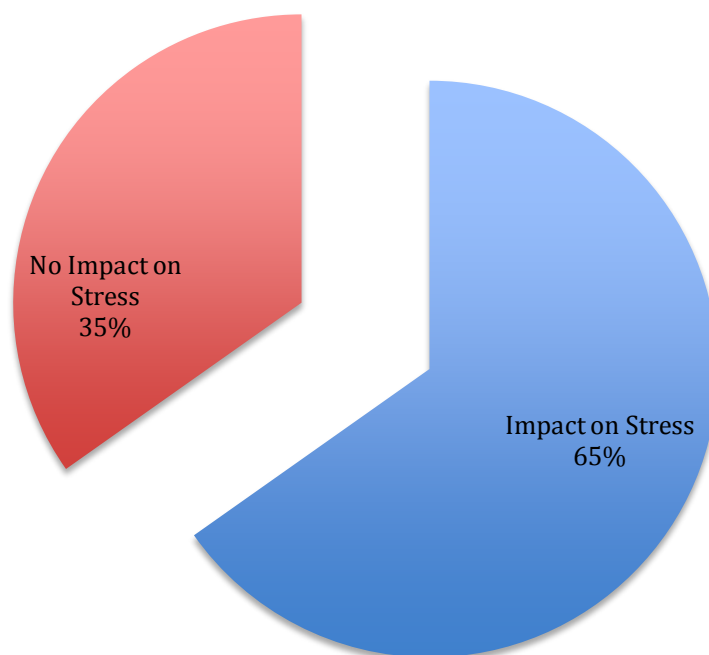


Figure 5.8: Impact on stress of accessible publishing provided as a library service.

Sixty-five per cent of the Delphi panel assessed an increased impact on stress from the relationship generated by accessible publishing provided as an academic library service in Figure 5.8. Little more than a third of participants anticipated that providing ‘accessible publishing as an academic library service’ would not impact upon the stress they experience within the context of HEI employment. Between Figure 5.6 and Figure 5.8 there is a notable similarity in the distribution of the Delphi panel shown to illustrate the anticipated impact on academic staff stress. Participants were almost equally divided in their perceptions of the anticipated stress associated with ‘lifelong learning opportunities for accessible publishing’ presented in Figure 5.6. ‘Accessible publishing provided as an academic library service’ shows disparate perceptions from the Delphi panel with more than twice as many academic staff deciding that this option would negatively impact upon and increase the anticipated stress experienced.

The column chart presented in Figure 5.9 displays a side-by-side comparison of the Delphi panel's judgement of the impact on stress between library services and lifelong learning opportunities.

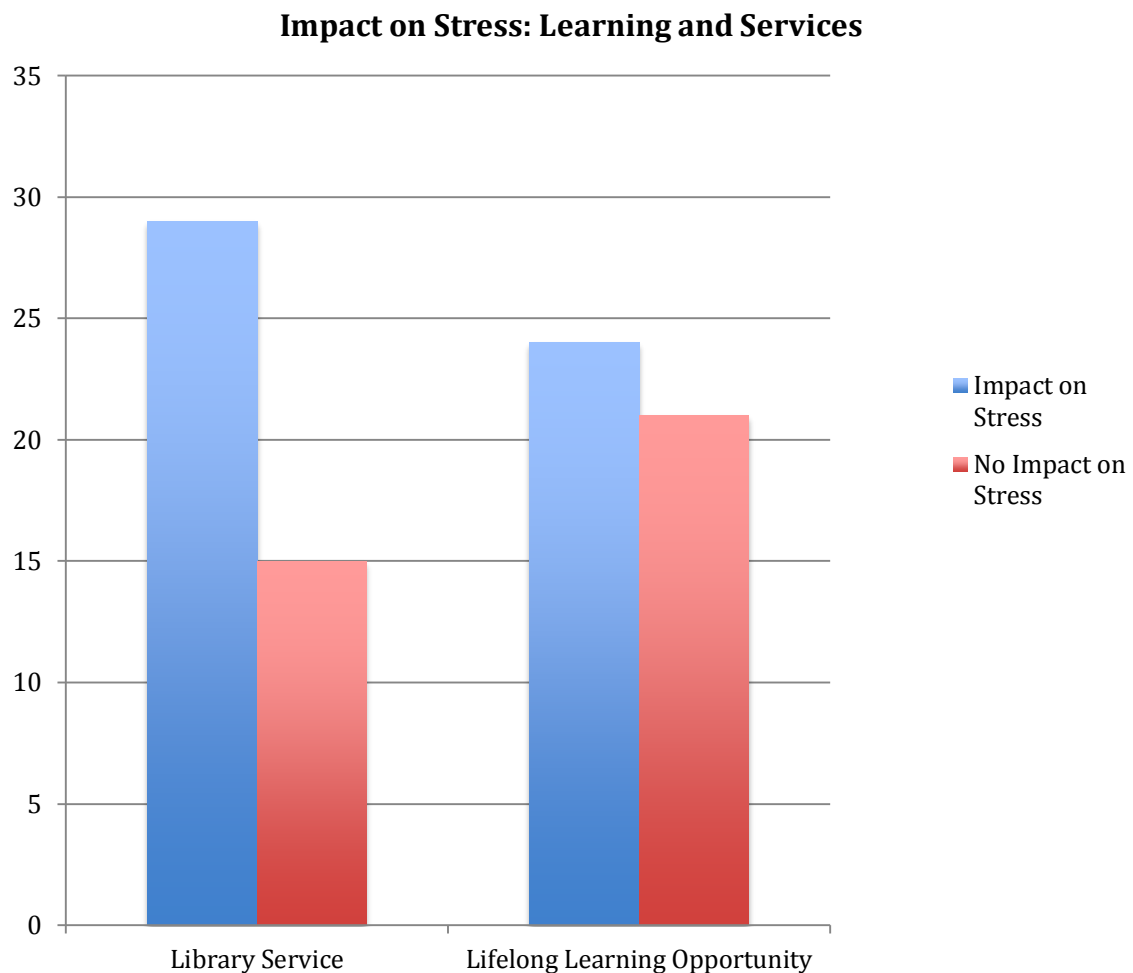


Figure 5.9: Comparison of impact on stress between library services and lifelong learning opportunities.

Analysis of the modified Delphi method qualitative comments of the factors analysed in exploring the relationship between a service and a learning opportunity, reported the highest frequency for the code 'Awareness'. Displayed in Table 5.13 is a summary of the code 'Awareness' with a description that is expanded from participants' quotes in italics is provided.

Table 5.13. Modified Delphi method comment consistent with correlations

Rank	Frequency	Modified Delphi Method Closed Codes	Closed Code Description
1	41	Awareness	Participants perceived that they <i>could be better informed</i> about the subject and that they <i>know only that they want or need to know more</i> .

The Focus group instrument as informed by the findings of Phase Two

Five factors were identified from the round three Delphi questionnaire results as presenting a similar proposition; however, from two different perspectives. These five factors were presented as both a service that the university library could provide (LB) and as a learning opportunity that the university library could support (LL). The five factors are:

- Personal Knowledge Management,
- Problem-solving and Troubleshooting,
- New Modes of Working,
- New Modes of Learning, and
- Accessible Publishing.

Table 5.14. Paired Delphi questionnaire factors identified for correlation analysis

Delphi Questionnaire Concept Summary	Delphi Questionnaire Factors
Personal Knowledge Management	Q3LB12: Provision of data storage, archiving and preservation techniques/skills
	Q3LL2: Provision of Personal Knowledge Management (PKM) skills
Problem-solving and troubleshooting	Q3LB4: Troubleshooting, incorporating tracing challenges when locating, identifying and accessing information
	Q3LL3: Opportunity to identify literacies and skills for development
New Modes of Working	Q3LB7: The transfer of scholarly knowledge for lecturing and teaching purposes e.g. PowerPoint, Echo360/Podcast, Video
	Q3LL4: Opportunities to explore, experiment with and experience new modes of working
New Modes of Learning	Q3LB6: Constantly changing technological processes employed in teaching, learning and knowledge acquisition and transfer e.g. changing use of mobile devices
	Q3LL5: Opportunities to explore, experiment with and experience new modes of learning
Accessible Publishing	Q3LB3: Keeping up-to-date with information resources which requires contextual legal knowledge e.g. copyright, intellectual property, open access
	Q3LL10: Support of accessible publishing practices including awareness of copyright, intellectual property rights and licensing issues

Note. LB = Services provided by the university library (emphasis library service provision). LL = University libraries supported learning opportunities and experiences (emphasis lifelong learning opportunities).

Statistical analysis of the Delphi questionnaires of the central tendencies revealed that these factors were of significance/importance or high significance/importance and therefore were present in all three rounds of the modified Delphi method. A non-parametric procedure, Spearman's rank order correlation coefficient (i.e., Spearman's rho) was performed in the statistical software SPSS 18.0 on five pairs of variables identified in the third round of the modified Delphi method to develop the focus group instrument. The Spearman's rho was identified as a useful analysis procedure as the study comprised of more than 20 participants ($n = 25$) and both the predictive variable and the criterion variable consisted of ordinal data in the Likert ranking scores. The statistically significant results of the non-parametric analysis of correlation coefficients of paired Delphi questionnaire factors are reported in the following sequence; first 'new modes of learning', followed by 'accessible publishing'. Presented in Table 5.15 and Table 5.16 is a summary of the relationship between factors and their levels of dispersion.

Table 5.15. Correlation analysis of New Modes of Learning as a service or learning opportunity

Opportunity

New Modes of Learning									
Constantly changing technological processes employed in teaching, learning and knowledge acquisition and transfer e.g. changing use of mobile devices						Opportunities to explore, experiment with and experience new modes of learning			
						**Correlation is significant at the 0.01 level (2-tailed)			
6. Constantly changing technological processes employed in teaching, learning and knowledge acquisition and transfer e.g. changing use of mobile devices									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	4	20.0	6	30.0	8	40.0	20	100.0
Valid Cases		20		Missing Cases		5			
5. Opportunities to explore, experiment with and experience new modes of learning									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	5	25.0	9	45.0	4	20.0	20	100.0
Valid Cases		20		Missing Cases		5			

Table 5.16. Correlation analysis of Accessible Publishing as a service or learning opportunity

Accessible Publishing									
Keeping up-to-date with information resources which requires contextual legal knowledge e.g. copyright, intellectual property, open access						Support of accessible publishing practices including awareness of copyright, intellectual property rights and licensing issues			
** Correlation is significant at the 0.01 level (2-tailed)									
3. Keeping up-to-date with information resources which requires contextual legal knowledge e.g. copyright, intellectual property, open access									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
1	5.0	4	20.0	10	50.0	5	25.0	20	100.0
Valid Cases			20	Missing Cases			5		
10. Support of accessible publishing practices including awareness of copyright, intellectual property rights and licensing issues									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	3	15.0	10	50.0	5	25.0	20	100.0
Valid Cases			20	Missing Cases			5		

A Spearman's rho was computed to assess the relationship between 'the academic library's provision of services to address new modes of learning' and 'the opportunity for experiencing new modes of learning in the context of lifelong learning' (Figure 5.10). There was a positive correlation between the two variables, $r = 0.515$, $n = 20$, $p = 0.020$. Overall, there was a strong positive correlation between academic library provision of services to address new modes of learning and opportunities for experiencing new modes of learning in the context of lifelong utility. The Delphi panel's judgement of

increased importance in academic library service provision was correlated with increased importance in judgement of lifelong learning opportunities.

New Modes of Learning				
Constantly changing technological processes employed in teaching, learning and knowledge acquisition and transfer e.g. changing use of mobile devices		**Correlation is significant at the 0.01 level (2-tailed)	Opportunities to explore, experiment with and experience new modes of learning	
			Q3LB6	Q3LL5
Spearman's rho	Q3LB6	Correlation Coefficient	1.000	.515**
		Sig. (2-tailed)		.020
		N	20	20
	Q3LL5	Correlation Coefficient	.515**	1.000
		Sig. (2-tailed)	.020	
		N	20	20

Figure 5.10. Non-parametric Correlation Coefficients of paired 'New Modes of Learning' Delphi factors.

A Spearman's rho was computed to assess the relationship between 'the academic library's provision of accessible publishing services' and 'the opportunity for accessible publishing information in the context of lifelong learning' (Figure 5.11). There was a positive correlation between the two variables, $r = 0.545$, $n = 20$, $p = 0.013$. Overall there was a strong positive correlation between academic library provision of accessible publishing services and opportunities for accessible publishing information in the context of lifelong learning. The Delphi panel's judgement of increased importance in academic library service provision was correlated with increased importance in judgement of lifelong learning opportunities.

Accessible Publishing				
Keeping up-to-date with information resources which requires contextual legal knowledge e.g. copyright, intellectual property, open access		** Correlation is significant at the 0.01 level (2-tailed)	Support of accessible publishing practices including awareness of copyright, intellectual property rights and licensing issues	
			Q3LB3	Q3LL10
Spearman's rho	Q3LB3	Correlation Coefficient	1.000	.545**
		Sig. (2-tailed)		.013
		N	20	20
	Q3LL10	Correlation Coefficient	.545**	1.000
		Sig. (2-tailed)	.013	
		N	20	20

Figure 5.11. Non-parametric Correlation Coefficients of paired 'Accessible Publishing' Delphi factors.

The Spearman's rho revealed a statistically significant relationship between the importance of two pairs of factors (variables) judged by the Delphi panel from the services that academic libraries ought to provide and opportunities for lifelong learning. The findings were supportive of a consistent relationship between the academic library's provision of services to address new modes of learning and opportunities for experiencing new modes of learning in the context of lifelong learning utility by participating academic staff. The Delphi panel determined a consistent relationship, supported by the findings between the academic library's provision of accessible publishing services and opportunities for accessible publishing information in the context of lifelong learning.

These statistical results clarify that participants' assigned significance/importance or high significance/importance for both concepts:

- New Modes of Learning, and
- Accessible Publishing.

Furthermore, both new modes of learning and accessible publishing were evaluated to require both service provision and supported opportunities for lifelong learning.

The three concept areas of:

- Personal Knowledge Management,
- Problem-solving and Troubleshooting, and
- New Modes of Working,

were found to have no statistically significant correlation (shown in Appendix C, Tables C16- C18). This result corroborates participants' assessment that these concepts were of significance/importance or high significance/importance emphasising their desire for academic libraries to provide these services. The concept areas of personal knowledge management, problem solving and troubleshooting, and new modes of working were not identified by the Delphi panel as a preferred lifelong learning opportunity.

A provisional link between the five concept areas, including the two statistically significant correlations, and the tentative themes identified in the first phase of the study. The tentative themes of *support*, *intensification*, and *compliance* and the tentative subsidiary themes of *sustainability* and *performance* correspond with the Delphi panel's perceptions of significance. The tentative themes identified in the qualitative data analysed are derived from the range of contrasting perspectives and expectations perceived within the context of HEI employment. In particular, the three concept area found to have no statistically significant correlation bare a resemblance to participants' conceptualisations of the tentative themes of *intensification*, *performance*, and *compliance*. The two correlating concept areas resemble academic staff conceptualisations of the tentative themes of *support* and *sustainability*.

The focus group instrument used in phase three was constructed from the non-parametric statistical analysis of five pairs of factors from the final round of the Delphi questionnaires. Instrument development was informed by a sequential procedure to "obtain themes and specific statements from participants in an initial qualitative data collection" (Creswell, 2003, p. 221). Outliers, exceptional or extreme cases, identified during the qualitative and quantitative data analysis of the modified Delphi method were followed up for

exploration in the focus groups (Creswell, 2003, p. 221). Content analysis findings of 13 recurring tentative themes from the qualitative data were used to inform the reframing of the context for the conduct of the third phase of the study.

The connections between the pairs of Delphi questionnaire factors detailed in Figure 5.10 and Figure 5.11 were represented in high-contrast bar charts for clarity and ease of use as an instrument for the focus groups in the third phase of data collection. Two introductory ‘ice breaker’ questions were also devised to initiate conversation with participants prior to the distribution of the bar charts.

Concluding Comments

The modified Delphi method in phase two of this study resulted in the rank-ordered priority statements of present ‘academic work’ issues and concerns and future ‘library service’ and ‘learning opportunity’ issues and concerns. To understand the priority statements for future issues and concerns, the relationship between academic library services and learning opportunities was investigated with statistical analysis.

Findings from the statistical analysis demonstrated Delphi panellists judged a statistically significant relationship between the importance of two pairs of questionnaire factors. These were:

1. New Modes of Learning:

- Constantly changing technological processes employed in teaching, learning and knowledge acquisition and transfer e.g. changing use of mobile devices.
(Importance of new modes of learning provided as a lifelong learning opportunity).
- Opportunities to explore, experiment with and experience new modes of learning.

(Importance of new modes of learning provided as a library service).

2. Accessible Publishing:

- Keeping up-to-date with information resources which requires contextual legal knowledge e.g. copyright, intellectual property, open access.

(Importance of accessible publishing provided as a lifelong learning opportunity).

- Support of accessible publishing practices including awareness of copyright, intellectual property rights and licensing issues.

(Importance of accessible publishing provided as a library service).

Statistical analysis showed that there was a strong positive correlation between ‘the library’s provision of accessible publishing services’ and ‘the opportunity for accessible publishing information in the context of lifelong learning’. The same analysis assessed that there was a strong positive correlation between ‘the library’s provision of services to address new modes of learning’ and ‘the opportunity for experiencing new modes of learning in the context of lifelong learning’. Overall, there was a strong positive correlation between library services and learning opportunities. The Delphi panel’s judgement of the increased importance of library service provision in the future was correlated with their view of the increased importance of lifelong learning opportunities.

The relationship established between services that academic libraries ought to provide and opportunities for lifelong learning informed the development of the focus groups instrument for the third phase of the study. Non-parametric statistical analysis of five pairs of factors from the final round of the Delphi questionnaires was used to devise the focus group instrument. Qualitative data findings of 13 recurring tentative themes resulting from the content analysis procedure were used to inform the framing of the study for

the conduct of the third phase. Findings from all four phases of the study will be discussed and synthesised in chapter eight and chapter nine.

Chapter 6

Opportunities and Services: Phase Three Focus Groups

Chapter six details the group interview discussions conducted in phase three of this study. Two focus groups explored in depth how the current and anticipated context of higher education impacts upon the relationship between academic libraries and learning opportunities as identified in the modified Delphi method results. Results from the modified Delphi method have informed the focus group instrument. This phase of the study was designed to elaborate upon the quantitative findings and guided participants to discuss identified contradictions between attitudes and behaviours relevant to the central thematic groups. The chapter addresses the data collection process, data analysis procedure, and results yielded from this phase.

Data Collection Phase Three: Focus Group

In the third phase of data collection in this study, focus groups were selected as the research method best suited to explore and elaborate upon the tentative findings from the modified Delphi method. The final round of the Delphi questionnaire resulted in the identification of five pairs of factors for non-parametric analysis using Spearman's rank order correlation coefficient (ρ) and two-tailed tests of significance. The paired factors explored the correlation within five concept areas of:

- personal knowledge management;
- problem solving and troubleshooting;
- new modes of working;
- new modes of learning; and
- accessible publishing.

A pair of factors directly extracted from the third round Delphi questionnaire was presented for each concept area. Each pair of factors was

presented from two perspectives. The first emphasised library service provision and the second emphasised lifelong learning opportunities (including literacies). The relationship between paired factors was depicted in high contrast bar charts for clarity and ease-of-use as an instrument for the focus groups. Shown in Figure 6.1 is an example extracted from the focus group instrument for the concept area of knowledge management.

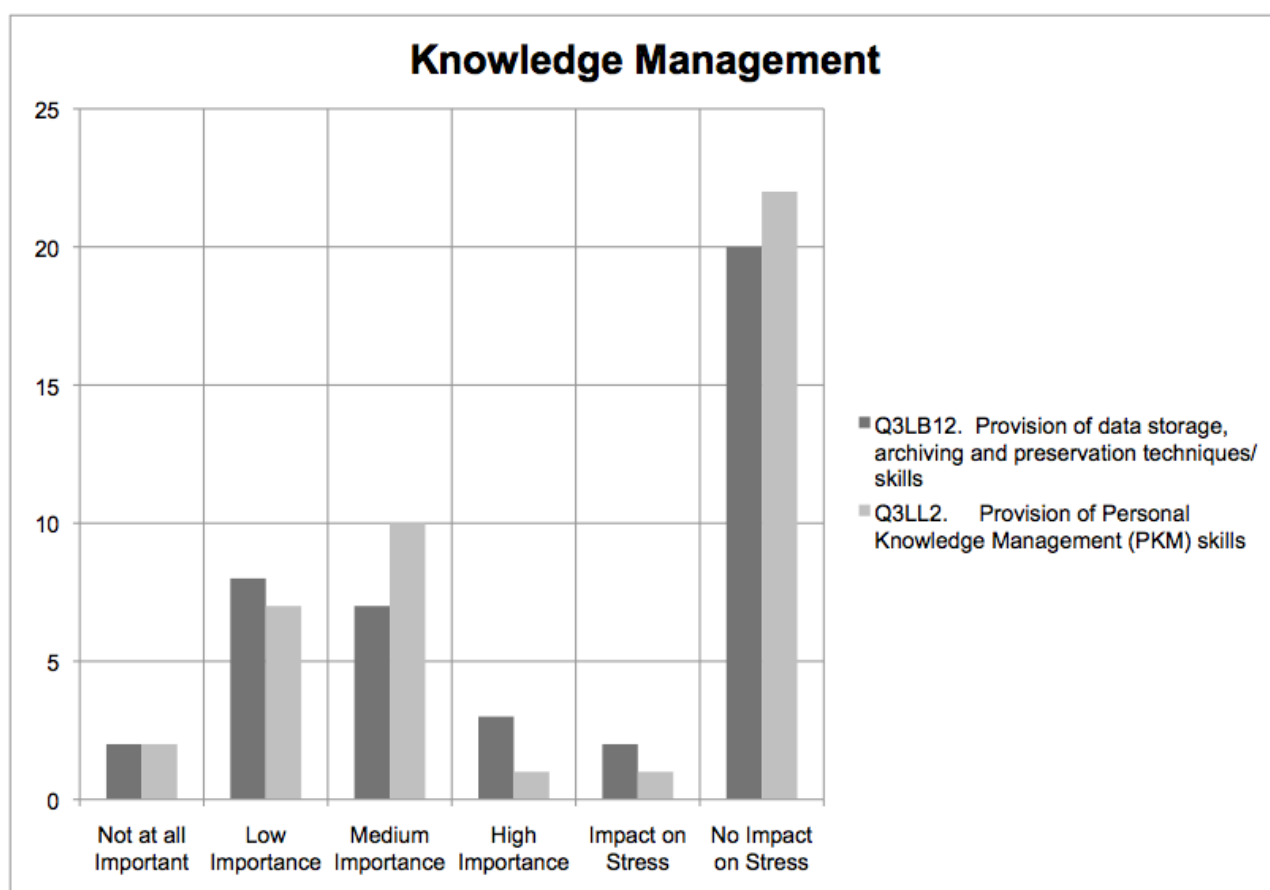


Figure 6.1. Focus Group Instrument Example, Knowledge Management correlated factors.

Accompanying the focus group instrument distributed to participants were two introductory questions used to initiate conversation.

Participants were asked:

- How did the Delphi questionnaire procedure of revealing the panel's mean results impact upon your recurring judgements?
- How did the Delphi procedure of three iterations of judgements impact upon your participation in the questionnaires?

The focus groups instrument was designed to elicit conversation and provide participants with an additional opportunity to both elect and eliminate contradictions between attitudes and behaviours identified in relation to the central concepts of academic libraries, literacies, learning opportunities, and lifelong learning.

Data Collection Procedures

For the focus groups, a purposive sample of participants was identified and selected from the Delphi panellists in the previous phase of data collection. Participants were sent a letter of introduction and consent, setting out and explaining the focus of the research project, outlining the intended aims and the proposed conduct of the focus groups. This letter was accompanied by a proposed schedule of possible dates and times that the focus groups could be conducted. Participation was confirmed by the receipt of the signed consent form for this phase of study and the notification of availability.

Participants were contacted by e-mail to confirm the date of the focus group and location. Two focus groups, the first with two participants and the second with three participants, were conducted in May 2011 in a private discussion room at 'Glendalough' University. The focus groups were recorded for professional transcription and field notes were also taken at the time of the group discussion and immediately afterwards. A semi-structured conversation was initiated from the introductory questions distributed with the focus group instrument to participants. These questions gave participants the opportunity to become acquainted with the members of the focus group over the shared experience of the modified Delphi method. After establishing a comfortable exchange between participants, conversation was steered to the charts presenting the statistical analysis of the data collected in the Delphi questionnaires.

Phase Three Data Collection Summary

The third phase of the study consisted of two focus groups with a total of five participants who discussed five pairs of correlated themes identified from the data synthesis and analysis of the Delphi questionnaires. The five themes were:

- personal knowledge management;
- problem solving and troubleshooting;
- new modes of working;
- new modes of learning; and
- accessible publishing.

Focus group participants were reacquainted with concepts from the second phase of the study and encouraged to explore and elaborate upon the presentation of the quantitative analysis. Data collected from the focus groups were initially analysed independently and then synthesised to summarise the phase. Lastly, the summarised data were analysed accumulatively within the established structure for qualitative analysis developed in the first and second phases of the study. The tentative findings were also interpreted and synthesised for overall thematic and conceptual perception and perspective guided by the previous phases of data collection and analysis.

Data Analysis Phase Three: Focus Groups

Data analysed in the third phase of the study consisted of transcriptions of the audio recordings, group interview audio and field notes. The content analysis of qualitative data was consistent with the procedure applied in the previous phases. The approach began with the use of a 'start-list' informed by the analysis conducted in the first and second phases. Miles and Huberman's 13 tactics for content analysis (1994, pp. 245-246) and 13 tactics for testing data quality and confirming findings (pp. 263-275) laid the basis for the sequence employed in the analysis of these data.

Focus group transcripts were initially tentatively open-coded to identify the groups' exploration of the relationship between the correlated factors. The first instance of the open-coding process began with the discrete analysis of individual focus group transcripts to identify patterns and tentative themes. The two coded transcripts were then synthesised, and memoing was used to define and differentiate nuance in the transcripts. Using standard data reduction techniques for qualitative data, the responses were grouped and formed into thematic conceptually ordered groups based on common elements. Tentative closed codes were identified and then compared with the open and closed codes of phase one and two qualitative data analysis. The phase three coding summary was developed based upon the phase one and two thematic hierarchical groups, thematic conceptually ordered groups, open-coding, memoing and closed-codes in the first instance, followed by tentative themes, codes and memoing specific to the data collected from the focus groups.

Presented in Table 6.1 is the content analysis procedure used in phase three informed by Miles and Huberman (1994). The table represents the application of some of the tactics for content analysis, and the testing data quality and confirming findings. Shown in Table 6.1 are some of the ways in which 'concepts' and 'subsidiary concepts' were classified. This classification resulted from the content analysis procedure.

Table 6.1. Phase Three Content Analysis Coding Procedure informed by Miles and Huberman (1994)

Content Analysis Tactics	Group	Closed-Codes	Memoing
Clustering	Concept	Support	Making other connections.
Partitioning Subsuming	Subsidiary Concept	Learning Opportunities	
Partitioning Variables Factoring	Subsidiary Concept	Personal Networks	Every year in the past, what I used ... to come in and see [Name]; I'd get an orientation to the new stuff; [What] was happening electronically; How to access it; [What was] of interest to me only.
Clustering	Concept	Compliance	Be the most productive with their time; That kind of approach to learning [generic training] is not time efficient; The use of our [Academics] time; Time efficient; Use of the time for the people.
Partitioning Counting Subsuming	Subsidiary Concept	Performance	
Partitioning Variables	Subsidiary Concept	Depersonalisation	We've been asked to spend more and more time in workshops; Out of which maybe five minutes is useful, out of half a day or a day; That's an extraordinary waste of our [academics] time; [It's] not that I'm not interested in gaining new skills; The general pitch for the ... whole cohort workshop is vastly inefficient for the majority of people; I appreciate it's coming from a good place.
Clustering	Concept	Intensification	[Management] have to be able to say 'We provided that'; Risk management; Approach to providing education.
Partitioning	Subsidiary Concept	Managerialism	
Partitioning Subsuming Variables	Subsidiary Concept	Sustainability	Should I care more about teaching and learning than my students do?; Know enough to be aware; I need to know about it; I don't want to be an expert in [certain] areas; I don't need to be an expert in [certain areas].

Note. Shaded cells indicate the recurring concepts and subsidiary concepts identified across the two focus groups conducted for phase three of this study

Support, in the third column on the left identifies the defining tactics used and the last column on the right details the quotes and memos which inform the classification from the data collected. *Patterns* were *noted* and *counted* in the data collected, which were then *clustered* together and tested for *plausibility* by *comparing* and *contrasting* for a *logical connection* and *resemblances*. The use of *factoring* and *metaphors* facilitated the careful examination of participant word choice, overall context, and *data-reduction* of *commonalities*. *Intervening variables*, of *outliers*, *rivals* or *negative evidence*, were reviewed and maintained to *test the data quality* and tentative findings. Following *support* in Table 6.1 are the two subsidiary concepts, *learning opportunities* and *personal networks*, which were *derived* from *support* using the tactics of *partitioning*, *factoring*, *intervening variables*, and *subsuming smaller patterns* in the data. The table depicts the application of tactics for content analysis, and for testing data quality and confirming findings detailed in full in Chapter 3 Table 3.1, Table 3.3, Figure 3.9, and Figure 3.13.

Phase Three Coding Summary

The phase three tentative findings are displayed in terms of their response to the concepts explored and elaborated upon from the focus group instrument. The findings were interpreted, coded, and organised based on individual participants and the groups' examination of a tentative theme. Where appropriate, focus group responses have been summarised in order to collapse repeated tentative themes as shown in Table 6.2. Displayed in the phase three coding summary table are the three codes used to identify and classify tentative themes derived from the analysed focus group data. Partitioned from these codes are six subsidiary codes that denote but do not define prominent variables in the data.

Table 6.2. Phase Three Coding Summary

Code	Sub-code
Support	Learning Opportunities
	Personal Networks
Compliance	Depersonalisation
	Performance
Intensification	Managerialism
	Sustainability

The content analysis tactics of Miles and Huberman (1994) use an exploratory mode of framing and reframing the qualitative data collected and analysed in this study. This approach to qualitative data is underpinned by Wittgenstein's philosophical perspective of *language in use*, whereby language is "without a *fixed* meaning" (1967 [1953], p. 37, para 79) and the critical disputation of the use of terms, equivalent expressions, *resembling* conceptualisations, and of their range of definitions is negotiated in a *language-game*. A Popperian theoretical approach informed my undertaking in examining the expressions of criticism that interrupted the problem-solving process, and in moderating the elimination of error from the *language-game* based on participants' *language in use*. Themes identified in the analysed data are acknowledged as *tentative* during the conduct of the interconnected sequence of multiphase mixed methods.

For the most part in this multiphase mixed methods study, *codes* and *sub-codes* indicate a *developing* or *tentative theme* indentified in the qualitative data. Tentative themes derived from the analysed data, shown in Table 6.2, are distinguished by the use of italics in the following paragraphs in this chapter. The theoretical approach of Popper (1972, 1974) and philosophical approach of Wittgenstein (1967 [1953]) have informed the rigorous disputation of *tentative themes* until chapters eight and nine of this thesis.

Presented in Table 6.3, where anonymity or de-identification was not at risk, relevant quotes from participants were used verbatim or expanded upon to form the closed codes.

Table 6.3. Focus Groups Conceptually Ordered Summary

Code	Sub-Code	Quote
Support	Learning Opportunities	“... if I’ve got a list of things, ‘Are you interested in A, B, C, D?’ I’ll go, ‘No, no, no.’ Or, ‘Yes, yes, yes.’ ... maybe you’re making other connections in your head that don’t make the list.”
	Personal Networks	“Every year in the past, what I used to do is to come in and see [Name] and I’d get an orientation to the new stuff that was happening electronically in the library and how to access it and things that were of interest to me only .”
Compliance	Performance	“I feel like if you want everyone to be the most productive with their time , that kind of approach to learning [generic training] is not time efficient ... in the sense of the use of our [Academics] time . It’s probably very time efficient in terms of the use of the time for the people... who are teaching it ...”
	Depersonalisation	“I feel like we’ve been asked to spend more and more time in workshops out of which maybe five minutes is useful, out of half a day or a day. And I feel that that’s an extraordinary waste of our [academics] time, not that I’m not interested in gaining new skills, because I am. But the general pitch for the co-, whole school or the whole cohort workshop is vastly inefficient for the majority of people there. I appreciate it’s coming from a good place ...”
Intensification	Managerialism	“Absolutely, and they have to be able to say, ‘ We provided that ’.”
		“I think that ... it’s kind of like a risk management almost approach to providing education.”
	Sustainability	“I’ve started to ask myself, should I care more about teaching and learning than my students do?”
		“I at least know enough to be aware that I need to know about it, whereas I don’t want to be an expert in areas that I don’t need to be an expert in.”

Shown in Table 6.3, focus group participants identified a range of preferences and priorities responding to lifelong learning in HEIs informed by the results of the Delphi questionnaires. The concept of *support* was identified as a tentative theme in the data analysed from the third phase of the study. *Support* was conceptualised by participants as being derived from a combination of *learning opportunities* and *personal networks*.

Personal networks were constructed by participants and comprised of individuals who had an understanding of *what* was of *interest* to the individual and who could provide an *orientation* to the *new 'stuff'*. Participants elaborated that their *interest* was to be considered by including knowledge of *how* they worked, [what] *was happening*, and *new* or relevant to the individual. The individuals who formed the *personal networks* of participants were known by name and accessible, notably so that participants could *come in and see* these individuals for support.

These *personal networks* of lifelong learning *support* facilitated participants preferred mode of *learning opportunities*. Focus group participants identified that these *learning opportunities* were both tailored to the participant and also abstract, or unstructured, in nature. Abstract *learning opportunities* were emphasised by participants to *support* individuals in *making other* or their own personal *connections* between *learning opportunities* and possible learning outcomes.

Compliance was the second concept identified as a tentative theme in the data analysed from the third phase of the study. *Compliance* was conceptualised by participants as being derived from a combination of *performance* and *depersonalisation*.

Performance and *depersonalisation*, both subsidiary concepts of *compliance*, emphasised a range of aspects related to *time*. Participants' conceptualisations of *performance* responded to the potential use of *time*. The potential or possible use of *time* was informed by participants' understanding of their own *approach to learning*. Their *approach to learning* was shaped by

participants' perceptions of which *use of time* might be the *most productive* and *time efficient*. The ways in which participants understood their *compliance* to the *performance* expectations of HEIs influenced their *approach to learning* and the *use of time* for learning opportunities.

The tentative theme of *compliance* was also linked to the notion of *depersonalisation*. *Depersonalisation* was conceptualised by participants as the reflective assessment of ways in which *time* was *used* or *spent*. Focus group participants reflected upon how they have *been asked to spend more and more time* participating in learning opportunities which were *inefficient for the majority* of academics and *an extraordinary waste of their time*. Participants identified that they were *compliant* to HEI expectations of spending *more time in workshops* designed for a *general* audience or the *whole cohort*, despite knowing that this was not a *productive* or *efficient use of their time*. The concept of *depersonalisation* was clarified by participants as negatively impacting their *use of time for learning*, whilst having little or no influence on their *interest in gaining new skills and learning*.

The third concept of *intensification* was identified as a tentative theme in the data analysed from the focus groups conducted in this study. Presented in Table 6.3 are the phase three participants' preferences and priorities in responding to lifelong learning in HEIs informed by the results of the Delphi questionnaires. *Intensification* was conceptualised by participants as stemming from the amalgamation of *managerialism* and *sustainability*.

Participants recognised *managerialism* as the current *approach to providing education* and conditioning the learning opportunities of academics. The approach of *managerialism* participants identified resembled *risk management*. I interpreted this comparison to relate to a management procedure of dealing with education and controlling learning opportunities to limit HEIs' exposure to negative or unpleasant outcomes. Participants perceived that HEIs *have to be able to say* that they have *provided* learning opportunities to academic staff. The perception that HEIs are obliged to provide lifelong learning opportunities was suggested to contribute to

workplace *intensification* in which participants are overwhelmed (*managerialism* and *performance*) and overpowered (*compliance* and *depersonalisation*).

This perception of *managerialism*, that of learning opportunities which were *provided* regardless of value in order to minimise *risk*, was linked to participants' conceptualisations of *sustainability*. *Sustainability* comprised of the measures by which participants considered and mediated the effects of *intensification* and *managerialism*. These *sustainability* measures included participants identifying when they *need to know* about a learning opportunity and when *knowing enough to be aware* of a learning opportunity is adequate. Participants considered their *sustainability* by evaluating what they *need to know about*, *care more about*, *don't need to be an expert in*, and *don't want to be an expert in* or know more than having an awareness of a topic.

Summary of Phase Three Analysis

Qualitative data analysed from the third phase of the study comprised of focus group interview audio, interview transcripts and field notes that elaborated upon the findings from the quantitative analysis of the modified Delphi method. Discrete content analysis of focus group data was conducted in the first instance, followed by a process of synthesised and accumulative analysis to summarise the phase and contribute to the sequential analysis techniques of the study. The overarching procedure for data analysis was characterised by an emphasis on the thematically and conceptually ordered synthesis of the perceptions and perspectives of academic staff participants.

Phase Three Results

Two focus groups with a total of five participants were conducted in the third phase of the study. The relationship between paired factors from the modified Delphi method was presented for discussion and elaboration from two differing perspectives, one an emphasis on library service provision and

the second an emphasis on lifelong learning opportunities. The five concept areas explored comprised:

- personal knowledge management,
- problem solving and troubleshooting,
- new modes of working,
- new modes of learning, and
- accessible publishing.

Discrete content analysis of focus group data was conducted in the first instance, followed by a process of synthesised and cumulative analysis to summarise the phase and contribute to the sequential analysis techniques of the study. The overarching procedure for qualitative data analysis informed by Miles and Huberman (1994, p. 90) was characterised by an emphasis on conceptually ordered synthesis of the perceptions and perspectives of academic staff participants 'within-case' of this third phase. The matrix display technique presented in Table 6.4 is read across the row to show the conceptual order (code and sub-code), substantiated by the content-analytic summary that includes representative quotations in italics. Bold text is used to emphasise the nature and form of the relationship between opportunities and services in the description column.

Table 6.4. Opportunities and Services Summary Conceptually Ordered

Code	Sub-code	Description
Support	Learning Opportunities	Providing abstract learning opportunities whereby academic staff can form their own conceptualisations and links . Participants said that <i>maybe you're making other connections in your head that don't make the list of learning outcomes as presented in formal learning opportunities.</i>
	Personal Networks	Participants emphasised supporting learning opportunities that were personal. <i>Every year in the past, what I used to do is to come in and see [Name] and I'd get an orientation to the new stuff that was happening electronically in the library and how to access it and things that were of interest to me only.</i> They were able to choose which content was covered and who delivered support.
Compliance	Depersonalisation	Participants felt compelled to attend learning opportunities that were developed without consideration for their needs . <i>I feel like we've been asked to spend more and more time in workshops out of which maybe five minutes is useful, out of half a day or a day.</i>
	Performance	Academic staff productivity, performance and compliance is over represented in their perception of learning opportunities in HEIs. <i>I feel like if you want everyone to be the most productive with their time, that kind of approach to learning [generic training] is not time efficient.</i>
Intensification	Managerialism	The intensification of managerialism was described by participants as <i>it's kind of like a risk management almost approach to providing education and learning opportunities to academic staff. Absolutely, and they [HEIs] have to be able to say, "We provided that" learning opportunity.</i>
	Sustainability	Limiting the negative impact of the intensification of academic work is central to staff concerns about sustainability. It was deemed enough that <i>I at least know enough to be aware that I need to know about it, whereas I don't want to be an expert in areas that I don't need to be an expert in.</i> An aspect of sustainability was academic staff working to management and students expectations . <i>I've started to ask myself, should I care more about teaching and learning than my students do?</i>

Table 6.4 provides in summary an overview of the recurring conceptualisations linked to lifelong learning opportunities (including literacies) and services in HEIs by focus group participants. The summary begins with the concept of *support*. Participants' describe their conceptualisation *support* by noting two subsidiary aspects of *learning opportunities* and *personal networks*. Participants explored their preference for *learning opportunities* that *support* academics to make their own links to anticipated lifelong learning outcomes. These preferred *learning opportunities* were described in contrast to the formal and structured *learning opportunities* currently provided within HEIs. Linked to *support* was the concept of *personal networks*, which insisted upon opportunities and services that were specific to individual academics and facilitated the establishment of relationships and networks of known individuals for support.

The concept of *compliance* in the matrix is shown as linked to *depersonalisation* and *performance*. Focus group participants' described the HEI's expectation for academic staff to *comply* with the lifelong learning opportunities and services provided. The current form of lifelong learning opportunities and services was interpreted by participants as *depersonalised*, in which the needs of academics were not considered in their design and delivery. In addition, participants perceived that the prominence given to the notion of *performance*, in the context of lifelong learning opportunities and services, was out of proportion especially when clustered with productivity and *compliance*.

Phase three focus group participants in Table 6.4 discussed the impact of *intensification* of the HEI workplace on lifelong learning opportunities and services. *Intensification* was entwined with the tentative themes of *managerialism* and *sustainability*. The *intensification* of *managerialism* was perceived by participants to be motivated by HEI's approach to managing the anticipated risks associated with providing lifelong learning opportunities and services. Participants raised the concept of *sustainability* as a response to counter the context of *intensification*. *Sustainability* was derived from the ways in which academic staff regulated the influences and negative impact of

HEI expectations, *managerialism*, *intensification*, *compliance*, *performance*, and student expectations.

Concluding Comments

Two focus groups explored in depth how the current and anticipated context of higher education impacts upon the relationship between academic libraries and learning opportunities as identified in the modified Delphi method results. The group interview technique of Gray (2004) was employed to address the tentative findings from the modified Delphi method, with modifications to incorporate the use of an instrument shown in Appendix D. The focus groups instrument was informed by the preceding phases of data collection and analysis. The instrument was designed to elicit conversation and provide participants with an additional opportunity both to elect and eliminate contradictions between attitudes and behaviours identified in relation to the central concepts of academic libraries, literacies, and lifelong learning. Content analysis of focus group data was conducted separately in the first instance, followed by a process of synthesised and accumulative analysis to summarise the phase and contribute to the sequential analysis techniques of the study. The overarching procedure for data analysis was characterised by an emphasis on the thematically and conceptually ordered synthesis of the perceptions and perspectives of academic staff participants.

The third phase of this study resulted in the identification of three codes and six sub-codes that enhance the findings from the modified Delphi method. The three concepts (codes) identified were:

- Support;
- Compliance; and
- Intensification.

The iterative analysis procedures identified six further subsidiary concepts (sub-codes) of:

- Learning opportunities;

- Personal networks;
- Depersonalisation;
- Performance;
- Managerialism; and
- Sustainability.

These findings will be discussed in conjunction with findings from the other three phases of the study in chapter eight and chapter nine.

Chapter 7

Lived Experiences of Lifelong Learning: Phase Four Personal Lenses on Lifelong Learning

Chapter seven addresses the fourth phase of the study, which investigated the conceptualisations and lived experiences of learning opportunities across the lifespan through semi-structured interviews of a small number of academic staff. The arrangement of personal lenses on lifelong learning aimed to identify the concepts that undergird the lifelong learning experiences of academic staff. The lived experiences of lifelong learning are comprehended through individual personal lens and in unison across personal lenses. This chapter is organised in the structure consistent with the preceding three chapters which addressed the prior three phases of the study. Chapter seven details the data collection, data synthesis, data analysis and results of the lifelong learning personal lenses.

Data Collection Phase Four: Personal Lenses on Lifelong Learning

The fourth phase of data collection in this study was the construction of personal lenses on lifelong learning informed by the tentative findings of the three previous phases. The lifelong learning personal lenses were designed within the research process to encourage further richness of the data collected from a qualitative approach. Potential participants were invited to narrate their conceptualisation of their personal history of lifelong learning. To facilitate the achievement of this aim, semi-structured interviews were conducted to explore this central concept of the research.

The semi-structured interviews centred on the learning opportunities within participants' higher education employment that were also characterised

as lifelong learning opportunities. These experiences could be related to learning opportunities for a range of literacies and individual and/or organisational opportunities that have simultaneously enhanced both the academic work and life chances of participants. The semi-structured questions outlined were:

- Do you have a learning schedule for maintaining and developing your abilities?
- Do you have a lifelong learning role model or mentor?
- Do you know your role model and/or do they know you?
- How do you learn from them or with them?
- Do you feel there is a comparable exchange between the life skills you bring to your academic work, and the academic skills you bring into your life?

Data Collection Procedures

Semi-structured interviews were conducted in May 2011 with the intent of showing the lived experience and a personal lens on lifelong learning from each of the five participants. Potential participants were approached with a letter of introduction and consent setting out and explaining the focus of the research project, outlining the aims and the method utilised for the lifelong learning personal lenses. This letter was accompanied by a proposed schedule of possible dates and times for the semi-structured interviews. The receipt of the signed consent form confirmed participation for this phase of the study and notification of availability. Participants were selected to form a purposive sample of the academic community at 'Glendalough' University, and were contacted by email to confirm the date and location of the interview.

Interviews were conducted in the offices of participants and were recorded for professional transcription. Field notes were also taken at the time of the interview and immediately afterwards. Each interview adopted its own rhythm during this phase of data collection. The use of interview questions was initially introduced to facilitate discussion and build rapport. Upon

reaching a conversational rapport, the proposed interview questions were no longer required and a standard interview technique of probing and follow-up questions was adopted.

Phase Four Data Synthesis

All phase four interview audio recordings were professionally transcribed. The five personal lens interview transcripts were open coded to identify participants' conceptualisation and narration of lifelong learning tentative themes. The open coding process began with the discrete analysis of individual transcripts to identify patterns. Using standard data reduction techniques for qualitative data, individual transcripts were grouped and formed into thematic conceptually ordered groups based on common elements. The five open-coded transcripts were then compared for overarching tentative themes and memoing was used to define and differentiate nuance between the transcripts.

Tentative closed-codes were identified and then compared with the open and closed codes of the previous three phases of qualitative data analysis. The phase four coding summary was shaped based upon the previous phases' thematic conceptually ordered groups, open-coding, memoing and closed-codes in the first instance, followed by tentative themes, codes and memoing specific to this phase of personal lens development.

Phase four findings are displayed in terms of their response to the lifelong learning tentative themes as experienced by participants. The findings were primarily interpreted, coded and organised based on individual participants' exploration of the tentative themes and secondly collectively for the overall fourth phase. Where appropriate, participant responses have been summarised in order to collapse repeated tentative themes. Where anonymity or de-identification was not at risk, relevant tentative themes based on quotes from participants were used verbatim or expanded upon to form the closed quote codes. Participants have been pseudonymously identified as *Primus*, *Secundus*, *Tertius*, *Quartus*, and *Quintus* to protect the identity of individuals.

The phase four tentative theme summary is presented in Table 7.1. The matrix depicts vertically each participant's individual tentatively closed-coded personal lens and horizontally the shared tentative themes and tentative sub-themes present across a number of personal lenses.

Table 7.1. Personal Lenses on Lifelong Learning Tentative Theme Summary

Group	Primus	Secundus	Tertius	Quartus	Quintus
Tentative Theme	Background	Background	Background	Background	Background
Tentative Sub-theme	Academic				
Tentative Sub-theme	Vocational				
Tentative Sub-theme	Learning Conceptualisation				
Tentative Theme	Learning Conceptualisation	Learning Conceptualisation	Learning Conceptualisation	Learning Conceptualisation	Learning Conceptualisation
Tentative Sub-theme			Learning is different to interacting with ICT systems	Learning about learning capacity	
Tentative Theme	Self-directed learning	Self-directed learning	Self-directed learning	Self-directed learning	Self-directed learning
Tentative Sub-theme	Student needs			Idealisation	
Tentative Theme	Career related learning opportunities in HEIs	Career related learning opportunities in HEIs	Career related learning opportunities in HEIs	Career related learning opportunities in HEIs	Career related learning opportunities in HEIs
Tentative Sub-theme	Professional Development	Job Development ≠ Professional Development ≠ Lifelong Learning			Emphasis on ICT Systems
Tentative Sub-sub-theme	Emphasis on ICT systems				
Tentative Sub-theme		Real Professional Development			
Tentative Theme	Challenges to undertaking learning opportunities in HEIs	Challenges to undertaking learning opportunities in HEIs	Challenges to undertaking learning opportunities in HEIs	Challenges to undertaking learning opportunities in HEIs	Challenges to undertaking learning opportunities in HEIs
Tentative Sub-theme	Career progression and learning accumulation in HEIs	Perspective and connectedness			Importance of independence and autonomy
Tentative Sub-sub-theme	Professional Development				

The phase four data summary in Table 7.1 displays the distribution of tentative closed-coding that reflects a range of lifelong learning narratives portrayed by academic staff. The tentative closed-coding identified during the

phase four data synthesis procedure is notably different from the preceding phases. These closed-codes are markedly more expressive and exacting. This more cautious and tentative approach was deliberate (Creswell, 1994), as phase four did not contain Miles and Huberman's (1994, p.280) 13th tactic of "getting feedback from informants" for testing data quality and confirming findings.

Phase Four Data Collection Summary

The fourth phase of the study consisted of semi-structured interviews of five participants on the thematic category of lifelong learning to establish a personal lens on lifelong learning of each participant. Participants were asked to share their personal conceptualisation of lifelong learning and self-select key features to document and frame their personal history of learning. The personal narratives on the experience of lifelong learning in higher education were used to produce personal lenses. Data collected from the semi-structured interviews were initially analysed independently, then collaboratively for the overall phase. The tentative findings were organised and interpreted as a matrix, depicting each participant's individual personal lens on lifelong learning and the shared tentative themes and tentative sub-themes recurring across the personal lenses constructed in this phase.

Data Analysis Phase Four: Personal Lenses on Lifelong Learning

Data was analysed from the five semi-structured interviews centred on the thematic category of lifelong learning to inform the construction of thematic conceptually ordered personal lenses of academic staff. A thematic conceptually ordered personal lens is comprised of levels of codes and tentative themes in order to cluster and differentiate participant experiences (Miles & Huberman, 1994). Analysis of the qualitative data continued the procedure for content analysis applied in the previous three phases. Tentative findings from the sequence of analysis preceding this phase informed the process of documenting the personal narrative of participants within the

context of the central topics of this study. The form of the narrative applied in this phase is that of “the realist tale, a direct, matter-of-fact portrait without information about how the Field-worker produced the portraits” (Creswell, 1994, p. 159). The narrative data of interviews were collected and analysed to capture the lived experience within the life of an organisation (Gray, 2004, p. 341).

Content analysis was conducted on interview audio, transcripts and field notes collected for the fourth phase of the study. Analysis was informed by the content-analysis procedure and tentative findings from the semi-structured interviews in the first phase. The within-case display of conceptually ordered content-analytic summary matrices from the previous phases were used as a ‘start-list’ for coding. Emerging themes were developed around similar statements informing the arrangement and analysis of data that ‘belonged together’ (Miles & Huberman, 1994, p. 127).

Using standard data reduction techniques for qualitative data individual transcripts were grouped and formed into thematic conceptually ordered groups based on common elements. The five open-coded transcripts were then subjected to Miles and Huberman’s (1994) tactics to isolate and compare overarching themes and identify representative quotations to define participants’ conceptualisations. The tactics supported the grounding of overarching themes whilst differentiating the personal nuances between the transcripts. Tentative closed-codes applied in this phase were then compared with the closed-coding summaries and memoing of the previous three phases of qualitative data analysis. The procedure for the phase four coding summary was framed with the previous phases thematic conceptually ordered groups, open-coding, memoing and closed-codes in the first instance, followed by the reframing of tentative themes, codes and memoing specific to this phase of personal lens development. There were three iterations of this process and throughout the sequence, analysis was checked for consistency and reliability. Resulting from the data reduction process was the identification of five consistent thematic concepts underpinning the lifelong learning experience of participants.

Phase four findings are presented in terms of their response to the central lifelong learning thematic category as informed by the lived experience of participants. The data were primarily interpreted, coded and organised on the basis of individual participants' exploration of the concept of lifelong learning and secondly collectively for the overall fourth phase, where appropriate participant responses have been summarised in order to collapse repeated tentative themes. Where anonymity or de-identification was not at risk relevant quotes from participants were used verbatim or expanded upon to form the closed codes. The phase four coding summary is displayed as a within-case thematic conceptually ordered matrix, depicting each participant's individually closed-coded personal lens and the shared tentative themes, tentative sub-themes, codes, and sub-codes present across a number of personal lenses. The closed-codes and closed-sub-codes are informed and correspond to the closed-coding identified in the preceding phases of this multiphase mixed methods design. The matrix assembled in Table 7.2 is read down the table to give a miniature personal lens on lifelong learning of each participant. Reading across the within-case thematic conceptually ordered matrix rows facilitate making comparisons and noting relations between participants. Five personal within-case conceptually ordered content-analytic summary matrices are presented in Table 7.3, Table 7.4, Table 7.5, Table 7.6, and Table 7.7. The five tables make consistent use of the codes from the thematic conceptually ordered matrix and supply representative quotations to ground the analysis.

The following explanation is provided to assist the reader in understanding the hierarchy of codes and tentative themes displayed in table 7.2. The concept *support* presented in the first shaded row was identified and classified using the content analysis tactics of Miles and Huberman (1994). *Patterns* were *noted* and *counted* in the data collected, which were then *clustered* together in tentative themes and tested for *plausibility* by *comparing* and *contrasting* tentative sub-themes for *logical connections* and *resemblances*. The use of *factoring* and *metaphors* facilitated the careful

examination of participant word choice, overall context, and *data-reduction* of *commonalities* within and between the phase four personal lenses. *Intervening variables*, of *outliers*, *rivals* or *negative evidence*, were reviewed and maintained to *test the data quality* and tentative findings. Following *support* in Table 7.2 is the subsidiary concept *learning opportunities*, which was *derived* from *support* using the tactics of *partitioning*, *factoring*, *intervening variables*, and *subsuming smaller patterns* in the data.

Table 7.2. Conceptually ordered Lived Experiences of Lifelong Learning

Group	Primus	Secundus	Tertius	Quartus	Quintus
C	Support				
TT	Background	Background	Background	Background	Background
TST	Academic				
TST	Vocational				
TST	Learning conceptualisation				
SC	Learning Opportunities				
C	Participation				
TT	Learning Conceptualisation	Learning Conceptualisation	Learning Conceptualisation	Learning Conceptualisation	Learning Conceptualisation
TST			Learning is different to interacting with ICT systems	Learning about learning capacity	
SC	Reform				
C	Intensification				
TT	Self-directed learning	Self-directed learning	Self-directed learning	Self-directed learning	Self-directed learning
TST	Student needs			Idealisation	
SC	Sustainability				
C	Compliance				
TT	Career related learning opportunities in HEIs	Career related learning opportunities in HEIs	Career related learning opportunities in HEIs	Career related learning opportunities in HEIs	Career related learning opportunities in HEIs
TST	Professional Development	Job Development ≠ Professional Development ≠ Lifelong Learning			Emphasis on ICT Systems
TSST	Emphasis on ICT systems				
TST		Real Professional Development			
SC	Depersonalisation				
C	Compliance				
TT	Challenges to undertaking learning opportunities in HEIs	Challenges to undertaking learning opportunities in HEIs	Challenges to undertaking learning opportunities in HEIs	Challenges to undertaking learning opportunities in HEIs	Challenges to undertaking learning opportunities in HEIs
TST	Career progression and learning accumulation in HEIs	Perspective and connectedness			Importance of independence and autonomy
TSST	Professional Development				
SC	Performance				

Note. TT=Tentative Theme; TST=Tentative Sub-Theme; TSST=Tentative Sub-Sub-Theme; C=Code; SC=Sub-Code

Consistent with the preceding phases of this study, *codes* and *sub-codes* indicate a *developing* or *tentative theme* indentified in the qualitative data. The theoretical approach of Popper (1972, 1974), philosophical approach of Wittgenstein (1967 [1953]), and the content analysis tactics of Miles and Huberman (1994) have informed the rigorous disputation of *tentative themes* until chapters eight and nine of this thesis. Tentative themes derived from the analysed data and shown in Table 7.2 are distinguished by the use of italics, such as *support*, in the following paragraphs in this chapter.

Shown in Table 7.3 is an individual personal lens on lifelong learning for the participant referred to as Primus. The personal lens takes the form of a within-case conceptually ordered content-analytic summary matrix. The matrix is read both vertically and horizontally to capture the participant's lived experience of lifelong learning. Whilst the focus of the phase four interviews was on the lifelong learning experience of academic staff, all participants had difficulty separating their experiences from the HEI context and conditions of their employment. Codes and sub-codes identified during the collective analysis of the fourth phase data is shaded in grey rows. Tentative themes, tentative sub-themes and representative quotations identified during the individual content analysis of data collected from the participant Primus is presented in the unshaded columns and rows.

This matrix structure is consistent for Secundus in Table 7.4, Tertius in Table 7.5, Quartus in Table 7.6, and Quintus in Table 7.7.

Table 7.3. Primus' Personal Lens on Lifelong Learning

Primus		
Code		Support
Tentative Sub-theme	Learning Conceptualisation	"I went horizontally in my qualifications to broaden me... that has been really valuable in my teaching"
Sub-Code		Learning Opportunities
Code		Participation
Tentative Theme	Learning Conceptualisation	"I don't really care about grades or marks or pieces of paper even, I just care that I enjoy the process of learning"
Sub-Code		Reform
Code		Intensification
Tentative Theme	Self-directed learning	"the university gives me opportunity to do that [learn from students] ... if I didn't work here, I wouldn't be able to do that"
Tentative Sub-theme	Student needs	"[International students] needs educationally in a classroom are really specific... so I had to learn how to deal with those students and their culture impacts a lot on their education"
Sub-Code		Sustainability
Code		Compliance
Tentative Theme	Career related learning opportunities in HEIs	"the grad cert in higher ed, it's a teaching qualification that we're supposed to have to teach in higher ed, if you don't have an education degree"
Tentative Sub-theme	Professional Development	"I don't worry about promotion. I don't worry about getting pieces of paper"
Tentative Sub-sub-theme	Emphasis on ICT systems	"I'm going to be at one of those [training workshops], primarily focused on [Name of ICT system] ... because I was in the semester when they bought that in and so once again, all the problems we had with that"
Sub-Code		Depersonalisation
Code		Compliance
Tentative Sub-theme	Career progression and learning accumulation in HEIs	"I don't think I'll do my PhD ... working 45, 50 hours a week and to put a PhD on top of that wouldn't happen"
Tentative Sub-sub-theme	Professional Development	"It's all about research, research. Research will get the chance to publish and to go to the conferences, whereas teaching people might want to go to an education conference, learn new strategies and different ways of teaching and applying what they know, but because they're not presenting, they have less chance of being able to go."
Sub-Code		Performance

Shown in Table 7.3, Primus illustrates a conceptualisation of lifelong learning that characterises *participation as enjoying the process of learning* and which *supports broadening the learner with horizontal opportunities*. In doing so Primus' personal lens challenges the commonly held view that learning is *grades or marks or pieces of paper*. Primus describes how this notion of learning has been helpful when *learning how to deal with the really specific needs of students which impacts a lot on their education*. The *intensity* of the classroom Primus depicted is made *sustainable* by the *opportunities* for self-directed learning to meet student needs.

The concepts of *compliance* and *performance* are shown in Primus' personal lens to impact professional development, career progression, and career related learning opportunities. Primus suggested in this phase four interview that academic staff acceptance of HEI's expectations relate to what one is *supposed to have*, ought to *worry about*, and the *chance of being able to* receive opportunities. In the personal lens on lifelong learning Primus acknowledges that these performance expectations have had an effect, but also introduces the notion of defiance with the preposition *I don't worry about* or *non-compliance* with the statement *I don't think I'll do* what is expected by the HEI.

Primus's discussion of *learning opportunities* is linked to the concepts of *depersonalisation* and *compliance*. The personal lens shows Primus' perception that HEIs' have an expectation that academics will *comply* with *opportunities that wouldn't happen on top of* their current workload. Primus suggests that this *depersonalised* approach to individuals employed by HEIs has a negative impact whereby academics are *non-compliant* with *learning opportunities* due to their workload. *Non-compliance* was indicated by Primus to occur even when individuals might benefit in the long-term by these opportunities. However, Primus spoke of *compliance* with learning opportunities for ICT systems used in HEIs. Primus accepts these *learning opportunities* because of *all the problems we had with that* previously which negatively impacted the work of academics and the learning of students.

Table 7.4. Secundus' Personal Lens on Lifelong Learning

Secundus		
Code		Support
Tentative Theme	Background	“Actually I was just reminded before of a quote from Mark Twain who said that he never let his education get in the way of learning”
Sub-Code		Learning Opportunities
Code		Participation
Tentative Theme	Learning Conceptualisation	“you have to have an ideal ... It's about holding ideals and giving yourself a direction because if you've got that already set there and they might change over the years but if you've got something set there, then it makes choices a lot easier to say no that's not, well that will take me away from that and I don't feel that that's relevant”
Sub-Code		Reform
Code		Intensification
Tentative Theme	Self-directed learning	“there's this idea of corridor catch ups ... we need to have a break and the talking that comes in that break is definitely related to our lives, to our, in a way it's almost like reflective practice”
Sub-Code		Sustainability
Code		Compliance
Tentative Theme	Career related learning opportunities in HEIs	“what's offered to us as academic staff in terms of workshops, if they ever come along, I generally only choose those that I do believe are relevant to lifelong learning. That I will get something out of it, not just for today but that I carry that one and can put into practice”
Sub-Code		Depersonalisation
Code		Compliance
Tentative Theme	Challenges to undertaking learning opportunities in HEIs	“the expectations are de-motivating because the expectations come down to numbers, statistics, not life”
Sub-Code		Performance

Secundus' personal lens on lifelong learning, in Table 7.4, questions HEIs' approach to supported educational opportunities, which are unconnected with supported learning opportunities, with a paraphrased quote from the well known author Mark Twain. Secundus comments on an

individual's *learning* being at times distinct from their *education*. This comment is linked to Secundus's conceptualisation of learning as described during an interview that is shown in the table as personalised in which the individual establishes *an ideal*, maintains *ideals*, and gives one *a direction* for the ways in which they *participate* in lifelong learning. Stemming from Secundus' conceptualisation, a learner is able to make *choices*, *to say no* and to decide what is *relevant* to the nature and form of an individual's participation in learning.

The concept of *intensification* is recognised by Secundus who states *we need to have a break*. The *break* from the intensity of the workplace identified is *corridor catch ups* or talking with colleagues when passing each other in corridors. These self-directed breaks to learning through conversation according to Secundus have *sustaining* qualities for academics as the discussion *is definitely related to our lives and in a way it's almost like reflective practice*.

This personal lens presents a contradiction for academic staff who perceive the challenge to be *compliant* as well as a need to challenge this *compliance*. Career related learning opportunities, as Secundus notes, *offered to academic staff when they ever come along are de-motivating*. The notion of *compliance* is a complex conceptualisation in data analysed. *Compliance* includes the antithetical notions of *compliance* and *non-compliance*, which also subsumes the contradictory expectations of HEI employers and HEI employees.

The concept of *compliance* was associated with subsidiary concepts of *depersonalisation* and *performance*. In Secundus' personal lens, as summarized in Table 7.4 and described above, academic *performance* is described as guiding *the expectations which come down to numbers, statistics, and not life*. Secundus addresses *depersonalisation* in noting *only choosing* learning opportunities that are *relevant to lifelong learning, can be put into practice*, are portable, and are beneficial *not just for today*. The association

between concepts of *compliance*, *depersonalisation*, and *performance* accentuate the contradictory expectations perceived by Secundus.

Table 7.5. Tertius' Personal Lens on Lifelong Learning

Tertius		
Code		Support
Tentative Theme	Background	"I'm not a fluid connector of different aspects of my learning"
Sub-Code		Learning Opportunities
Code		Participation
Tentative Theme	Learning Conceptualisation	"there are people I admire who keep surprising me with how they've managed to change, and it's change that is the key I think to a lifelong learner to being able to, it's not doing the same thing"
Sub-Code		Reform
Code		Intensification
Tentative Theme	Self-directed learning	"it's got to be stimulating for the person teaching the class otherwise you've got no passion to communicate what it is that you're introducing students to"
Sub-Code		Sustainability
Code		Compliance
Tentative Theme	Career related learning opportunities in HEIs	"I didn't enjoy it as a learning experience. On the other hand it taught me things that have been very useful since. So perhaps because it was online that mode of delivery just doesn't suit my preferred mode of learning"
Sub-Code		Depersonalisation
Code		Compliance
Tentative Theme	Challenges to undertaking learning opportunities in HEIs	"what an institution can give or the work that can be done within an institution has got limits, and so I've learnt not to ask too much of an institution"
Sub-Code		Performance

In the personal lens on lifelong learning in Table 7.5, Tertius describes looking back on past learning opportunities and not being a *fluid connector* of its *different aspects*. The conceptualisation of learning put forth by Tertius is grounded in observing the *participation* of *people* whom Tertius *admires* and how they have *reformed* their disposition to learning. The concept of *reform* presented in the personal lens depicts individuals who have *managed to*

change the ways in which they *participate* and their conceptualisation of *participation*. From personal observation, Tertius identifies that *change* is *the* key to being a *lifelong learner* and how *not doing the same thing* is *managed*.

Tertius responds to the HEI context of *intensification* with cautious concern that academics have *no passion to communicate* the subjects they teach. In the personal lens it is suggested that the overstimulation experienced by *intensification* can result in academics not being stimulated by their teaching and research. An individual's ability to *sustain* the growing intensity in the workplace is suggested by Tertius to be shaped by self-directed learning that is *stimulating* for academics.

Presented in the personal lens summary this academic is *compliant* with the career related learning opportunities in HEIs even though they *didn't enjoy it as a learning experience*. Tertius describes acceptance of the *depersonalisation* of HEI learning opportunities that are offered in a *mode of delivery that just doesn't suit my preferred mode of learning*.

When recounting the challenges that Tertius and other academics experience when undertaking *learning opportunities*, the subsidiary concept of *performance* has a different connotation for HEIs. Tertius explains having *learnt not to ask too much of an institution*, concluding that a HEI *has got limits* to what it *can give* and what *can be done within* HEIs. This notion of a threshold or limitations is reserved for the *performance* of institutions in this personal lens. Individual *performance*, in contrast, emphasises further engagement, ongoing learning, and stimulating passion.

Table 7.6. Quartus' Personal Lens on Lifelong Learning

Quartus		
Code		Participation
Tentative Theme	Learning Conceptualisation	“I think that’s another thing about lifelong learning is that idea of you, it’s adapt – is your learning is adaptable to situations, it’s transferrable and with that is, you know you can count on that with sort of resilience ... being a lifelong learner is being resilient, to be able to be put into a new situation, being able to cope but not only cope but actually succeed, I find that ... here at the university I feel that if there came an opportunity to go somewhere else I know that I’ve developed skills in a certain skill set; knowledge set that I will be able to take with me”
Sub-Code		Reform
Code		Intensification
Tentative Theme	Self-directed learning	“I think that’s what lifelong learning is about, is about how do I develop my agency; my own agency and how do I keep improving that and then also how do I build my own capacity but know that I’m building it in a way that’s aligned with what’s out there, I don’t want to be sort of thinking that I’m developing these ideas about research that are not aligned with what the general consensus is about what it means to be a researcher”
Sub-Code		Sustainability
Code		Compliance
Tentative Theme	Career related learning opportunities in HEIs	“I think it’s ultimately left up to me what I can take from it and what I do with that so you know, have I developed agency within myself and I can actually see those opportunities”
Sub-Code		Depersonalisation
Code		Compliance
Tentative Theme	Challenges to undertaking learning opportunities in HEIs	“I think we keep coming back to this idea of resilience you know ... and I think learned people don’t blame, learned people seek to understand reasons for whatever happened and then they can reconcile that ... it takes us longer sometimes to do that than others because, and it depends you know, again who you are and what you’re doing; who you are as a person, your core, what are the things that you believe in; what are your values and what are the things that you hold true and the that also must in some way have an impact on what you learn or whether you are a lifelong learner ...”
Sub-Code		Performance

Shown in Table 7.6, Quartus's conceptualisation of learning is strongly linked to personal identity. Lifelong learning is described as an *idea of you*, which is *adaptable to situations* and *transferrable*. Quartus believes lifelong learning provides an individual with a *sort of resilience* so that when individuals are *put into a new situation* it helps them *to cope* and to *actually succeed*. This conceptualisation of learning shapes Quartus' thoughts on *participation* and the ways in which individuals are able to *reform* their disposition to *participation*. Quartus asserts that when individuals know that they have *developed skills* that form a *skill set* and a *knowledge set* that is portable, then there is *an opportunity to go somewhere else*.

Quartus describes shaping self-directed learning to meet the needs of the *intensification* experienced in the HEI workplace. This mode of self-directed learning is *aligned* with the expectations of, opportunities available, and a *general consensus about what it means to be a researcher* within HEIs. Self-directed learning was linked by Quartus to workplace *intensification*, and personal and professional *sustainability*. This personal lens of an academic's *sustainability* is identified as guiding their *lifelong learning to develop agency*, improve, and *build capacity*.

This lifelong learning personal lens challenges the notion of employee *compliance* regarding *depersonalised* career related learning opportunities. Quartus does not refute *compliance*, but states that it is the individual's responsibility to have *developed agency* so that they are able to *see those opportunities* and make their own choices. The continued emphasis on individual responsibility is described by Quartus in relation to HEI challenges, identified in this study as academics being *compliant* with *performance* expectations. Quartus asserts that *learned people don't blame. Learned people seek to understand reasons* in light of *whatever happened* so that *they can reconcile* and it is this *idea of resilience* that has an *impact* on whether or not an individual is a *lifelong learner*.

Table 7.7. Quintus' Personal Lens on Lifelong Learning

Quintus		
Code	Support	
Tentative Sub-theme	Learning Conceptualisation	"I think a lot of it has to do with the way I see lifelong learning is independent for me. It is about my research, it is also just about reading in general"
Sub-Code	Learning Opportunities	
Code	Intensification	
Tentative Theme	Self-directed learning	"I'm a very independent learner ... most of my learning is my research ... getting published ... doing research to write lectures, especially if I'm teaching a subject that I don't normally research in"
Sub-Code	Sustainability	
Code	Compliance	
Tentative Theme	Career related learning opportunities in HEIs	"I find it to be a waste of my time, and I don't do a lot of other professional development because it's not the sort of thing I'm interested in"
Tentative Sub-theme	Emphasis on ICT systems	"I don't really like professional development courses ... every now and then you get a good one, you get lucky with a good one, but ... it's not really personal development but ... it's for the new online learning system"
Sub-Code	Depersonalisation	
Code	Compliance	
Tentative Theme	Challenges to undertaking learning opportunities in HEIs	"I'm very happy to say that I've been, I'm given a lot of flexibility and a lot of leeway in doing my research... the reason I am is because I produce... I've received research grants ... I publish regularly. I'm doing all the things that we're supposed to do, and because of that I actually am quite happy. And I do believe it would be different if I weren't producing, and to be quite frank, it should be different if I weren't producing"
Tentative Sub-theme	Importance of independence and autonomy in HEIs	"I would say this: I think I put in more, I think than a lot of others who I work with. I really believe that. There are others who I work with who do put in just as much. I do think I put in a lot more and it does sometimes frustrate me that others get away with not putting in this more. But I do it because it's my career and I want to see a life outside [this university] in the future, potentially if I want to leave [this university]. I really worry that because it's [this university] that there is a risk more so at [this university] than at other universities, [of] a person becoming employable only at [this university]. And I don't want that to happen to me"
Sub-Code	Performance	

The lifelong learning personal lens of Quintus, in Table 7.7, conceptualises lifelong learning as being an independent endeavour and describes minimal need for *support*. The *learning opportunities* that contribute to Quintus's lifelong learning comprise of independent *research* and *reading in general*. As a self-directed and *independent learner* Quintus describes the *intensity* required to *sustain* this mode of learning. The intensification of self-directed learning in HEIs for Quintus comprises of *learning through research*, *getting published*, *writing lectures* and *teaching new subjects*.

The emphasis on *compliance* regarding career related *learning opportunities* in HEIs is noted by Quintus to be a *waste of time*. These *opportunities* do not respond to Quintus's learning needs or interests and thus *participation* is minimal. However, when Quintus is *compliant* and *participates* in a learning opportunity, the better opportunities are *not personal or professional development*. The *good professional development courses* for Quintus are *depersonalised* opportunities, which focus on *new online learning systems*.

The notion of *compliance* is also connected by Quintus with *performance* in this lifelong learning personal lens. *By doing all the things that an academic is supposed to do* Quintus recognizes the rewards of *leeway* and *flexibility*. Academic staff *compliance to research*, *receive grants*, *publish regularly*, and *to produce*, is not challenging for Quintus who is *quite happy* with the HEI context and workplace. However, Quintus is frustrated by academic staff who do not *put in more* and make an effort to have better *performance*. Academic staff autonomy and *performance* is also described as being important for Quintus to remain employable, and mobile within HEIs.

Summary of Phase Four Analysis

Content analysis was undertaken on the qualitative data collected from five personal lens on lifelong learning interviews. Phase four data analysis was conducted in a sequential procedure evolving from and informed by the process of content analysis applied and resultant findings from the previous

three phases of this study. The presentation of findings uses the two established matrices display formats. A within-case thematic conceptually ordered matrix structures the decisive connection of five shared thematic concepts consistently underpinning the lifelong learning experiences of participants. The within-case conceptually ordered content-analytic summary matrices provide the framing for the characterisation of the personal lenses of participants.

Phase Four Results

For the fourth phase, five semi-structured interviews centred on the thematic category of lifelong learning and data was analysed to inform the construction of thematic conceptually ordered personal lenses of academic staff. Resulting from the data reduction process was the identification of five consistent thematic concepts underpinning the lifelong learning experience of participants. The five thematic concepts identified were:

- Background;
- Learning conceptualisations;
- Self-directed learning;
- Career-related learning opportunities in HEIs; and
- Challenges to undertaking learning opportunities in HEIs.

Thematic concepts identified were also mapped to the content analysis codes and sub-codes established in the preceding phases. Presented in Table 7.8 are the results of this within-case mapping of the phase four lifelong learning personal lenses and conceptually ordered. The matrix is read down the main column with a list of the four code and sub-code concept pairs underpinning participants' lifelong learning experiences.

Table 7.8. Phase Four Conceptually Ordered Summary

	Primus	Secundus	Tertius	Quartus	Quintus
Code	Support				
Sub-Code					
Code	Learning Opportunities				
Sub-Code					
Code	Participation				
Sub-Code					
Code	Reform				
Sub-Code					
Code	Intensification				
Sub-Code					
Code	Sustainability				
Sub-Code					
Code	Compliance				
Sub-Code					
Code	Depersonalisation				
Sub-Code					
Code	Performance				
Sub-Code					

Table 7.8 shows four codes identified within the five personal lenses: support; participation; intensification; and compliance. A further five sub-codes were identified within the five personal lenses: learning opportunities; reform; sustainability; depersonalisation; and performance.

Concluding Comments

The process of analysis applied in the fourth phase of this study facilitated the tentative findings presented in the ‘personal lens on lifelong learning within-case thematic conceptually ordered matrix’ and ‘lifelong learning personal history within-case conceptually ordered content-analytic summary matrix personal lens’. The identification of five consistent thematic concepts underpinning the lifelong learning experiences of academic staff is pivotal to this phase. The five shared tentative themes reframe lifelong learning across five participants within-case, the lived experience of employment within a higher education institution. The shared tentative themes are refined by sixteen tentative sub-themes conceptually ordered in the context of participant narratives to inform the personal lens framing.

The fourth phase of this study resulted in the identification of five thematic concepts and four code and sub-code concept pairs consistent across five participant personal lenses. These findings will be discussed in

conjunction with findings from the other three phases of the study in chapter eight and chapter nine.

Chapter 8

Results and Discussion: Achieving a Synthesis

Chapter eight is designed to achieve a synthesis of the findings from each phase of the four stages of data collection. Discussion of the synthesis of resembling findings is guided by the philosophical perspectives of Wittgenstein (1967 [1953]) and informed by the progressive theoretical perspectives of Popper (1974). The chapter is structured to focus first on the qualitative findings and secondly the quantitative findings. The discussion of the qualitative findings will examine the concepts identified by academic staff across the three qualitative phases (phase one, three, and four) of the study. The quantitative findings discussed will expand upon the modified Delphi method results and the statistically significant findings from the second phase. A synthesis of these findings will then be discussed in the context of the existing body of literature. The discussion of the findings will address the identified concepts in relation to the context and aims of this thesis.

Summary of Results

The preceding four chapters reported on the data collection, data analysis, and results of this study in line with each phase of data collection. Semi-structured interviews in the first phase, detailed in chapter four, identify and respond to the perceptions and conceptualisations of participants of the central themes of the study derived from the literature by participants. The identified scope and framing of participants' conceptualisations were noted in the three codes and three sub-codes consistent across the key concept areas of this research, which informed the development of the phase two Delphi questionnaire instrument. These three codes and three sub-codes were:

- Support
 - Personal Networks

- Intensification
 - Sustainability
- Compliance
 - Performance

Additionally the unanticipated lack of understanding and agreement of the term *literacies* by academic staff was reported and the implications this had for reshaping the use of the term in the study.

In chapter five, the second phase, modified Delphi method results show the 16 rank-ordered priority statements of related to academic staff perceptions of present ‘academic work’ issues and concerns and future ‘library service’ and ‘learning opportunities’ issues and concerns. These 16 rank-ordered priority statements are presented in two tables (Table 8.1 and Table 8.2). The first table (Table 8.1) displays the present issues and concerns of HEI contextual challenges related to academic work. The second table (Table 8.2) shows the combined rank-ordered priority statements for future issues and concerns related to library service responses to the changing nature of academic work and the lifelong learning opportunities that respond to the changing nature of academic work.

Table 8.1. Modified Delphi Method Rank-Ordered Priority Statements for Present Issues and Concerns

Rank	Present Priorities
1	Increased workload
2	Changing government policy in higher education
3	Closer nexus between teaching and research
3	Increasing research emphasis in universities
4	Level of responsibility
5	Increased accountability
5	Changes in organisational culture
5	Knowledge of and availability of people and services for provision of support
6	Diversification and changing priorities of responsibilities
7	Support from IT services

Table 8.2. Modified Delphi Method Rank-Ordered Priority Statements for Future Issues and Concerns

Rank	Anticipated Future Priorities
1	Keeping up-to-date with scholarly knowledge which necessitates keeping up-to-date with other skills to access information resources
2	The transfer of scholarly knowledge for lecturing and teaching purposes e.g. PowerPoint, Echo360/Podcast, Video
3	Keeping up-to-date with information resources which requires contextual legal knowledge e.g. copyright, intellectual property, open access
4	The transfer of scholarly knowledge for eLearning e.g. BlackBoard
4	Support of accessibility publishing practices including awareness of copyright, intellectual property rights and licensing issues
5	Opportunities to identify literacies and skills for development

Note. The last two priority statements (statements 4 and 5) are future lifelong learning opportunities. The preceding statements (statements 1-4) are future library service responses.

From the resulting priority ‘future’ statements, pairs of statements pertaining to the same issue and concern were statistically analysed for correlation. The statistically significant relationship found between pairs of priority statements was applied in the development of the focus group instrument for phase three of the study. The statistically significant statements were:

New Modes of Learning:

- Constantly changing technological processes employed in teaching, learning and knowledge acquisition and transfer e.g. changing use of mobile devices.
(Importance of new modes of learning provided as a lifelong learning opportunity).
- Opportunities to explore, experiment with and experience new modes of learning.
(Importance of new modes of learning provided as a library service).

Accessible Publishing:

- Keeping up-to-date with information resources which requires contextual legal knowledge e.g. Copyright, Intellectual Property, Open Access.

(Importance of accessible publishing provided as a lifelong learning opportunity).

- Support of accessible publishing practices including awareness of copyright, intellectual property rights and licensing issues. (Importance of accessible publishing provided as a library service).

The third phase (focus groups) qualitative results expand upon the findings regarding academic library ‘opportunities’ and ‘service’ roles from the preceding modified Delphi method described in chapter six. The data presented shows the identification of three codes and six sub-codes which support and contribute to an understanding of the quantitative findings from the second phase questionnaires. These three codes and six subsidiary codes were:

- Support
 - Personal Networks
 - Learning Opportunities
- Intensification
 - Sustainability
 - Managerialism
- Compliance
 - Performance
 - Depersonalisation

Chapter seven presented the concluding and fourth phase of personal lenses on lifelong learning. The research found five themes and conceptual relationships consistent across the lived experiences of lifelong learning of academic staff participants. These were:

- Background;
- Learning conceptualisations;
- Self-directed learning;
- Career-related learning opportunities in HEIs; and
- Challenges to undertaking learning opportunities in HEIs.

These five consistent thematic concepts were mapped to four code and sub-code pairs established in the findings from the preceding phase. The four code and subsidiary code pairs were:

- Support
- Participation
- Intensification
- Compliance

This four-phase approach with the Popperian aim to progressively reduce the number and range of problem situations identified in this study is displayed in the table of correlating qualitative content-analysis codes shown in Table 8.3.

Table 8.3. Correlating codes for qualitative data across the four phases of the study.

Four Phases of Code Representation			
Phase	Code	Sub-code	Results Summary
Phase 1	Intensification	Sustainability	Codes represented across the four themes of Academic Libraries, Learning Opportunities, Lifelong Learning, and Academic Work.
	Compliance	Performance	
	Support	Personal Networks	
Phase 2	Awareness		Code represented with the highest frequency in three rounds of Delphi questionnaires.
Phase 3	Intensification	Sustainability	Codes represented in two focus groups responding to the modified Delphi method.
	Compliance	Managerialism Performance Depersonalisation	
	Support	Learning Opportunities Personal Networks	
Phase 4	Support	Learning Opportunities	Codes represented across the five academic staff personal lenses on lifelong learning.
	Participation	Reform	
	Intensification Compliance	Sustainability Depersonalisation Performance	
Summary	Intensification Compliance	Sustainability Performance	Qualitative codes represented across three phases of the study.

The following sections of chapter eight will discuss the identified concepts (reported codes) represented across the three qualitative phases as they relate and contribute to the aims of this study. Qualitative findings from phase one (perceptions), phase three (opportunities and services), and phase four (lived experiences of lifelong learning) are shown in Table 8.4 to present a conceptually ordered summary of the results. Data are ordered in conceptual pairs by the concept and subsidiary concept (code/sub-code). The concept and subsidiary concept pairs are *intensification*, *sustainability*, and *compliance*, *performance*, which are read down the column of merged qualitative phases. The conceptual pairs are followed by summary containing quote extracts in italics and subsequent select quotations from participants to elaborate upon the summary.

Table 8.4 shows the consistency with which a range of academic staff interact with the notion of lifelong learning in HEIs across multiphase mixed methods. The ways in which academic staff perceive lifelong learning, conceive of support services, and their lived experience of lifelong learning share a conceptual foundation shown to be strongly informed by HEI employment. The different modes of inquiry used in this research resulted in a generalised outlook by academic staff participants on lifelong (and life wide) learning under the influence of current HEI conditions.

Table 8.4. Qualitative Findings Conceptually Ordered Summary

Group	Phase 1 Perceptions	Phase 3 Opportunities and Services	Phase 4 Lived Experiences of Lifelong Learning
Concept	Intensification		
Subsidiary Concept	Sustainability		
Summary	<p>Limiting the negative impact of the intensification of academic work is central to staff concerns about sustainability. It was deemed enough that <i>I at least know enough to be aware that I need to know about it, whereas I don't want to be an expert in areas that I don't need to be an expert in</i>. An aspect of sustainability was academic staff working to management and students' expectations. <i>I've started to ask myself, should I care more about teaching and learning than my students do?</i></p>		
Quotation	<p>"I know that sounds really basic, but I think sometimes we don't have enough time to like investigate [the library and] what's out there and I think we would use it [resources] more if we knew it was there"</p> <p>"I feel I am not getting a lot of benefit from [training] because of the group programs. I really need more personal [support].... It's also really a time problem. I am very busy"</p> <p>"I've often thought in the past that I didn't have sufficient time or the demands placed upon me in a teaching role to learn as much as I wanted to learn because I constantly felt under pressure to write lectures and see students and all the other things that go with academic work"</p> <p>"So you find yourself the whole time crisis managing or getting stuff done in the nick of time to just get it done, never as good as you'd like"</p>		
Concept	Compliance		
Subsidiary Concept	Performance		
Summary	<p>Academic staff productivity, performance and compliance is overrepresented in their perception of learning opportunities in HEIs. <i>I feel like if you want everyone to be the most productive with their time, that kind of approach to learning [generic training] is not time efficient.</i></p>		
Quotation	<p>"I've just become more reliant on online [library] facilities, so I can sit there and I can think of something and access it straightaway"</p> <p>"There's a whole stack of online databases I'm never going to touch. They're totally out of my ballpark. So don't clutter me up with just any training session"</p> <p>"There are some days when what I'm thinking about is, [what is] in the boxes [for performance review] so that they decide to re-hire me"</p> <p>"It sounds really simple but I think, go to the training sessions that you think are going to look good that you've done them. You know like, go do the powerpoint training session even if you know you know how to use powerpoint because when you come up for review, you can say [that you have completed the training session]"</p>		

Note. Summary - description of conceptual themes; Quotation - representative participant quotations.

Discussion of the findings

In this section I present firstly, the recurring conceptual themes resulting from three phases of qualitative data collection and analysis. Secondly, the quantitative results from the Delphi questionnaires in the form of statistically significant correlations are discussed.

Qualitative themes identified across three phases of the study

Four recurring conceptual themes were identified and coded over three of the four mixed methods phases of this study in the qualitative data collected from 18 academic staff participants. A description of each of the recurring conceptual themes and representative participant quotations is displayed in Table 8.4. The qualitative themes identified were:

- Intensification
- Sustainability
- Compliance
- Performance

Chapters four, five, six, and seven present the context for these recurring themes with comparisons to other issues, concerns and themes identified as important to participants in this research. Table 8.5 shows the primary co-occurring conceptual themes in context with the secondary conceptual themes.

Table 8.5. Co-occurring Concepts

Group	Phase 1 Perceptions	Phase 3 Opportunities and Services	Phase 4 Lived Experiences of Lifelong Learning
Concept	Support	Support	Support
Subsidiary Concept	Personal Networks	Personal Networks	
Subsidiary Concept		Learning Opportunities	Learning Opportunities
Concept	Intensification	Intensification	Intensification
Subsidiary Concept	Sustainability	Sustainability	Sustainability
Subsidiary Concept		Managerialism	
Concept	Compliance	Compliance	Compliance
Subsidiary Concept	Performance	Performance	Performance
Subsidiary Concept		Depersonalisation	Depersonalisation
Concept			Participation
Subsidiary Concept			Reform

Note. Blue-shaded cells denote co-occurring concepts across phases.

The theme of *Intensification* was noted across all the central concept areas of the study and continued to recur prominently using a range of data collection techniques. Not surprisingly, the theme of intensification was identified in association to the second recurring theme *Sustainability*. The

focus group data analysed from the third phase of the study contributed to constructing a description for these themes in the context of this study.

Intensification and *Sustainability* were characterised as:

- *Limiting the negative impact of the intensification of academic work is central to staff concerns about personal and professional sustainability. The intensified conditions within which academic staff are working to meet HEI management and student expectations, the importance of identifying an individual's threshold* was emphasised.

The third theme of *Compliance* was also identified across all the central concept areas of the study and continued to recur frequently across the range of data collection techniques. Compliance was closely associated with the fourth recurring theme *Performance*. From the data analysed in this study a description for these themes was compiled from the phase three analysis.

Compliance and *Performance* were characterised as:

- Learning opportunities and the available learning options within HEIs are strongly perceived to contribute to academic staff *productivity, performance and compliance*. Perceptions of HEI learning opportunities are repeatedly characterised as interchangeable with HEI training sessions, where the emphasis is on employee *compliance* for the overriding benefit of *performance* expectations and evaluations.

Secondary conceptual themes notable in the data, albeit inconsistently present across the multiple phases of the study, are incorporated to a lesser extent to support the ongoing discussion of the findings. Table 8.3 shows the secondary conceptual themes of 'Support; Personal Networks', 'Support; Learning Opportunities', and 'Compliance; Depersonalisation' as prominent in half (two out of four) of the data collection and analysis phases of the study.

Intensification

The theme *intensification*, as identified and defined in the qualitative data analysed, is linked to the evolving character of academic appointments in HEIs. The ways in which academic staff work, research, learn, and their construction and transfer of knowledge are repeatedly shown to be shaped and informed by the global knowledge economy and market (Fredman & Doughney, 2012; Gill, 2013; Grappa et al., 2007; Haymes, 2008; Jackson, 2004; Marginson & Considine, 2000; Marginson & van der Wende, 2007). The evolving context of HE has reshaped and intensified the conduct of the work of academic staff with the distinctive techniques of new public management (NPM) (Becher & Trowler, 2001; Fredman & Doughney, 2012; Gill, 2013; Grappa et al., 2007; Harris, 2005; Marginson & Considine, 2000; Marginson & van der Wende, 2007). Intensification has additionally altered the nature and form of academic pursuits with the predominant characterisation of fragmentation. For example, the uncoupling of teaching and research reported in the literature and by participants in this study. The fracturing approach of NPM and its ensuing outcome has compartmentalised and placed in opposition many HEI functions and outcomes (Altbach, 2007; Altbach et al., 2009; Bentley et al., 2013; Bexley, 2013; Grappa et al., 2007; Lincoln, 2011; Marginson & Considine, 2000; Marginson & van der Wende, 2007).

The process of fragmentation has had repercussions on the comprehensive role of interpersonal networks emphasised in the data as being integral to academics sustaining the intensification of their work. Scholarly networks arranged through membership to associations and participation at conferences, was identified by participants as a supportive and sustaining network that has been affected by restricted access to funding. The systematic dismantling of the academic community (Altbach et al., 2012, p. 4) has fractured academic staff networks into isolation within a context of pervasive competition, workplace insecurity and instability, risk-taking behaviour, devolution of responsibility, and restricted access to funding and support (Becher & Trowler, 2001; Bentley et al., 2013; Fredman & Doughney, 2012;

Gill, 2013; Grappa et al., 2007; Harris, 2005; Jackson, 2004; Marginson & Considine, 2000, p. 5; Marginson & van der Wende, 2007).

The impact of intensification on academic work, for the majority of participants in this study, was described as not being linear or ‘step-by-step’. Thus the task of ‘backtracking’ for problem solving and anticipating learning opportunities was emphasised as both difficult and involving a range of discrete aspects. The intertwined relationship of the requirements of academic work (teaching, research, and service), the processes and procedures established (NPM, interpersonal and structural support), and the institution’s administrative systems (governance and administration) were noted by participants. Comments of participants suggested that specific and generic workplace intensification and interconnected complexity was not adequately mediated by HEI structures of support and available learning opportunities.

The data indicated that formally structured learning opportunities within HEIs, including training, professional development, and workshops, occurred inopportunately, were ill timed and perceived to be not an effective use of academic staff time. The disparity between the need, implementation and delivery of training, was believed to impact upon the usefulness of skills developed in the professional development and lacked practical application. The ‘one-size-fits-none’ approach, in general, lacked an overall perspective of the demands of academic work, and more specifically the particular needs of the individual. The learning opportunities characterised by academic staff in this study were, by extension, a reflection of the intensification of the HEI environment. To reuse the terms from the literature (Altbach, 2007; Altbach et al., 2012; Altbach et al., 2009; Bentley et al., 2013; Fredman & Doughney, 2012; Grappa et al., 2007; Marginson & Considine, 2000) academic staff learning opportunities, like the HEIs that provide them, could be characterised as fractured, restricted, devolved, competitive, insecure and unstable.

The range of university providers of formal learning opportunities presented additional challenges for academic staff. University providers of learning opportunities and services included the faculty and/or schools; human

resources; the IT department; learning and teaching units; research unit; the online learning unit; and the library. Several participants also identified professional associations and information vendors as directly promoting learning opportunities incorporating on-campus presentations, off-campus training events, and online webinars. In response to this broad range of formal opportunities, participants strategically identified and pursued the learning opportunities (including literacies) that would be most useful, in conjunction with being recognised as compliant with their annual professional development requirements measured during employee appraisals.

The intensification of academic staff work and learning requirements identified in this study corroborate with the work of Valtanen et al. (2011) in their analysis of HE and knowledge-workers. Specifically on the theme of *intensification*, Valtanen et al. (p. 23) assert, “career development options have not kept pace with work changes”. The findings in this study lend support to the argument that this failure to synchronise concerns about the demands of work changes is occurring internally and outside HEIs. Within the intertwined relationship between academic work and learning, intensified conditions have subordinated autonomy and choice, disfiguring learning opportunities into learning demands. These continuous learning demands upon academic staff to meet the intensification of their work yields little benefit if, as suggested, these learning options have not kept pace with work changes.

Sustainability

Identified in relation to the conceptual theme of intensification was the second recurring subsidiary concept sustainability. The personal and professional sustainability of academic staff in the context of intensification of HEIs was examined across multiple methods of data collection and analysis. The sustainability theme differed from the first theme of intensification in that participants in this study had a range of strategies for the ways in which they attained sustainability. What was similar in the findings was the notion of an individual’s threshold.

In the context of learning opportunities, encompassing academic library learning opportunities for a range of literacies and lifelong learning, the identification of one's threshold to establish sustainability was shown in two forms in the data. The first method of sustainability was the limiting of learning and in turn limiting participation in learning opportunities. The term participation is important to note as it was identified in the modified Delphi method analysis that participants were frequently aware of available learning options and opportunities. However, it is in limiting participation in learning opportunities that academic staff identified that they were able to establish and maintain their sustainability. This conceptualisation of sustainability responds to the lifelong learning scholarly literature that addresses fulfilment, personal satisfaction, personal reward, learner disposition, and ownership (Chapman & Aspin, 2013; Evans, 2009; Hager & Halliday, 2006; Halliday, 2001; Swann, 2012; Taylor, 1999).

The second method of sustainability recurring in the data related to the conceptualisation and presentation of learning opportunities. Participants explored the presentation of learning opportunities establishing a distinction between *abstract* and *specifically defined* learning. Academic staff, when considering academic library-facilitated learning that could be of benefit across their lifespan, such as literacies, demonstrated a significant lack of interest and perceived lack of importance for *specially defined* training. This outcome was identified in proximity to the theme of intensification and particularly consistent in the presence of library, informational and technological jargon as a related form of intensified complexity (Becher & Trowler, 2001; Brophy, 2005; Bundy, 2002, 2004). In order for academic libraries to better support lifelong learning opportunities, participants in this study identified a preference for the generic, in other words *abstract* concepts, general terms and use of language, where individuals could interpret the potential outcomes (ALA, 2008a; ALIA, 2002; 2006; IFLA, 2006; Johnston & Webber, 2003).

The conceptualisations of *abstract* and *specifically defined* learning opportunities I equate with the overarching themes of *sustainability* and

intensification as a reflection of the HEI context. *Specifically defined* learning opportunities share characteristics with fragmentation, intensified complexity, and compartmentalisation (Altbach et al., 2012; Grappa et al., 2007; Skilbeck, 2006). *Abstract* learning opportunities were identified as contributing to an individual's sustainability, with their development in capacity building generic skills with a broader remit of potential outcomes and life chances (Evans, 2009; Evans et al., 2013; Longworth, 2003; Zurkowski, 1974, November). The identified relationship between learning and professional and personal sustainability closely resembles Halliday's (2001, p. 93) proposition regarding the need for ongoing (lifelong) learning to cope with the changing characteristics of work.

Participants in this study identified a range of impeding factors affecting their perception of library-related services and simultaneously their experiences. Findings associated with the intensification of the context of HE have shaped the perceived intensified complexity of academic libraries (ACRL & Working Group on Intersections of Scholarly Communication and Information Literacy, 2013; Brophy, 2005; Oakleaf & ACRL, 2010). These perspectives in turn have informed academic staff expectations of supportive 'seamless' (Becher & Trowler, 2001; Brophy, 2005), 'behind the scenes' (Schonfeld & Housewright, 2010, p. 3), 'customer-service' (ACRL & Working Group on Intersections of Scholarly Communication and Information Literacy, 2013; Ithaka S+R et al., 2013) approaches from academic libraries to manage their academic work.

The establishment of sustainable learning processes and procedures were also emphasised in the way they were seen as extending beyond the *specifically defined* parameters of institutional affiliation, scholarly discipline, geography, and professional hierarchy (Coyne, 2010; IFLA, 2006). The interpersonal networks of academic staff are a subsidiary example identified in the data by individuals when establishing a framework for their sustainability (Chapman & Aspin, 2013; Chapman et al., 2006; Evans, 2009; Niehaus & O'Meara, 2014; Taylor, 1999). In addition, the networks of academics were regarded as being able to attend to the differing needs of diversified facets of

academic work, including keeping-up-to-date in order to maintain professional and scholarly relevance (Taylor, 1999, p. 112).

The role of networks was seen as demonstrating vital exchanges between successful modes, means, and experiences, when academics are responding to the intensifying needs and nature of academic work. Collegiality is emphasised as mediating the pressures and managing the challenges of the reshaping of higher education by the practice of a managerial system of governance (Niehaus & O'Meara, 2014; Taylor, 1999). These collegial peer relationships were extolled for saving time and affording academics the opportunity to manage better their limited time, as well as reducing the duration and effort required in keeping-up-to-date with information and learning (Evans, 2009; Hager & Halliday, 2006; Halliday, 2001).

Additionally participants discussed the importance of individuals in their network who shared common ways of learning, emphasising the significance of both increasing knowledge, and doing so in an agreeable and sustainable manner. These individuals were described as sharing learning beliefs or values, being 'like-minded', of a shared 'disposition', and were also a source of support (Swann, 2012). Several participants speculated that these individuals might not have been the most informed or expert in a given area; however, the ease of interaction, availability, and their perceived shared experiences made these individuals preferable to go to for support in the first instance and for the majority of situations.

Compliance

The third conceptual theme identified across all the central concept areas of the study was *compliance*. Multiple methods of data collection and analysis show findings with the recurring concept of *compliance* by academic staff to the learning opportunities and options provided by HEIs. The environment of intensification in HEIs is linked to the conceptualisation of *compliance* shown in the data, specifically the techniques of NPM that emphasise accountability, audits, scrutiny, and measurement (Altbach et al.,

2012; Becher & Trowler, 2001; Fredman & Doughney, 2012; Gill, 2013; Grappa et al., 2007; Harris, 2005; Jackson, 2004; Lincoln, 2011; Marginson & van der Wende, 2007; Mertova et al., 2010).

The participant sample indicated that impacting their perception of learning opportunities (including literacies) was the *intensification* of academic work dominated by fractured tasks with an emphasis on fragmented computer-based tasks. This fragmentation is described by participants as the disassembling of tasks into a series of asynchronous components. These components are distributed in their administration and management, devolution of responsibility distinctive to NPM, throughout the institution. Fragmented task components are completed in isolation from the notion of, commitment to, and responsibility for an overarching task and lacking in overall perspective. This characterisation of fragmentation by participants was perceived to be the outcome of managerialism's influence in HE. Similarly, individuals were additionally required to show *compliance* with the effects of this governance. Marginson and Considine (2000, pp. 3, 5) describe subordination, a similar theme to *compliance*, in which the subordination of academic staff and academic work are under direct assault from HEI managers.

Computer-based and disparate access to information has been highlighted in the data as being dominant aspects of academic work at this time. To function effectively in this work environment, the knowledge of a range of up-to-date skills is required (Devlin & Samarawickrema, 2010, p. 119; Evans et al., 2013; Halliday, 2001, p. 93). The increasingly fragmented form of academic work has emphasised *compliance* from staff to both a mode and means of completing tasks. This has the potential to re-arrange and re-orientate an academic's approach to all facets of their work, particularly as it confronts the methods of *sustainability* employed by staff. Participants in this study reported the creeping influence and emphasis of the theme of *compliance* on the structure and sequence of their work.

Compliance, as conceptualised in the data, prescribes:

- ‘Who’ does and does not get assigned to particular competitive fractured tasks;
- ‘What’ is and is not the expected outcome;
- ‘Where’ access to resources are supported, restricted or flexible;
- ‘When’ outputs will be measured and audited;
- ‘How’ responsibility and accountability is re-structured.

This illustration of the perceptions of compliance identified in this study corroborate with the international scholarly literature on higher education (Altbach, 2007; Altbach et al., 2012; Bexley, 2013; Fredman & Doughney, 2012; Grappa et al., 2007, p. 30; Harris, 2005; Jackson, 2004; Lincoln, 2011; Marginson & Considine, 2000, p. 5; Marginson & van der Wende, 2007, p. 8; Mertova et al., 2010; Staley & Trinkle, 2011, January/February).

The possible outcome of these changes in the emphasis of dominant modes and means of academic work might, I suggest, as shown in the data extend to encompass the range of learning opportunities (including literacies) and options required and desirable for academic staff. This restricted and disfigured perception of learning in the short-term may have the potential for extensive impact on the ways in which academics conceptualise and seek to adopt and enhance their skills in the long-term. Additionally this context impacts how academics might function within a different HEI or outside of academia. Academic staff in the data are both critical of, and compliant with, the emphasised opportunities, support, and requirements of their working environment. The personal lenses on lifelong learning (phase four) reveal that they are aware, to varying degrees, of the ways in which their employment shapes and reshapes the pathways and characteristics of their lifelong learning and in turn their life chances. Academic libraries capacity as a pathway and place to support lifelong learning is impacted by the outlined perceptions of academic staff.

Participants highlighted the ill-defined nature of academic work in their discussion of its intensified and fragmented characteristics. Academic

staff acquiescent to the evolving form of their work noted that their compliance challenged their capacity to establish sustainable practices. Across all levels and durations of appointment, participants in this study did not feel able to describe what fragments comprised their work and emphasised the inflexible reshaping of academic work. These findings demonstrate the inability for participants to identify an employee-centred approach in their work situation, nor are they able to learn from their participation (learning by doing) (Evans, 2009, p. 90). In contrast lifelong learning in the workplace is characterised by individual ownership, a personalised approach, knowing what, knowing how, knowing who and knowing why (Evans, 2009; Hager & Halliday, 2006; Halliday, 2001; Niehaus & O'Meara, 2014; Taylor, 1999, p. 158). This directly influences an individual's ability to maintain and manage the current demands placed upon them, which have an effect on future work patterns (Evans, 2009; Evans et al., 2013; Hager & Halliday, 2006; Halliday, 2001). This impacts upon the ways in which academic staff might be supported in this context by academic libraries.

The theme of *compliance* was noted in the data to shape academic staff choices for formal *specifically defined* learning opportunities. Participants observed an advantage in the learning opportunities that demonstrated they were compliant with their annual professional development requirements measured during employee appraisals. Further findings associated with compliance and learning opportunities suggested current academic library learning opportunities for a range of literacies were not recognised as compliant and conceptualised in a 'service' capacity (ACRL & Working Group on Intersections of Scholarly Communication and Information Literacy, 2013; Connaway et al., 2010; Ithaka S+R et al., 2013; Johnson et al., 2014; Schonfeld & Housewright, 2010). This perspective illustrates the significant uncertainty surrounding how individuals ought to comply with HEIs' demarcation of responsibilities, particularly with regard to computer-based or facilitated information resources and staff training.

The majority of participants, regardless of academic discipline, cited either very frequent or daily use of electronic library resources as a

requirement of their academic work. Academic staff perceptions of the notion of demarcation is shown in the data by combined factors related to both the electronic environment and the institution. For instance, when utilising an electronic library resource and finding that an element of this interaction is unsuccessful or presents an unanticipated result, academics did not know from whom or where to seek support. Individuals in this situation considered the distinctions within the university or departments initially, such as the academic library, IT department, faculty or school technologist and online learning specialists as the ‘who’ to go to. In this instance, the convergence of roles and blurring of professional boundaries in the findings were aligned with the 2009 Ithaka faculty study (Schonfeld & Housewright, 2010, p. 13) which has tracked academics placing “less value on the library’s traditional intellectual value-added role” since 2003.

The circumstances of this ‘knowing who’ scenario were portrayed in relation to the intensification of academic work. Academic staff emphasised the complex intertwined and intensified connections between the requirements of academic work tasks. These complex connections were recalled by participants to be challenging for academic staff to find or create sustainable processes and procedures.

The environment of *intensification*, role of *compliance* and need for *sustainability* within HEIs, influenced academic staff perceptions of service-providing departments, work units, and their capacity to support and provide learning opportunities. The changing nature of technology and technological systems add further complexity to this context. Emphasised in the data was the tension between professional subordination (*compliance*) and the personal threshold (*sustainability*) of academic staff. These conditions when referred to in the literature are described to inhibit intentional lifelong learning with the continuous pressure to learn, work with technologies and commodify knowledge products (Bundy, 2004; Harris, 2005; McNamara, 2013; Skilbeck, 2006; Tamarkin & The 2010 EDUCAUSE Evolving Technologies Committee, 2010; November/December, Pyöriä et al., 2005 as cited in Valtanen et al., 2011, p. 24).

Performance

The fourth theme, identified in connection to *compliance*, was the subsidiary concept *performance*. Academic staff perceptions of learning opportunities (including literacies) and options in HEIs were characterised in relation to their notion of *performance*. The preferred term *performance* was frequently conflated with ‘productivity’. Findings in this study elaborated upon the theme of *compliance* with an emphasis on *performance* in work and of learning opportunities.

Across the lifespan of an academic, learning practices are adapted chiefly to match and fit in with the current practices, opportunities and support provided by the HEIs for their employment (Ithaka S+R et al., 2013; Johnson et al., 2014; McNamara, 2013; RIN & RLUK, 2011, March; Tamarkin & The 2010 EDUCAUSE Evolving Technologies Committee, 2010; November/December, Taylor, 1999). The data shows that the rapid growth within HEIs had in some instances and to a varying scale, dispersed the on-campus locations of academics, schools, and faculties. The physical discontinuities and intangible boundaries between staff, schools, and faculties have, in turn, obstructed and diminished the collegial atmosphere, academic community, and the practices of learning and knowledge exchange among staff and students (Altbach et al., 2012; Becher & Trowler, 2001; Marginson & Considine, 2000; Marginson & van der Wende, 2007). These described discontinuities in the data were perceived as diminishing work *performance* whilst increasing the constraints of *performance*.

The impact of the theme *performance* on learning opportunities was shown in the findings linked to the secondary theme of personal networks. The interpersonal networks of academics were described broadly in dual terms: one, that of ‘campus networks’, comprising of on-campus colleagues; and then, ‘knowledge-based networks’ that have been assembled over one’s lifespan. An academic’s combined wider networks, which include campus and knowledge-based networks, were noted to be the greatest source and

wellspring for lifelong learning opportunities. This interpersonal network was broad in nature, comprising of colleagues, peers, friends and students with a desirable combination of skills and knowledge applicable over a range of situations. This finding corresponds with the workplace learning, lifelong learning and higher education literature that addresses the notions of 'know who' (Evans, 2009, p. 90; Taylor, 1999, p. 112) and workplace participation knowledge (Chapman et al., 2006; Evans, 2009; Hager & Halliday, 2006; Halliday, 2001; Longworth, 2003).

Participants in this study reshaped the ways in which they sustained their work practices and specifically managed their time to complement the prescriptive form of *performance* measurement in HEIs. Academic staff emphasised a preference to redirect time reclaimed by enhanced *performance* through the use of personal networks into *reflection*, *synthesis*, and *fluency* of information and learning. This, in turn, influences the 'predisposition' and learning processes of academics, providing opportunities to move beyond the management of knowledge and make advances into its creation (Evans, 2009; Swann, 2012; Taylor, 1999).

Performance-related findings from this research link the factors of relationships, networks, interaction, and proximity to peers as conducive to positive experiences and exchanges of information important to their lifelong learning in HEIs. In contrast, these factors were not expressed in the ways in which academics are reported to be engaging with academic libraries. Growing preference for electronic resources on the part of academics, chiefly accessed from outside of the physical confines of the library, is limiting the opportunities for academic libraries to have a role as a space for lifelong learning, both tangibly and intangibly (Bundy, 2004; Schonfeld & Housewright, 2010). The tangible and intangible practices of engaging and interacting within an academic library, in the company of peers, students and library staff, provide the opportunity for the unpredictable, the unexpected, and for a range of learning exchanges and the transfer of knowledge (Carnaby, 2010; Coyne, 2010; Doskatsch, 2003; Hayes & Kent, 2010; Ithaka S+R et al., 2013; Johnson et al., 2014; Jordan, 1998; McKnight, 2010; Neal & Jaggars,

2010; Secker & Price, 2004). These experiences, interactions, and observations have the capacity to enhance the performance of the academic community, support and sustain personal networks, and contribute to the fulfilment of individuals and groups over their lifespan.

Analysing the conceptualisations of *performance* from participants and the higher education literature, I read a strong similarity with the work of Altbach, Reisberg, and Pacheco (2012), Becher and Trowler (2001), Gill (2013), Grappa, Austin, and Trice (2007), Harris (2005), Jackson (2004), and Lincoln (2011). This literature addresses the ways in which the context of HE and the governance of HEIs reshape the working and learning experiences of academic staff, most notably in reshaping of the role of collegiality, educational values, accountability procedures, academic identity, and the influence of competitiveness.

Summary of qualitative findings

Academic work in the changing context of HEIs in this study is characterised by participants as an environment of *performance*, measurement and management, with the systemic *intensification* requiring academic staff to manage a tenuous balance between subordinating *compliance* and asserting boundaries for *sustainability*. The findings linked to lifelong learning opportunities responded to academic practices that emphasised interpersonal interaction, personal preference and were generally informed by the personal experiences of individual academic staff. These *sustaining* work practices are recognised, by participants and the literature, as ‘noncompliant’ with the *intensified* procedures and *performance* management within HEIs. The themes examined in the findings align with the extant international higher education research literature (Altbach, 2007; Altbach et al., 2012; Bexley, 2013; Fredman & Doughney, 2012; Gill, 2013; Grappa et al., 2007, p. 30; Harris, 2005; Jackson, 2004; Lincoln, 2011; Marginson & Considine, 2000, p. 5; Marginson & van der Wende, 2007, p. 8; Mertova et al., 2010; Staley & Trinkle, 2011, January/February).

For academic staff seeking to meet HEIs' expectations of *performance*, a measure of 'noncompliance' was found to be justified in this study in order to achieve sustainable work practices. Findings affirmed the development of networks of individuals, who were able to assist in academic work *performance*, *sustainability* and temper the burdens of *intensification*, and *compliance*.

The time and skill-set required to respond to the challenges of *compliance*, *intensification*, *performance*, and *sustainability* encircling academic work was identified in the findings as conditioning academic staff perceptions of the role of the academic library and its provision of services and opportunities. Most notably academics' perceptions were shaped by the experiences of fractured *intensification* in HEIs and related to and reflected upon electronic library services, staff management structures and hierarchical reporting lines.

Academic library staff were shown in the findings to contribute to university-based informal networks of support. These *performance* enhancing networks were found to have developed over time, were maintained through formal work role or responsibility developments, and justified when perceived within HEIs to be 'noncompliant'. Whilst findings indicated that academics were mindful of being, or being perceived to be, compliant with the structures and hierarchies within HEIs, the individuals associated with these informal networks were regarded as the best 'human resource' in most situations. Desirable attributes of these individuals (whether they were from the academic library or not) were their knowledge, experience and understanding of the *intensification* of demands, contextual *performance* challenges, roles of *compliance* and 'noncompliance', and modes of working to support *sustainability*. These attributes in the secondary theme of support are shown in Figure 8.1 across the three qualitative phases of the study linked to the broader relationship of recurring concepts and subsidiary concepts. The relationship between the recurring concepts and subsidiary concepts in Figure 8.1 are emphasised by the blue shaded boxes.

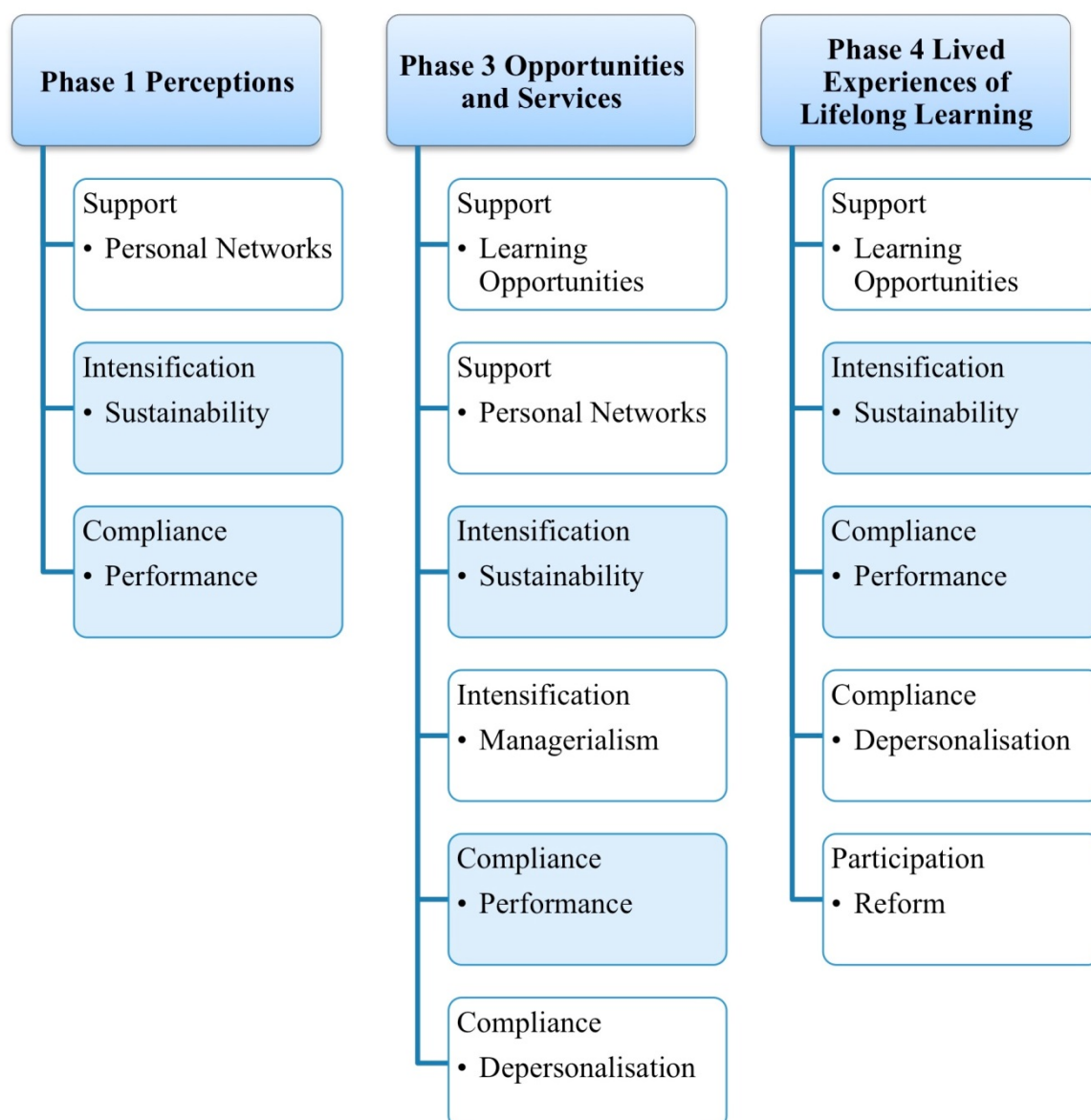


Figure 8.1. The relationship between recurring concepts and subsidiary concepts across the three qualitative phases of the study.

Statistically significant correlations resulting from the modified Delphi method

The quantitative phase of the study tested the rank-ordered priority statements from the modified Delphi method and measured the relationship between library services and learning opportunities. The data shows the prioritisation of several factors and the identification of recurring themes that contribute to the aims of the study. The highly represented Delphi

questionnaire factors, outlined in chapter five (Concerns and Priorities), demonstrate a statistically strong relationship between *academic library services* and *learning opportunities* related to the factors of ‘new modes of learning’ and ‘accessible publishing’.

Learning opportunities is a broad theme that includes the acquisition, development and maintenance of specific skills or literacies and the ways in which these learning opportunities are identified, applied and sustained. The broad interpretation of learning opportunities in the Delphi findings responds to Evans (2009, p. 90) analysis of lifelong learning in the workplace with its characteristics of being self-directed and individually shaped. The second theme relates to aspects of *academic library service* provision including the evolving demands of intensified academic work requirements and how this impacts upon staff members’ amenability to both the services and resources of the academic library. In this context I infer a connection between the *academic library service* findings and the ‘four types of knowledge’ in the workplace of: knowing what, knowing how, knowing who, and knowing why (Evans, 2009).

The highly represented lifelong learning priority statements identified by the Delphi panel were:

- Support of accessible publishing practices including awareness of copyright, intellectual property rights and licensing issues
- Opportunity to identify literacies and skills for development

The first priority statement related to the Delphi panel’s perception of the underpinning concepts of knowledge creation, knowledge transfer, and scholarly communication. The second priority statement addressed conceptualisations of distinguishing and accruing lifelong learning opportunities.

The rank-ordered Delphi findings when interpreted in isolation were anachronistic in that what the panel knew the least about they judged to be of least importance. The phase two qualitative theme *awareness* corroborated the quantitative results. However, these findings in the broader context of the four

phases of this study support the qualitative themes identified in phases one, three, and four. Specifically the Delphi results strongly align with the themes of intensification and sustainability. Academic staff are “under continuous pressure to learn something new” (Pyöriä et al., 2005 as cited in Valtanen et al., 2011, p. 24). Participants’ examination of their learning context emphasised *knowing enough to be aware* was a sustainable response within the changing and intensified condition of HEIs. I suggest that, academics learn to cope with the rapid changes in their work (Halliday, 2001, p. 93) through awareness and by asserting their threshold, and limiting their learning for personal and professional sustainability.

An unanticipated finding from the modified Delphi method results was the distinct perception gap of the judgement of the impact of stress between a learning opportunity and the use of a service (refer to Chapter five, Figures 5.2, 5.4, 5.6, and 5.8). A decreasing trend in participants’ judgement of stress is shown in the data for learning opportunities for *new modes of learning* and *accessible publishing* factors. The opposite is shown for services provided by the academic library with an increasing trend in judgement of stress for the same two factors. I interpret this to refer to the choices academic staff, in this study, make to *sustain* their work practice, such as using a service, which is perceived to require *compliance* in navigating an *intensified* workflow structure. Learning opportunities in contrast are conceptualised to respond to and evolve with the changing needs and expectations of academic staff. Additionally this conceptualisation encompasses the views of the lifelong learning scholarly literature that promotes the benefits of accrued learning, individual ownership, personal context and interest, fulfilment and life chances over a lifespan (Chapman & Aspin, 2013; Evans, 2009; Evans et al., 2013; Hager & Halliday, 2006; Halliday, 2001; Longworth, 2003).

The correlations for learning opportunities in the Delphi findings, I interpret, to infer that academic staff perceptions, conceptualisations, and lived experiences of HEIs determine their perceptions of and expectations for academic libraries. The impact of change on academic libraries is substantial and analysed in the literature (ACRL & Working Group on Intersections of

Scholarly Communication and Information Literacy, 2013; Becher & Trowler, 2001; Brophy, 2005; Brophy, & Craven, 1998; Ithaka S+R et al., 2013; Johnson et al., 2014; Jordan, 1998; Williams, 2009). However, academic libraries also retain characteristics of being central to and within HEIs, as well as somewhat apart (RIN & RLUK, 2011, March). This distance, and small measure of independent identity, stems from the traditions, history, values, purpose, and mission inherent in all libraries. To return to the recurring qualitative themes of this study, academic library facilitated learning opportunities for a range of literacies are perceived by participants to be determined by their HEI context of *intensification*, within a culture of *performance*, with the expectations of *compliance* and the effort required and tension experienced by academic staff in maintaining their professional *sustainability*.

The modified Delphi method priority statements for future issues and concerns and the statistically significant correlations show the practical outcomes and implications for academic libraries based on the perceptions of academic staff. Academic libraries have the potential capacity, shown in the findings, to develop and support learning opportunities for academic staff across their lifespan, which are complementary to their pursuit of lifelong learning and the demands of their academic work. This role for academic libraries is diminished, at present, by concerns that extend from HEIs and their correlations stated in the findings from this study.

Concluding Comments

Chapter eight of this thesis has presented a summary of the results from the four phases of data collection and analysis of this study. The phase one semi-structured interviews are outlined in chapter four identifying the perceptions of academic staff of the issues, concerns and concepts related to academic libraries and lifelong learning within the context of HEIs. The use of the modified Delphi method in phase two is addressed in chapter five, Concern and Priorities, which tested current and future ‘concerns’ and

measured their 'priority' in three quantitative rounds of Delphi questionnaires. The third phase focus groups establish the 'opportunities and services' for academic libraries and lifelong learning elaborating upon the findings from the modified Delphi method in chapter six. The phase four semi-structured interviews investigating academic staff conceptualisations and their 'lived experiences of lifelong learning' are shown in chapter seven. The summary of results was followed by a discussion of the findings.

The discussion of the findings has focused on the concepts identified by participants across the three qualitative phases, the quantitative questionnaire results and the statistically significant findings of this study. The four-phase approach with the Popperian aim to progressively reduce the range of problem situations identified in this study has addressed a synthesis of the findings through the examination of correlating results across the study. The qualitative and quantitative findings in this chapter are presented in terms of their relationship to the context and aims of this study. These aims have been formulated based on the extant literature exploring academic libraries, lifelong learning and higher education, and the use of a sequential mixed methods research design.

At the outset of this study, this research operated from the presupposition that the response of academic libraries to the evolving learning needs of academic staff has sometimes been to modify, and in particular circumstances to cease to provide, academic staff with the required range of opportunities necessary to their functioning effectively within a complex academic environment. In this respect, I aimed to examine if academic libraries had sometimes limited academic staff's capacity for lifelong learning, instead of enabling and enhancing their acquisition of knowledge and increasing capacity. Moreover, it is suggested in the library and information science literature that the current range of learning opportunities (including literacies) for academics in many academic libraries tends to focus on short-term and localised requirements and, in doing so, is limited in its approach.

The following and final chapter of this thesis, chapter nine, will describe the presuppositions and conclusions formed during this study and outline recommendations informed by these conclusions.

Chapter 9

Findings, Conclusions, and Recommendations

Chapter nine will discuss the conclusions formed from the research presented in this thesis and offer recommendations derived from these conclusions.

The purpose of this thesis has been to explore the relationship between academic libraries, literacies and the lifelong learning of academic staff.

The aims of the study were:

- To undertake a conceptual and empirical analysis of the impact of the changing context of higher education, changes in the management of higher education institutions and the nature of academic work on academic libraries and their provision of lifelong learning opportunities for academic staff.
- To identify the perceptions of academic staff regarding current issues and future priorities in higher education and their implications for academic libraries and the provision of learning opportunities for academic staff.
- To examine the capacity of academic libraries to provide information services and learning opportunities in a range of literacies relevant to the perceptions of academic staff regarding their lifelong learning needs.

The specific aims guiding research were:

- To explore the ways in which HEIs' impact upon the form and nature of lifelong learning opportunities provided by academic libraries to academic staff.

- To analyse how learning opportunities for a range of literacies are situated within HEIs and to examine the opportunities for learning a range of literacies in academic libraries.
- To investigate the relevance of academic library lifelong learning opportunities across the working life of academic staff.

Summary of the Study

The thesis is informed by the theoretical perspectives of Karl Popper (1952, 1972, 1973 [1966], 1974, 1974 [1966], 1976, 1994a, 1994b, 1995 [1959]) that is closely aligned with the conceptualisations lifelong learning presented in the work of Aspin (2000, 2001), Chapman (1997, 2006, 2006, 2013), Evans (2004, 2009, 2013), Halliday (2001, 2006) and Swann (2012). The educative role of academic libraries and information literacy is particularly informed by the work of Zurkowski (1974, November).

In the review of the literature in Chapter two, research from the disciplines of academic libraries, lifelong learning and higher education were considered to assess the association between academic staff (lifelong) learning opportunities and academic libraries. Relationships between academic libraries and lifelong learning (AAUP, 2013; ALA, 2007; 2008a; ALIA, 2002; 2006; Sproles et al., 2013), between lifelong learning and higher education (Longworth, 2003; Longworth & Davies, 1996; Swann, 2012; D. Watson, 2009), and between lifelong learning and work (Aspin & Chapman, 2000; Chapman & Aspin, 2013; Evans, 2009; Evans et al., 2013; Hager & Halliday, 2006; Halliday, 2001) have been discussed in the literature. Evidence of an association between lifelong learning, and academic staff was limited in the literature (Law, 2010; Sproles et al., 2013; Taylor, 1999; Valtanen et al., 2011). This limited association between lifelong learning and academic staff in the scholarly literature possibly stems from the complex and evolving context of HEIs (Altbach, 2007; Altbach et al., 2012; Becher & Trowler, 2001; Bentley et al., 2013; Bexley, 2013; Fredman & Doughney, 2012; Gill,

2013; Grappa et al., 2007; Harris, 2005; Jackson, 2004; Lincoln, 2011; Marginson & Considine, 2000; Marginson & van der Wende, 2007; Mertova et al., 2010; Taylor, 1999; Trowler, Saunders, & Bamber, 2012).

The relationships of chief importance to this research study, are those between academic libraries, literacies, lifelong learning and academic staff, which have not been central to prior interdisciplinary studies (Albitz, 2007; Asher, 2003; Candy, 2000; Devlin & Samarawickrema, 2010; Nimon, 2002; Sproles et al., 2013). Prior interdisciplinary studies have tended to focus on the associations between academic libraries and lifelong learning with an emphasis on *student academic success* and *graduate attributes* (AAUP, 2013; ACRL & Working Group on Intersections of Scholarly Communication and Information Literacy, 2013; Bundy, 2004; Johnston & Webber, 2003; Sproles et al., 2013). In the absence of a focus on academic staff in the existing literature this study was shaped to encompass the impact of the context of HEIs on academics' relationships with and between academic libraries, literacies, and lifelong learning. In determining the scope of this study, consideration was included for academic staff efficacy as knowledge creators in the knowledge society within which ICT literacy, information literacy and digital literacy are vital (Dudfield, 1999; IFLA, 2006; Longworth, 2003; Longworth & Davies, 1996).

As discussed in chapter three, Research Methodology and Methods, the research approach of this study was derived from the evolutionary epistemology and meta-theoretical perspectives of Karl Popper (1972, 1974). His iterative process of conjecture and refutation for the evolving refinement and error elimination is demonstrated in the sequence of phases adopted in this study. Popper's (1972, 1974) theory of critical rationalism has been integral to refining the relationship between the conceptualisation of the research problem, data collection, and rigorous analysis through the application of the multiphase approach to data analysis, and the ongoing testing for falsification through refutation and conjecture.

The philosophical perspective of this study is underpinned by Wittgenstein's theory of *language in use*, whereby language is "without a *fixed* meaning" (1967 [1953], p. 37, para 79) and the critical disputation of the use of terms, equivalent expressions, *resembling* conceptualisations, and of their range of definitions is negotiated in a *language-game*. The later philosophical perspective of Wittgenstein and a Popperian theoretical approach informed the analysis of participant's critical expressions that impeded the iterative problem-solving process, and mediated the elimination of error from the *language-game* based on participants' *language in use*.

A multiphase mixed methods approach (Creswell, 2014, p. 16) was designed using consecutive phases to address the overall research objective to examine academic staff perceptions of lifelong learning opportunities, evaluate the responses by academic libraries and to identify potential interventions. This design enabled the development of a conceptual overview from the data collected from the first phase QUAL 'exploratory' semi-structured interviews, and the development of a questionnaire instrument for application in the first round of the collection of data by the modified Delphi method QUAN(qual) in the second phase. 'Explanatory' phases of the study (Creswell, 2014; Creswell & Plano Clark, 2011) were used for the third phase QUAL focus groups and fourth phase QUAL personal lenses on lifelong learning, involved the collection of qualitative data, to explain or elaborate upon the quantitative data in greater depth.

Academic staff participants, from whom data was collected in phase one through semi-structured interviews, identified their perceptions and responded to the conceptualisations of the key themes of the study as discussed in the scholarly literature. The approach to the interviews was informed by the work of Gray (2004) which aimed to ensure a shared contribution, shared vocabulary and to elaborate upon the personal interests and concerns of participants. Analysis of the data using Miles and Huberman's (1994) qualitative content analysis identified the scope and framing of conceptualisations of the key areas to inform instrument development for the proceeding phase. The first phase resulted in the identification of three

concepts and three subsidiary concepts consistent across the themes of this research. The three concepts identified were *support*, *intensification* and *compliance*. The three subsidiary concepts identified were *personal networks*, *sustainability* and *performance*.

In the second phase a modified Delphi method was used to collect and analyse data (Barnette, Danielson, & Algozzine, 1978; Bodish-Lynch, 1983; Burns, 2000; Eggers & Jones, 1998; Franklin & Hart, 2007; Hilbert, Miles, & Othmer, 2009; Keeney, Hasson, & McKenna, 2011; Loo, 2002; McMillan & Schumacher, 2006; O'Neill, Scott, & Conboy, 2010; Okoli & Pawlowski, 2004; Skulmoski, Hartman, & Krahn, 2007). This involved an iterative three-round process of quantitative questionnaires. The 36 questionnaire factors (items) presented in the modified Delphi method were refined by the three-round process. During the three round process low ranking factors were excluded and the remaining factors were prioritised according to the measure of their rank of relative importance. Appendix C shows in Tables C7-C15 the low ranking questionnaire factors refined by the three-round Delphi technique. The resulting 24 ranked questionnaire factors were statistically analysed for correlation. A statistically significant relationship between the importance of two pairs of Delphi questionnaire factors was identified and informed the development of the instrument for the next phase of the study. The relationship linked factors that addressed the services that academic libraries ought to provide and opportunities for lifelong learning. A statistically significant correlation was shown within the concept areas of 'new modes of learning' and 'accessible publishing'. Any conclusions drawn are not indicators that academic library learning opportunities and academic staff lifelong learning have a causal relationship. The modified Delphi method results presented 16 rank-ordered priority statements of present 'academic work' issues and concerns and anticipated future 'library service' and 'learning opportunity' issues and concerns.

The rank-ordered priority statements for present issues and concerns of HEI contextual challenges related to academic work are shown first (Table 9.1). The second table (Table 9.2) displays the combined rank-ordered priority

statements for future issues and concerns related to library service responses to the changing nature of academic work and the lifelong learning opportunities that respond to the changing nature of academic work. The findings shown in Table 9.2 outline the implications and practical outcomes for academic libraries that inform the recommendations put forth later in this chapter.

Table 9.1. Modified Delphi Method Priority Statements for Present Issues and Concerns

Rank	Present Issues and Concerns Priority Statements
1	Increased workload
2	Changing government policy in higher education
3	Closer nexus between teaching and research
3	Increasing research emphasis in universities
4	Level of responsibility
5	Increased accountability
5	Changes in organisational culture
5	Knowledge of and availability of people and services for provision of support
6	Diversification and changing priorities of responsibilities
7	Support from IT services

Table 9.2. Modified Delphi Method Priority Statements for Future Issues and Concerns

Rank	Future Issues and Concerns Priority Statements
1	Keeping up-to-date with scholarly knowledge which necessitates keeping up-to-date with other skills to access information resources
2	The transfer of scholarly knowledge for lecturing and teaching purposes e.g. PowerPoint, Echo360/Podcast, Video
3	Keeping up-to-date with information resources which requires contextual legal knowledge e.g. Copyright, Intellectual Property, Open Access
4	The transfer of scholarly knowledge for eLearning e.g. BlackBoard
4	Support of accessibility publishing practices including awareness of copyright, intellectual property rights and licensing issues
5	Opportunities to identify literacies and skills for development

Note. The last two priority statements (statements 4 and 5 are future lifelong learning opportunities. The preceding statements (statements 1-4) are future library service responses.

Focus groups in the third phase of the study explored the findings from the modified Delphi method. Group discussions examined the five correlating

paired questionnaire factors and focused on the underpinning statistically significant relationship between academic library services and learning opportunities of the identified factors; namely, ‘new modes of learning’ and ‘accessible publishing’. Results from this phase show the recurrence of concepts identified in the first phase and further elaboration and nuance in the subsidiary concepts as the study progressed in the mixed methods multiphase mode of enquiry. Phase three resulted in the identification of three concepts and six subsidiary concepts informed by the phase two findings. The three concepts identified were *support*, *compliance*, and *intensification*. The six subsidiary concepts identified were *learning opportunities*, *personal networks*, *depersonalisation*, *performance*, *managerialism*, and *sustainability*.

The fourth phase of personal lenses on lifelong learning, presented a narrative of participants’ conceptualisations of their personal history of lifelong learning. Results from the qualitative content analysis (Miles & Huberman, 1994) used the matrix display technique of a within-case conceptually ordered content-analytic summary to understand individual personal lens and their relationship to one another. Existing concepts identified in the data were reasserted with the introduction of new concepts and subsidiary concepts central to the focus of the lived experience of academic staff in this phase. Phase four identified four concepts and five subsidiary concepts in the results. The four concepts identified were *support*, *participation*, *intensification*, and *compliance*. The five subsidiary concepts identified were *learning opportunities*, *reform*, *sustainability*, *depersonalisation*, and *performance*.

Displayed in Table 9.3 is a summary of the sequence of, and findings from the study. As set out in Table 9.3, this chapter will focus on the qualitative themes identified across three phases of the study and the statistically significant correlations resulting from the modified Delphi method. Conclusions formed from the discussion of the findings in chapter eight will be conveyed in the following section with the amalgamation of qualitative and quantitative findings. An outline of recommendations derived

from these conclusions will be described, as they respond to theory, practice, and future research, in the subsequent sections.

Table 9.3. Summary of the Study

Thesis Purpose Statement			
The purpose of this thesis has been to explore the relationship between academic libraries, literacies and the lifelong learning of academic staff.			
Aims of the Study			
<ul style="list-style-type: none"> To undertake a conceptual and empirical analysis of the impact of the changing context of higher education, changes in the management of higher education institutions and the nature of academic work on academic libraries and their provision of lifelong learning opportunities for academic staff. To identify the perceptions of academic staff regarding current issues and future priorities in higher education and their implications for academic libraries and the provision of learning opportunities for academic staff. To examine the capacity of academic libraries to provide information services and learning opportunities in a range of literacies relevant to the perceptions of academic staff regarding their lifelong learning needs. 			
Specific Aims Guiding the Research			
<ul style="list-style-type: none"> To explore the ways in which HEIs' impact upon the form and nature of lifelong learning opportunities provided by academic libraries to academic staff To analyse how learning opportunities for a range of literacies are situated within HEIs and to examine the opportunities for learning a range of literacies in academic libraries To investigate the relevance of academic library lifelong learning opportunities across the working life of academic staff 			
Phases of Data Collection and Analysis			
Phase 1 Semi-structured interviews (n=8)	Phase 2 Modified Delphi Method (n=25)	Phase 3 Focus Groups (n=2[5])	Phase 4 Personal Lens Interviews on Lifelong Learning (n=5)
		Results	
Qualitative themes identified across the four key concepts of Academic Libraries, Learning Opportunities, Lifelong Learning and Academic Work;	Statistically significant correlations resulting from the modified Delphi method;	Qualitative themes identified across two focus groups in response to the modified Delphi method;	Qualitative themes identified across five academic staff personal lenses on lifelong learning;
<ul style="list-style-type: none"> Intensification <ul style="list-style-type: none"> Sustainability Compliance <ul style="list-style-type: none"> Performance Support <ul style="list-style-type: none"> Personal Networks 	<ul style="list-style-type: none"> New modes of Learning Accessible publishing 	<ul style="list-style-type: none"> Intensification <ul style="list-style-type: none"> Performance Depersonalisation Support <ul style="list-style-type: none"> Learning Opportunities Personal Networks 	<ul style="list-style-type: none"> Support <ul style="list-style-type: none"> Learning Opportunities Intensification <ul style="list-style-type: none"> Sustainability Compliance <ul style="list-style-type: none"> Performance
Findings for Discussion and Conclusions			
Qualitative themes identified across three phases of data collection and analysis;			
<ul style="list-style-type: none"> Intensification <ul style="list-style-type: none"> Sustainability Compliance <ul style="list-style-type: none"> Performance 			
Statistically significant correlations resulting from the modified Delphi method;			
<ul style="list-style-type: none"> New modes of Learning Accessible publishing 			

Consideration of the Findings in light of Current Debates

In this section I consider the findings identified in this study drawing on the current debates in HE. In particular, I address the four recurring conceptual themes identified over three of the four mixed methods phases of this study in the qualitative data collected from 18 academic staff participants. The qualitative themes identified were:

- Intensification,
- Sustainability,
- Compliance, and
- Performance.

Outside of the traditional scholarly literature publications, academics continue to challenge and debate contemporary changes in higher education. These current debates (Collini, 2013; Stopes, 2014, November 17; Warner, 2014) are voluminous, continuing, and very often, and most tellingly, anonymous. They populate the *Letters* section of the *London Review of Books* and *New York Review of Books*, the *Comments* sections of higher education news media, a wide range of social media networks and the tailor-made forum *Academics Anonymous* on *The Guardian's Higher Education Network*. These debates frequently focus upon what is seen as the pernicious culture of *intensification*, *performance* and *compliance* in current approaches to the governance of higher education institutions. A context within which 'excellence', 'research', 'performance', 'productivity', 'impact', and 'world-class' is regularly negotiated and redefined. The essay 'Sold out' (Collini, 2013) in the *London Review of Books*, for example, speaks of: 'managerial metrics'; 'punitive quantification'; 'measurable performance'; 'misleading terms'; 'scholarly labour'; 'working day accounting'; and 'commodities produced'. Collini's (2013) essay exemplifies the *language in use* currently present in the HE *language-game*. 'Sold out' (Collini, 2013) examines the deep structural reshaping of universities by legal and financial changes undergirded by the ideology of neoliberalism, marketisation, privatisation, and

competition. Similarly, ‘Zero-Hours Academics’ (Stopes, 2014, November 17) exposes the volume of ‘zero-hours contract’ lecturers, the ‘precarious’ nature of their academic work, their lack of job ‘security’ and need for a ‘living wage’. Furthermore ‘Diary’ (Warner, 2014) describes an academic’s experience of the changing nature of working for ‘customers’, to produce ‘outputs’ that garner ‘glory’ and ‘impact’, with ‘obedience’ to ‘punitive’ and ‘experimental’ managerialist approaches, culminating in employment ‘restructure’ and concluding with her resignation.

Across these public and informal forums for current debates in HE, the context of knowledge production is often described as ‘shrewd’ and ‘utilitarian’, and personal *sustainability* for academic staff is perceived, in some instances, as doing what ‘counts’ and not what ‘matters’. Whilst previously academic research and scholarship within a discipline was conceived as favouring original thought, creativity, quality and unique contributions to knowledge, many contemporary analysts point to various accounts of academic research, teaching and learning occurring within a system that now places emphasis on, measures, assesses and ranks what is ‘commonly measurable’ about academic staff, academic work, and academic institutions. This is seen as running the danger of resulting in the prioritisation of institutionally strategic academic work and formulaic knowledge production informed by compliance to institutional, national, and international neoliberal governance structures and auditing mechanisms for the purpose of institutional status and career advancement. The emphasis on rankings, competition and a range of quantitative ranking metrics is reported in many current debates as preoccupying, governments, HEI administrators and their employees. The breadth of assessment and ranking exercises encompass: formal reviews linked to institutional and government funding; student evaluations, retention, and graduate success; the annual *Times Higher Education World University Rankings* and the *QS World University Rankings*; ‘output’ clearing houses such as the *International Guide to Academic Journal Quality*; and popular websites such as *RateMyProfessor.com*.

These concerns evident in current debates support many of the findings of this study and the perceptions of academic staff participants of the issues, concerns and concepts related to the context of HEIs which impact upon their lifelong learning and the role of the academic library. The increasing intensity of these debates suggest the need for close attention, intervention and redress in the HE sector.

Conclusions

In this thesis I have explored the nature and form of learning opportunities for academic staff, facilitated by academic libraries, and responsive to the evolving needs of their academic work and to their lifelong learning. The academic profession internationally is characterised as confronting substantial and systemic challenges. Altbach, et al. (2012, p. 3) argue that it is vital for HEIs to meet the evolving needs of academic staff as “without a strong, well-educated, and committed professoriate, no academic institution or higher education system can be successful”. In higher education employers and their employees are faced with similar challenges. For all academic staff the professional concerns of HEIs add to their personal needs to evolve with their changing work requirements and to continue their learning for lifelong and life-wide application to enhance their life chances.

The combination of the changing context of higher education, the evolving character of academic work and the changing techniques of management within HEIs, shown in the scholarly literature, was found in this study to have reshaped a range of academic staff perceptions. Notably, academics’ overarching perceptions of academic libraries, their conceptualisation of lifelong learning, and the ways in which academic staff discern the academic library’s capacity to provide information services and learning opportunities. This situation, the findings of this study suggest, can be considered as academic staff and the academic library operating under the same institutional pressures and constraints of *Intensification*, *Sustainability*, *Compliance*, and *Performance*. The changing context of HEI conditions and

shapes the academic library's ability to fulfil its potential as a facilitator for learning opportunities for a range of literacies, advantageous to academic staff facing both the short- and long-term goals of academic work and the pursuit of lifelong and life wide learning.

When institutional pressures and constraints have had a negative impact, academic staff perceive academic libraries to have adopted a limited response in which they appear to have replicated the fractured nature of their institution's infrastructure and to have applied this managerial approach to the ways in which learning opportunities are provided. The limited and managerial approach to structured programs of learning opportunities provided by academic libraries was emphasised in the results from phase two and phase three of this study. Accordingly, this perception shapes the perceived limitations of learning outcomes and therefore academic staff participation is also limited.

This study began with the presupposition that the current notion of learning opportunities in academic libraries tends to rest upon the notion of *library literacy* in phase one. *Library literacy*, the knowledge, understanding, and skills required for specific library use, is limited and short-term in its approach. The current study aimed to make it possible to suggest recommendations from academic staff in phases two and three that would impact upon the review of content and where appropriate repositioning of academic library learning opportunities.

Current academic library-facilitated learning opportunities were found in this study to be perceived as formulaic, rigidly structured, frequently containing impenetrable jargon, and content for a one-time and one-attempt format. Furthermore, academic library instruction which conforms to the prescriptive nature of HEI learning opportunities is perceived by academic staff as a 'check-box' requirement for HEI employee compliance in task-development and career-development. This type of development is not identified as a component of professional development and additionally is

viewed as distinctly separate from lifelong learning opportunities by participants in this study.

Within the context of HE, the development, delivery, and retention of a range of learning opportunities (including for literacies) facilitated by academic libraries has been identified in phase two of this study. The benefits of the identified learning opportunities are diminished and disadvantaged by an inadequacy to prioritise the needs of individuals, a lack of a timely response to the evolving complexity and demands of academic work, and the failure to acknowledge the influence of interpersonal networks upon the conceptions and expectations of academic staff. These needs are subsumed under the four recurring themes identified across the four phases of this study: *intensification; sustainability; compliance; and performance*. Correspondingly, in all four phases of this study academic staff made links between the value of accrued learning being peripheral to the evolving context, values and objectives of HEIs.

For academics seeking learning opportunities for a range of literacies in several types of libraries across their lifespan, the need for different yet overarching types of understanding and skills becomes prominent. The instantaneous nature and accessibility of electronic library resources have made academic staff much more aware of the unpredictability and decelerated pace of manual/human intervention in academic library services and systems ranked in phase two. Unanticipated, abstract and new modes of learning and working were found to be preferred by individuals in phase three: however, these modes are not readily enabled by and within HEIs. These experiences have shaped the ways that academics interact with libraries, resulting in complying with accessing and utilising electronic systems and resources, many of which emphasise the fractured compartmentalisation they find in their parent institution. Academic staff with the option to individually tailor a range of learning opportunities and experiences, as emphasised in phases one, three and four, will come to have an evolving perspective and disposition with which they can respond to their changing academic and institutional demands.

This study supports previous research, which links combined learning experiences and the convergence of learning types, specifically workplace learning and lifelong learning (Hager & Halliday, 2006; Halliday, 2001). The findings are consistent with previous research addressed in the literature review that identifies the structure of engagement by adults in the workplace with ways of knowing or knowledge. Taylor (1999) identifies *knowing-how* and *knowing-who* as structures of engagement for learning in the HEI workplace. Evans (2009) also identifies the aforementioned structures and further elaborates to identify the importance of *knowing-what* and *knowing-why* across a broader range of workplaces.

The evolving context of HEI is perceived to have led to an emphasis on the short-term goals of task completion rather than to the generation of academic staff as lifelong learners. This task-based orientation combined with the varying demands within universities in some settings has led to academic library-facilitated learning opportunities as ‘task-specific’, whilst at the same time ‘learner-generic’. In doing so, this systematic depersonalisation of learning opportunities for a range of literacies occurring within academic libraries is perceived as failing to meet the needs of academics who demonstrated a preference for ‘abstract’ opportunities to engage with new modes of learning which individuals could include in their narrative of lifelong learning.

These conclusions suggest that the current academic staff conceptualisation of learning opportunities in academic libraries tends to be influenced by HEI *intensification* and *compliance* to task-specific outcomes that enhance *performance*. I argue that task-specific academic library-facilitated learning opportunities and broader information-related literacies are utilised to complement and are complementary to academic libraries. Within HEIs academic libraries have the capacity to occupy a range of complementary learning roles to develop and maintain a range of learning relationships that enhance academic staff and HEI advantage. This study puts forth the idea that the development of academic staff learning opportunities within academic libraries has been challenged, conceptually and in

application, by the themes and correlations stated in the findings. The themes of *intensification*, *performance*, and *compliance* substantially impact the application of academic library learning opportunities. The theme of *sustainability* was found to be a conceptual barrier to academic library learning opportunities and also a factor that reshaped academic staff conceptualisations of lifelong learning.

The study's findings provide evidence that academic staff are distinct in their perspectives of learning needs and engagement with learning opportunities. Within the context of this study, a range of factors work against the development, delivery and retention of learning opportunities (including for literacies) in higher education. These elements include an inadequacy to prioritise the needs of individuals, a lack of a timely response to the evolving complexity and demands of academic work, and acknowledgement of the influence of human infrastructures upon the conceptions and expectation of academics. Correspondingly, the changing overarching HEI priorities and underpinning values diminish academic staff conceptions of the utility of accrued learning opportunities.

This thesis reflects the belief that short-term (workplace) and long-term (lifelong learning) academic library learning opportunities, whilst distinct, are complementary. Furthermore, it supports the view that lifelong learning opportunities to meet the immediate needs of academic staff in the higher education context are better served when not conducted in isolation. For this reason it is suggested that academic library facilitated learning is fortified through consolidation and results in greater application across the life span and accommodating a range of life chances.

Informed by the conclusions formed from this study, I propose a new approach to the conceptualisation of the relationship between academic libraries and lifelong learning. This conceptualisation draws on Zurkowski's analogy of a light-refracting prism of information publishing activity (1974, November, p. 2) (see chapter one, Figure 1.1). Figure 9.1 illustrates an

archetype for *refractory lifelong learning* emanating from the relationship between academic libraries and lifelong learning.



Figure 9.1. *Refractory lifelong learning informed by the work of Zurkowski (1974).*

In figure 9.1 the prism of ‘lifelong learning’ gathers light from the left side as ‘learning opportunities’ enter the form. The refractions of the right side contribute to the range of ‘literacies’ an individual is developing and accruing. Each individual’s lifelong learning prism will gather and reflect light ‘opportunities and capacity’ differently according to their current situation. This situation or position is not fixed as *refractory lifelong learning*

illuminates an individual's life chances. Applying this archetype of *refractory lifelong learning* for a representation in the context of this study would have the following characteristics:

- Academic staff ownership of lifelong learning is at the core of this conceptualisation.
- An individual's continuum of lifelong learning shapes their current situation within HEIs and their life chances.
- An individual purposefully (deliberate learning choices) and unintentionally (influence of the context of HEIs and the nature of academic work) gathers learning opportunities (light).
- Learning opportunities are reflected in the literacies (e.g. information literacy) that academic staff maintain pace with and accrue over their life span.
- An individual determines (ownership of lifelong learning) the nature and form of learning opportunities (which might be supported by academic libraries) for a range of literacies.
- An individual's ownership of lifelong learning is transformative and expands into new locations and emerging contexts.
- The lived experience of an individual's lifelong learning is unique and dependent upon their opportunities for learning, access to life chances and repertoire of literacies.

HEIs and academic libraries that endeavour to explore the examined factors which impact their approach to providing learning opportunities, namely *intensification*, *performance*, *compliance*, and *sustainability*, potentially have an opportunity to thoughtfully assess and meaningfully resolve the ways in which their role might contribute to these factors. Academic library provision of high-quality information resources, support services and learning opportunities that are attentive to both the particular needs of individuals and HEIs, have the potential to strengthen the partnership between academic staff and librarians. This may in turn transform the relationships between the academic community, students and the academic

library to foster networks for lifelong and life wide learning. I suggest that this approach is able to fulfil internal and external institutional requirements by focusing the efforts, services and the allocation of resources by academic librarians to respond to the most significant contextual challenges of their constituents.

To conclude, academic libraries seeking to adopt an approach informed by the findings outlined in this study contribute to strengthening the link between the idea of the role, space and value of academic libraries within the lifelong learning of academic staff. Academic libraries have the capacity to facilitate tailored learning opportunities for a range of literacies to meet academic staff needs notwithstanding the contextual obstacles within HEIs. Moreover, academic libraries have the capacity to occupy a role in the culture and application of lifelong and life wide learning for life chances within and outside of HEIs.

Recommendations for the Advancement of Theory and Research

The significance of this study lies in its findings in relation to the perceptions of academic staff as to the nature and offerings of lifelong learning opportunities in academic libraries in HEIs. The research found that the learning opportunities (including for literacies) for academic staff occurring in academic libraries are perceived to be task-based and workplace specific. The nature of this learning is perceived by participants as being particular to the location of the library and specific to the HEI. Academic library learning opportunities that address specific objectives and outcomes is conceived as workplace learning by academic staff. This thesis investigated if this academic staff perception is shaped by the evolving context of HEIs. This situation, I suggest, can be considered as the academic library operating under the same institutional pressures and constraints of *intensification*, *sustainability*, *compliance*, and *performance*.

My research suggests that in the current context HEIs have devolved responsibility for the necessary workplace learning and lifelong learning of academic staff to keep pace with work changes outside of the HE sector.

These findings have four key implications for academic staff:

- firstly, academic staff capacity to sustain academic careers,
- secondly, academic staff capacity to transfer their knowledge and work beyond the HE sector,
- thirdly, academic staff capacity to prepare work-ready graduates with the attributes their HEI-employers market and promote, and
- finally, the link between lifelong learning and life chances across an academic's lifespan is challenged in the HE context.

The modified Delphi method findings also yielded two statistically significant correlations from the ranked issues and concerns of Delphi panellists. 'New modes of learning' and 'accessible publishing' demonstrated a significant relationship in the analysis of paired questionnaire factors presented from different perspectives.

It is envisaged that the relationship between academic staff and academic libraries might be enhanced by a shared understanding of the properties of learning opportunities, which reside on the continuum of workplace to lifelong learning opportunities. There are also conceptual differences on where and how lifelong learning is accumulated. The identified and redefined learning opportunities with the anticipated capacity for greater longitudinal and sustainable benefit are discussed. This discussion encompasses the needs and expectations of academic staff, academic libraries, and HEIs, while identifying and characterising the ways that academic staff perceive the lived experience of lifelong learning.

HE is comprised of evolving work practices and complex institutions that, I argue, are limiting the potential of their academic staff employees and capacity for knowledge creation by not adapting evolving HE aspects at a complementary pace. Academic employees are required to respond to the

evolving complexity of higher education with a broad and adaptive view of their international, interdisciplinary, multi-institutional, and non-traditional (and often non-tenured) work roles. Competition between institutions and an emphasis on entrepreneurship have, in some instances, conditioned limited and limiting perspectives in HEIs. These perspectives, most significantly, retreat from considering and attending to the long-term needs of an aging academic staff workforce that it is anticipated will delay retirement. Moreover, as academic staff follow opportunities that often require them to move between institutions, similarly confronting a changing and challenging context, I extrapolate from these findings that their long-term learning needs may continually fail to be met. These long-term learning needs, some of which I have identified in this study, are orientated towards transformative learning, the intellectual growth that transfigures the learner's disposition, and which provides personalised lifelong and life wide opportunities that in turn broaden an individual's life chances.

In this thesis, I have presented evidence in support of enhancing attention and investment in the human resources of HEIs. Academic staff and academic librarians, working in institutions with the characteristics I have identified of *intensification*, *sustainability*, *compliance*, and *performance*, have the potential to respond better to the lifelong learning needs of staff by reshaping learning opportunities and infrastructure to support such learning occurring. An approach to reshaping academic staff perceptions of lifelong learning within HEIs is, I propose, an archetype for *refractory lifelong learning* that strengthens the relationship between academic libraries and lifelong learning.

This study aimed to contribute to the literature on the roles, needs and convergence of lifelong learning and workplace learning (Aspin & Chapman, 2000, 2001; Chapman & Aspin, 2013; Evans, 2009; Hager & Halliday, 2006; Halliday, 2001; Taylor, 1999). The findings have deepened and advanced an understanding of the ways in which academic libraries might meet the needs of academic staff within the evolving context of HE.

My research identifies and suggests some of the ways in which a broader range of academics might be better assisted in developing the skills, knowledge and understanding necessary to function in the current and evolving context of higher education and learning and in particular to identify the role that libraries can play in supporting them to meet these challenges. The thesis has aimed to define and emphasise the relationship between academic staff, academic libraries, and lifelong learning within 21st century HEIs. As noted in the discussion, the significance of these linked relationships is the subject of interdisciplinary and international research. This study has sought to demonstrate the need for, and the potential roles that academic libraries might adopt in, supporting academics as lifelong learners for the mutual benefit of individuals and their employers, and further, to the benefit of academic staff colleagues, their students and the scholarly contributions they make to their academic disciplines.

Recommendations for Practice

The thesis will be of benefit to academic library directors, managers and staff concerned with reshaping the educative roles they occupy, redesigning the learning opportunities (including for literacies) they contribute, and demonstrating their value within HEIs. Additionally, these findings could be of interest to HE administrators and academic staff seeking to prioritise and structure lifelong learning opportunities for their employees and similarly for academic staff. This section presents the academic community's account of the research findings that have direct implications for academic library workflows, marketing and outreach programs, in addition to education programs. Whilst these factors are evident in current programs within the majority of academic libraries, their importance and relevance to academic staff were identified as better meeting their needs when redesigned to complement and potentially anticipate the individual needs and concerns of staff. As identified in the findings from this study, the needs and concerns of academic staff include the themes of *intensification*, *sustainability*, *compliance*, *performance*, *new modes of learning*, and *accessible publishing*.

Foremost, for academic libraries to meet the lifelong learning needs of academic staff, library management and staff need to adopt an authentic approach to the services they promote. Enhancing value in academic library practice, ought to begin by adapting the findings and learning techniques discussed in this study to academic library employees (ALIA, 2008a, 2008b; Tillman, 2008). The academic library organisation and staff both need to work from an individually informed approach to be able to provide and facilitate the authentic and complementary learning opportunities preferred by academic staff.

For academic libraries to occupy an identified role in the lifelong learning of academic staff, the approach will need the support of library management, colleagues and to be facilitated by all library staff. It will need to be a holistic approach. This will require the development of professional and lifelong learning opportunities for library staff to build their own capacity for new modes of learning to facilitate complementary opportunities for academic staff (Hahn, 2009, p. 2; Johnson et al., 2014; McKnight, 2010; Tamarkin & The 2010 EDUCAUSE Evolving Technologies Committee, 2010, November/December, p. 43; Whatley, 2009, p. 30). Moreover, acknowledging the ways in which librarians learn, consideration needs to be given as to how information is used and managed within universities, as librarians combine forward-looking capabilities underpinned by traditional library science and information management skills (McKnight, 2010, p. 200; Siess, 2010, p. 43).

Academic libraries will need to communicate effectively and confidently their evolving roles and continuing responsibilities to maintain core library functions and services. Academic staff will need to be informed of these responsibilities when seeking an expanding and evolving relationship, centred on learning opportunities with academic libraries and librarians (Secker & Price, 2004, p. 99). There may be requests for learning opportunities that are not possible to satisfy whilst maintaining core library functions. Explaining these decisions and how they impact on individual workloads, rostering, equity of service provision, and also suggesting what

might be possible, will have a better outcome for library and academic staff learning relationships and personal networks (Williams, 2009, p. 7).

Moreover, ensuring that the academic library offers lifelong learning opportunities that can be reshaped to an individual academic staff member's immediate and future needs, without limiting the breadth and depth of options as to what the library might perceive to be of interest or relevance to the intended audience is a challenge. Learning opportunities for lifelong and life wide application require tailoring to the needs of individual academics as they respond to the HEI conditions of *intensification*, *sustainability*, *compliance*, and *performance*. This approach may require working with smaller, self-organising groups of academics who set their own performance and learning outcomes for workshops facilitated by academic librarians. Additionally in structuring learning opportunities it is prudent to be mindful that not all academic staff conceptualise a role for lifelong learning within HEIs, nor aspire to be self-sufficient information seekers (Dorskatsch, 2003, p. 118).

Scheduled classes, training and workshops for academic staff have been equated with compliance to a 'one-size-fits-none' approach as indicated in the findings from this study. However, these occasions were also viewed positively as opportunities to meet with a group of academics with similar interests. Academic libraries facilitating such events have an opportunity to gain insight into academic staff preferences, personal networks and research commonalities (Creighton, 2011; Fister, 2009; March, Tillman, 2008). For academic staff, particularly non-teaching researchers, these learning and networking opportunities offer a sustainable way to meet, learn, and work with other (lifelong) learners within their schools, faculties, and the institution in general.

Academic library learning programs that are flexible and able to be remodelled to meet the changing needs of faculties or disciplines and which incorporate the range of resources that might support learning, teaching, and research, might benefit academic staff and librarians (Fister, 2009; March, Johnson et al., 2014; McKnight, 2010; RIN & RLUK, 2011, March, p. 16;

Secker & Price, 2004, p. 99; Tillman, 2008). This may require adopting an evolving approach to the framing of programs, as this facilitates maximum use and reuse of the library's efforts (McKnight, 2010, p. 199; Secker & Price, 2004, p. 99). For academic staff, this approach offers individuals a structure for combining, accruing and revising learning opportunities for a range of literacies that better respond to their needs. Additionally the scholarly and professional literature supports the presentation of academic library learning opportunities in conjunction with other university or faculty events in order to offer academic and library staff the opportunity to engage with the university and research community (Dorskatsch, 2003, p. 118; RIN, 2011, April, p. 10).

Academic libraries could benefit from being able to describe the ways in which they have reworked services that have been of benefit to a particular faculty or specific research group, particularly if they have a high profile (Hahn, 2009, p. 1; RIN, 2011, April, p. 10; RIN & BL, 2009, p. 75). Promoting the positive and sustainable results of services that provide academic staff with a repeatable case study, which demonstrates the academics' and library's effectiveness, productivity, and achievements will contribute to reshaping the perceptions of academics (RIN, 2011, April, p. 8; RIN & BL, 2009, p. 76; Williams, 2009, p. 3). These case study examples should demonstrate the successful link between faculty and library activities. In addition, ideally the case study should be relevant and allow further investigation by academics, therefore providing staff with the opportunity to combine formal, informal, and personal networks based within faculties (RIN, 2011, April, p. 10).

Recommendations for Future Research

As a result of my study, further empirical research might well be conducted on the central themes of this thesis in order to pilot how some of the recommendations put forth might be applied within an institution. I hope this study will encourage academic librarians, library and information science, and

lifelong learning researchers to emphasise and strengthen the role of academic libraries in the relationship between lifelong learning and academic staff.

These findings and research methods might assist HEI human resources management and academic library management to identify challenges, such as *intensification*, *sustainability*, *compliance*, and *performance* identified in this study, specific to individual HEIs. In particular, the use of the Delphi method as a technique to survey academic staff and academic librarians in their prioritisation of current and anticipated future concerns for learning opportunities and lifelong learning needs, for example *new modes of learning* and *accessible publishing*.

Further research on the identified relationship between the themes of *performance* and *sustainability*, which is underpinned by the counter concept of *noncompliance* would complement the existing literature on workplace learning. Using a similar methodological approach, multiphase and mixed methods, to investigate for differences in conduct and outcomes of *noncompliance*, as means of enhancing *performance* and achieving *sustainability*, across levels of academic staff appointment, faculty, age, and gender would improve the quality of understanding in workplace and lifelong learning in HEIs.

Comparative research at other HEIs with replication of this study on a larger scale including international HEIs would provide useful data on the roles and extent of the themes of *intensification* and *compliance*. This data would be complementary to existing and ongoing studies that report on global higher education trends and academic job satisfaction. Additionally, deep-level categorisation of the quantitative data and analysis to look for variance by gender, terms of employment, academic discipline, and the financial, physical and human resources of HEIs would improve the generalisability of the findings.

Concluding Comments

At the outset of this study research into the links between academic libraries and lifelong learning, explicitly addressing the requirements of academic staff within higher education, was limited. In this research, I have examined and analysed the potential learning opportunities, facilitated by academic libraries, which might be supported by HEIs for the ongoing benefit of academic staff as they respond to the evolving needs of their academic work.

In this study, I have combined interviews, focus groups and a modified Delphi method in a multiphase mixed methods approach informed by a critical rationalist and evolutionary epistemology. This thesis posed a series of research aims with the objective of exploring, examining, analysing, portraying, and articulating the conceptualisations of academic staff of the key concept areas of academic libraries, literacies, learning opportunities in HEIs, and lifelong learning to identify relationships. Semi-structured interviews with academic staff were conducted in the first phase of the study to initiate the evolving research inquiry. I identified three concepts and three subsidiary concepts when analysing the qualitative data that explored the context of higher education. This study found that *intensification*, *sustainability*, *compliance*, *performance*, *support*, and *personal networks* impact academic library facilitation of learning opportunities.

Phase two of this study used a modified Delphi method, informed by the findings of first phase to sequentially develop and build upon the assertions in the data. Resulting from this phase were ranked lists of current ‘academic work’ concerns and anticipated future ‘academic library’ and ‘learning opportunity’ concerns. The modified Delphi method findings also yielded two statistically significant correlations from the ranked issues and concerns of Delphi panellists. ‘New modes of learning’ and ‘accessible publishing’ demonstrated a statistically significant relationship in the analysis of paired questionnaire factors presented from different perspectives.

Focus groups were conducted in the third phase of the study to substantiate the quantitative results from phase two. In the qualitative analysis of the data three concepts were affirmed; *intensification*, *compliance*, and *support*. Additionally six subsidiary concepts were identified, *sustainability*, *managerialism*, *performance*, *depersonalisation*, *learning opportunities*, and *personal networks*.

Phase four of the study contributed a layer of depth to the overarching context of the lived experience of academic staff with the conduct of semi-structured interviews to construct personal lenses on lifelong learning. I identified three concepts and three subsidiary concepts when analysing the qualitative data across five academic staff personal lenses. Consistent across the lifelong learning personal lenses of participants were *support*, *learning opportunities*, *intensification*, *sustainability*, *compliance*, and *performance*.

I deduce from the analysis of four phases of data that the academic staff conceptualisations of learning opportunities in academic libraries is consequentially influenced by the context of HEIs, specifically the themes and concepts I have identified as *intensification*, *sustainability*, *compliance*, and *performance*. These themes were shown in the data to reshape academics' perceptions of, participation in, and relationship with academic libraries and their notions of lifelong learning. Academic staff, academic libraries and academic institutions, I suggest, are in a vulnerable position at a critical and complex juncture. Addressing the concerns and conditions identified in this thesis, would contribute to a stronger, more capable, better prepared, fulfilled and informed academic community with broader life chances. Tangible contributions have been suggested in a range of recommendations for theory, practice and research.

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Appendices

Appendix A

Participant Information and Consent Documents

Information Letter to Participants

TITLE OF PROJECT: Libraries, literacies and lifelong learning: responding to the changing nature of academic work.

SUPERVISORS: Prof. Judith Chapman and A/P Sue McNamara

STUDENT RESEARCHER: Ms. Tatum McPherson-Crowie

PROGRAMME IN WHICH ENROLLED: Doctorate of Philosophy

Dear Colleague,

My name is Tatum McPherson-Crowie and I am currently undertaking my PhD in the School of Education (Vic), with the supervision of Prof Judith Chapman and A/P Sue McNamara. My study is concerned with identifying and classifying the elements that form the library-related literacies required for academics in the lifelong context of the changing nature of academic work within higher education. As an example, I am interested in how academics continue to update their knowledge skills in information acquisition over the period of their professional life.

My study is using a number of data collection instruments, including interviews, focus groups and a repeated sequence of approximately 15 min (in 4 sessions), called the Delphi Method. Interviews are undertaken individually for approx. 1 hr. Focus groups will require participation for approx. 1 ½ hrs. Participation in the Delphi Method will require repeated involvement, and I have included in this letter an outline of the method for your information.

There are thus several levels of involvement for which I need participants. Ideally, if you are able to participate in all activities I would ask for your involvement in the Delphi Method, focus group and an interview. This is asking for a considerable time commitment from you and I fully understand if you are unable to make such a commitment to all aspects of the study, but I would really appreciate your involvement in whichever component(s) you can contribute. For this reason I have included a tick-box for each component on the authorisation form.

As a component of any research study, researchers are required to consider possible risk or harm to participants. There are no foreseen risks or harm in participating in this study. It is not anticipated that the study will be requesting private, personal or confidential information, but rather information about the nature and processes of academic work. Every care will be taken to protect the identity of participants wherever possible, but you should note that the focus groups and Delphi method are

shared experiences. You will see from the nature of the Delphi Method outline attached that contributions may be identified by deduction during the data collection. All members of the focus groups will be able to identify each other. In the final form, the thesis and any publication derived from it, will use coding, aggregate data and pseudonym-identification.

Participants are at liberty to refuse consent entirely without justification, or to withdraw consent and discontinue participation in the study at any time without giving a reason. Participation or withdrawal from this research will not favour nor prejudice a participant's future employment or academic progress.

Any questions regarding this project should be directed to the Supervisor and the Student Researcher:

Prof. Judith Chapman
(03) 9953-3254
School of Education
St Patrick's Campus

Ms. Tatum McPherson-Crowie
(03) 9953-3343
Raheen Library
St Patrick's Campus

Upon completion of data analysis, participants will be offered a summary of the aggregated results of the study.

This study has been approved by the Human Research Ethics Committee at Australian Catholic University.

In the event that you have any complaint or concern about the way you have been treated during the study, or if you have any query that the Investigator or Supervisor and Student Researcher has (have) not been able to satisfy, you may write to the Chair of the Human Research Ethics Committee care of the nearest branch of the Research Services Office.

VIC: Chair, HREC
C/- Research Services
Australian Catholic University
Melbourne Campus
Locked Bag 4115
FITZROY VIC 3065
Tel: 03 9953 3158
Fax: 03 9953 3315

Any complaint or concern will be treated in confidence and fully investigated. The participant will be informed of the outcome.

If you agree to participate in this project, you are requested to sign both copies of the Consent Form, retain one copy for your records and return the other copy to the Supervisor or Student Researcher.

.....
Prof. Judith Chapman

.....
Ms. Tatum McPherson-Crowie

Consent Form

Copy for Researcher / Copy for Participant to Keep

TITLE OF PROJECT: Libraries, literacies and lifelong learning: responding to the changing nature of academic work.

SUPERVISORS: Prof. Judith Chapman and A/P Sue McNamara

STUDENT RESEARCHER: Ms. Tatum McPherson-Crowie

I (the participant) have read (or, where appropriate, have had read to me) and understood the information provided in the Letter to Participants. Any questions I have asked have been answered to my satisfaction.

I am willing to participate in:

☐ Interview ☐ Focus Group ☐ Delphi Method

Please tick the box(es) of all of those elements in which you are willing to participate.

I can withdraw my consent at any time without comment or penalty, and without affecting my future relationship with researchers. I agree that research data collected for the study may be published or may be provided to other researchers in a form that does not identify me in any way.

NAME OF PARTICIPANT:

SIGNATURE

.....

DATE

SIGNATURE OF SUPERVISOR:

DATE:.....

(and, if applicable)

SIGNATURE OF STUDENT RESEARCHER:

DATE:.....

Outline of participation in the Delphi Method:

<p>Round 1 (R1) : Resourcing</p>	<ul style="list-style-type: none"> • Questionnaire 1: Participants are requested to engage in reflection upon the research questions and freely comment, for example single word, phrase or paragraph. • Circulation of a reminder to participants with the commencement date of the next questionnaire round. • Questionnaire 2: Distribute consolidated response for validation and reconsideration. <ul style="list-style-type: none"> • Consolidate responses, de-identification of data, make adjustments as per participant's request, remove duplication and unify terminology*. <p><i>*These measures will be carried out for the duration of the study, as directed by the Delphi process and ensure the anonymity of panelists.</i></p> <ul style="list-style-type: none"> • Circulation of a reminder to participants with the commencement date of the next questionnaire round.
<p>Round 2 (R2) : Refining</p>	<ul style="list-style-type: none"> • Questionnaire 3: Distribute consolidated responses from R1. <ul style="list-style-type: none"> • Participants are requested to prioritise 10 factors from R1 and provide a statement clarifying their reasoning for selection. • Circulation of a reminder to participants with the commencement date of the next questionnaire round.
<p>Round 3 (R3) : Ranking</p>	<ul style="list-style-type: none"> • Questionnaire 4: Distribute refined responses from R2; <ul style="list-style-type: none"> • Participants are requested to rank the refined R2 list of factors using Likert-scales. • Circulation of a reminder to participants with the commencement date of the next questionnaire round. • Questionnaire 5: Distribute researcher's statistical analysis with refined R2 list of factors. <ul style="list-style-type: none"> • Participants are requested to re-rank R2 list and provide a statement if the participant's ranking of a factor has altered and the reasoning for this. • Participants are asked to provide final comments regarding their satisfaction with the refined list. • Reiterate until panelists reach consensus or consensus plateaus.

Appendix B

Phase One Semi-structured Interviews

Semi-structured Interview Instrument

Phase 1: Data Collection Semi-structured Interviews

Introduction

Thank you for your participation in this interview for my PhD research, Libraries, literacies and lifelong learning: responding to the changing nature of academic work. As an introduction to this interview I would like to share my primary interests and the surrounding concepts.

Chiefly I am interested in libraries, literacies (e.g. digital literacy, ICT literacy, library literacy, and information literacy), and the attainment of lifelong learning within higher education institutions, within a context in which the changing nature of academic work consistently influences and reshapes libraries and literacies in their provision of ownership and opportunities for lifelong learning.

This interview will consist of a series of semi-structured questions over the course of 45mins - 1 hr.

Arising from an analysis of the interview data, a Delphi questionnaire will be developed. Later in the study, focus groups and learning profiles will provide an opportunity to better comprehend these concepts and their relationships.

Phase 1: Interview Questions

How do you acquire, and keep up to date with, the various skills, general and specific, required to perform your academic work?

During your employment in higher education, how would you characterise your expectations for ongoing learning?

How do you accumulate the skills and knowledge needed to satisfy your work related aspirations?

Do you embrace the same opportunities that you encourage your students (or if you have a role within the library or management, the students of the institution you work for) to take advantage of, in order to advance your academic work?

What aspects of your academic work are the source of the greatest difficulty?

Where do you seek support when conducting academic work?

What factors do you perceive as most important for enhancing your effectiveness?

If you were to contemplate the academic work you currently do, and the skills required to do so – could you apply those skills to the concept of literacies (e.g. digital literacy, ICT literacy, library literacy, and information literacy)?

What library opportunities do you take advantage of?

How would you describe the level/s of support and instruction provided by the academic libraries that you interact with?

How would you describe the level/s of support and instruction that ideally academic libraries should provide?

Would you participate in this instruction? Under which circumstances?

Overall, how well do you feel academic libraries are responding to the changing nature of academic work?

Which library attributes or experiences (services, provisions or opportunities) have made a significant contribution to your response to the changing nature of your academic work?

Ideally which library attributes or experiences would you like to make a greater contribution to your response to the changing nature of your academic work?

Are literacies (e.g. digital literacy, ICT literacy, library literacy, and information literacy), an effective way of describing the competencies you will require to respond to the changing nature of academic work (in your current role or career trajectory)?

How do you address your knowledge gap or deficit, between what you need to know and what knowledge you presently have?

Who should instruct academic staff in this process?

On campus, who do you approach for support?

Do you feel this method is effective? To what extent?

Off campus, who do you approach for support?

Do you feel this method is effective? To what extent?

In the past how have you evaluated your literacy (e.g. digital literacy, ICT literacy, library literacy, and information literacy) needs?

Is this an effective and sustainable approach?

Are you assured that your literacies (e.g. digital literacy, ICT literacy, library literacy, and information literacy), current and extensible, will further your autonomy when accomplishing your academic work?

How do you perceive the responsibility required on your behalf to incorporate lifelong learning opportunities within your workplace?

In your current role could you describe the importance attached to lifelong learning, either explicit or implicit?

How do you sustain your learning approach or strategy?

How would you describe your experience of the relationship between learning and working in a higher education institution?

How do you perceive the university's support of lifelong learning of academic staff?

On campus, who do you approach to support your learning?

Do you share these discoveries and outcomes?

With your colleagues?

With your students?

What opportunities do you feel should be made available by your institution in regard to their support for staff in their learning needs, particularly in regard to libraries and the acquisition of literacies necessary to respond to the changing nature of academic work?

Describe how you have been managing or have adapted to the changes to your academic work?

Do you feel prepared for the ways in which academic work is changing?

How would you describe the unknown qualities you anticipate you will need to perform academic work as it rapidly changes?

Table B1. Academic Library Thematic Group Summary Phase One

Thematic Group: Academic Library		
Code	Sub-code	Quote
Intensification	Sustainability	“I know that sounds really basic, but I think sometimes we don’t have enough time to like investigate [the library and] what’s out there and I think we would use it [resources] more if we knew it was there”
Compliance	Performance	“I’ve just become more reliant on online [library] facilities, so I can sit there and I can think of something and access it straightaway”
	Depersonalisation	“my guess is that I could probably do the online searching better than [sic] if I went to a training session or two ... but one of the problems I have with a lot of computer based training is that it is generic”
Support	Personal Networks	“back a few years ... I used to know all the staff [in the library]” “But in terms of research sources, really [the librarian] is my unique friend”
Participation	Reform	“[the library] is how the other systems ought to work ... Trying to see in advance what might happen and what might benefit people, students and staff ... it’s a role model for what should happen in an organisation”
	Fragmentation	“all those wonderful little services [in the library] for the undergrads but I don’t see that as a service for me”

Table B2. Learning Opportunities Thematic Group Summary Phase One

Thematic Group: Learning Opportunities		
Code	Sub-code	Quote
Compliance	Depersonalisation	“Well why am I going to waste my time [with generic training]”
	Performance	“There’s a whole stack of online databases I’m never going to touch. They’re totally out of my ballpark. So don’t clutter me up with just any training session”
Intensification	Sustainability	“We had these massive training sessions. I thought I can’t cope with all that information at once that I’m sitting there, you know, it’s only when I’m doing something [that I find I need a new skill]”
		“I feel I am not getting a lot of benefit from [training] because of the group programs. I really need more personal [support].... It’s also really a time problem. I am very busy”
Support	Learning Opportunities	“But I tend to just go through it [learning] intuitively and have a play”
		“Nowadays there’s all types of literacy...I’d see it as skills...They need to use their skills”
	Personal Networks	“someone who I know and who I’m friendly with and who I know they get what I’m interested in”

Table B3. Lifelong Learning Thematic Summary Phase One

Thematic Group: Lifelong Learning		
Code	Sub-code	Quote
Participation	Reform	“We [academics] shouldn’t ever stop learning particularly because things are moving so quickly in terms of technology and in terms of, I mean what we’re teaching, if we taught what we did 20 years ago, we’d be completely out of date. So keeping on track of new innovations, I think is really important”
		“My learning [and] other people’s learning... I think if one is serious about being an academic then they’re all entwined so much you can’t really pull them apart”
		“I think it’s incumbent on them [HEIs] to do that, if they want us to be our best, we need to be keeping up, we don’t need to adopt every new thing that comes along ... But it needs to be ... looked at and tried it and see where, how could this help staff and students”
Support	Learning Opportunities	“I can stimulate them to think along those [paths] or open new [types] of knowledge if you like or ask them to look at something differently but they will challenge me as well”
		“I don’t see much in the form of overt encouragement and support [for lifelong learning]. Um, I mean to me for lifelong learning to occur, there needs to be two things. One the individual has to be motivated to be involved in that and then there’s the need for the appropriate resources to have that met and addressed and supported”
	Personal Networks	“Now I’m fortunate in that there are a few people in this University that are able to, are willing to challenge me about my thoughts and ideas and what I’m doing and how I’m doing it and are very supportive, are very supportive little group do that... And to me that’s a critical part of lifelong learning.”

Table B3 CONT. Lifelong Learning Thematic Group Summary Phase One

Code	Sub-code	Quote
Intensification	Sustainability	“I've often thought in the past that I didn't have sufficient time or the demands placed upon me in a teaching role to learn as much as I wanted to learn because I constantly felt under pressure to write lectures and see students and all the other things that go with academic work”
	Managerialism	“[For some staff] this is a nine to five job and that's it, take the money and go ... and in terms of professional development, they'll do the minimum they have to ... in terms of lifelong learning ... we've got bureaucrats running those sorts of areas where it might come from. Rather than people, who are competent, well informed and well educated in those sorts of things...”
Compliance	Performance	“there are some days when what I'm thinking about is, [what is] in the boxes [for performance review] so that they decide to re-hire me”

Table B4. Academic Work Thematic Group Summary Phase One

Thematic Group: Academic Work		
Code	Sub-code	Quote
Intensification	Sustainability	“So you find yourself the whole time crisis managing or getting stuff done in the nick of time to just get it done, never as good as you’d like”
	Managerialism	“The bureaucracy. I mean it’s just gone bonkers ... it’s hard to know where to pin the blame on whether it’s just the rise of the managerial class. I mean we’ve got managers for nose picking through anything these days ... it’s grown like topsy”
		“Yes, too-little micro-managing, too-little plus micro-managing, we’ve got people who make it manage down to the colour of your carpet stain and then people who take absolutely no responsibility for things”
Support	Personal Networks	“there’s clusters within the school where obviously there’s a really positive culture about encouraging each other to do [our work] and others where there’s not and I think that probably has a more profound impact on people than anything”
Participation	Fragmentation	“each of them [component of tasks] are silo-ed really”
		“[Know-who] was an essential thing to have because people don’t know, they rely on us telling them who to go to and it’s very messy, you’ve only got to have one little hole and it all falls down”
		“there’s a lot more task oriented stuff ... So [students] they’re getting it but I’m not really sure that they’re calling it a [specific] literacy, it’s all these little fragments, probably because of the way they work it is [fragmented]”
	Reform	“I think in terms of the teaching side of things, just to stay up to date with teaching technology or those kinds of things. In terms of my actual discipline, I think you stay up to date by keeping on researching and writing”

Table B4 CONT. Academic Work Thematic Group Summary Phase One

Code	Sub-code	Quote
Compliance	Performance	“the implementation of all of these things are very fast...”
		“I’m not opposed to the use of technology but it; it can’t be a blanket thing as far as I’m concerned”
		“there is a subtle undercurrent that lifelong learning is important so you can produce more and get more brownie points for the university ... it might be more problematic for younger scholars ... that pressure to produce”
		“It sounds really simple but I think, go to the training sessions that you think are going to look good that you’ve done them. You know like, go do the powerpoint training session even if you know you know how to use powerpoint because when you come up for review, you can say [that you have completed the training session]”
	Depersonalisation	“I’ve had students who are completely baffled by it [ICT aspect of HEIs] ... It’s difficult [to know where to start]”

Appendix C

Phase Two Modified Delphi Method

Modified Delphi Method Instrument Factor Development

1. Workload requirements impact learning opportunities
2. Learning with my peer group
3. Taking advantage of internal professional development (PD) opportunities
4. Taking advantage of internal library training opportunities
5. Taking advantage of external professional development (PD) opportunities
6. Ability to ensure a personalised approach to opportunities
7. Use of the library services and resources for support
8. Use of the library services and staff for assistance and advice
9. Opportunity to learn by doing
10. Support with keeping up-to-date
11. Ability to share knowledge with colleagues
12. Ability to share learning experiences with students
13. Opportunities for students to share their learning experiences with staff
14. Ability to draw support from a wide network of support
15. Opportunities for students to share their research findings with staff
16. Support from IT services
17. Opportunities for students to share their discipline knowledge with staff
18. Ability to recommend opportunities to HEI
19. Opportunity for others to identify gaps in skills
20. Opportunity to identify my own need for skills development
21. Opportunities to explore, experiment and experience new modes of learning
22. Consistently provided training packages
23. Opportunities to explore, experiment and experience new modes of working
24. Reciprocal HEI opportunities for resources and training
25. Purpose-driven approach to Professional Development (PD)
26. Vocational approach to Professional Development (PD)
27. Needs-based approach to Professional Development (PD)
28. Minimal administrative work
29. Ability to take an accumulative approach over career to develop skills

30. Needs-based approach to keeping up-to-date with the changing nature of academic work
31. HEI emphasis on the importance of lifelong learning
32. HEI provision of lifelong learning opportunities
33. HEI support of self-initiated lifelong learning
34. HEI support of Professional Development (PD) at a personalised pace
35. HEI support of work/life balance
36. HEI opportunities to balance work and personal life
37. HEI structured provisions for a work/life balance
38. Acceptance that during different career stages, there will be different demands and challenges
39. Acceptance that during different career stages, professional development may not be possible
40. Acceptance that during different career stages, there will be a work/life imbalance
41. Acceptance that during different career stages, research may not be possible
42. HEI facilitation of a collegial atmosphere and the exchange of knowledge
43. HEI facilitation of a collegial atmosphere and the exchange of learning experiences
44. A structured and organised approach to learning new skills
45. A serendipitous and spontaneous approach to discovering and learning new skills
46. Peer direction for Professional Development (PD)
47. Peer direction for skills development
48. An intuitive and accumulative approach to skills development
49. Self-initiated training opportunities
50. One-to-One learning experiences
51. In-depth and thorough training opportunities
52. Long term approach to Professional Development e.g. Mentoring
53. Opportunities for 'fluency' when developing skills
54. Provision of opportunities to reflect and synthesise the accumulation of learning experiences and knowledge
55. HEIs value of staff
56. HEIs value of employee skills
57. HEIs value of employee knowledge
58. HEIs support of staff learning and development is regulated by the economy
59. HEIs support of staff learning and development is regulated by federal legislation

60. Work/life balance is a rhetorical statement in HEIs
61. Preference for an 'ad hoc' approach to learning opportunities
62. There is a vocational emphasis within HEIs
63. Inquisitiveness and curiosity is emphasised in HEIs
64. Critical enquiry is encouraged across all aspects of HEIs
65. Independence and autonomy is supported within HEIs
66. The exchange of knowledge is encouraged within HEIs
67. Personalised learning conflicts with HEI aims and strategies
68. A network of peers is essential
69. Learning independently by curiosity and experimentation is encouraged
70. Mandated training
71. Generic training opportunities
72. Conference participation
73. Conference attendance
74. Personalised support in managing workload
75. Training should be provided on a 'needs-based' approach
76. Technology and technological systems applied across all faculties and schools
77. Specific technology and technological systems applied according to faculty and school requirements
78. Personal 'consistent learning approach' does not fit with HEI training schedules
79. Financial support for independent learning opportunities
80. Time-off-work for independent learning opportunities
81. Support to manage administrative duties
82. Individual responsibility to seek out and make opportunities for learning
83. Work place training is about HEI recognition of learning
84. Digital and electronic systems and resources for efficiency
85. Tasks require interdisciplinary information and resources
86. Interdisciplinary information and resources require new skills
87. Training that is not current relevant is forgotten
88. Clear links between the need and delivery of training
89. Tailor-made approaches to training (i.e. by faculty, research type etc)
90. Confidence in working efficiently
91. Confidence in transferring skills to peers and students
92. Confidence is working effectively

93. Training conducted by individuals who understand academic work
94. Training conducted by individuals who participate in academic work
95. Academic work is unpredictable
96. My duties allow me to be responsive
97. My duties encourage me to be reactive
98. Technological systems complicate HEI tasks
99. Technological systems complicate HEI processes
100. The time and skill set required for administrative tasks, take up the majority of my learning opportunities
101. Learning experiences are affected by the organisational culture and behaviour
102. Learning is negatively affected by the management of academic work
103. Learning is positively affected by the management of academic work
104. Academic work is isolated
105. Ongoing learning is required for the profession
106. Ongoing learning is required for the current position
107. Ongoing learning is required for promotion
108. Keeping up-to-date with scholarly knowledge necessitates keeping up-to-date with other skills to access information resources
109. The transfer of the scholarly knowledge for eLearning (i.e. Blackboard)
110. The transfer of the scholarly knowledge for lectures (i.e. Powerpoint etc)
111. The transfer of the scholarly knowledge for different audiences (i.e. peers, students, the public)
112. Enhancing effectiveness by practicing skills
113. Enhancing effectiveness by absorbing and reflecting on new knowledge
114. It is the individual's responsibility to personalise and filter the overload of opportunities promoted in HEIs
115. HEI technological systems are intuitive and do not require training
116. There is not enough management in HEIs of academic work
117. There is micromanagement in HEIs of academic work
118. HEI training is transferable inside, outside and across the workplace
119. Individuals are given the tasks that make the best use of their skills
120. The demarcation of professional responsibility results in the circulation of incomplete information that filters down the organisation too late
121. There are lots of 'chains of command' to navigate

122. There is confusion about professional responsibility that affects my work
123. Lack of communication impacts on my work
124. What and how tasks are completed are positively impacted by HEI technology
125. What and how tasks are completed are positively impacted by professional responsibility
126. What and how tasks are completed are positively impacted by HEI systems/processes
127. What and how tasks are completed are positively impacted by HEI management
128. What and how tasks are completed are negatively impacted by HEI technology
129. What and how tasks are completed are negatively impacted by HEI management
130. What and how tasks are completed are negatively impacted by HEI systems/processes
131. What and how tasks are completed are negatively impacted by professional responsibility
132. Valuable working knowledge is lost with staff turnover
133. Personality conflicts impact on academic work
134. Professional conflicts impact on academic work
135. Surface problem and difficulties get attention
136. Core issues of problems and difficulties get attention
137. Academic work requires constant reprioritisation for immediate attention/urgencies
138. There is too much to do and too little time
139. There is too much to do and too little staff to complete the tasks
140. If you have contacts and a peer/professional network, you don't need HEI training
141. It's not what you know, but who you know that influences your academic work
142. Knowledge transfer is based around the types of academic work that peers do
143. Knowledge transfer is based around the faculty you belong to
144. Knowledge transfer is based around who you know

Delphi Questionnaire Introductory text

The context of the Delphi questionnaire was established with the following introductory text:

This study is interested in the core concepts of libraries, literacies and lifelong learning, and how they might respond to your needs and expectations as an academic. As an academic, adapting to the changing nature and increasing complexity of academic work, you must overcome various challenges. Academic libraries work towards the development and accumulation of information and knowledge for the university community. The range of skills that constitute literacies and lifelong learning, share the common purpose of attaining, maintaining, developing and accumulating the experiences, knowledge and abilities that can benefit the individual academic and the university overall.

Using the Delphi Technique, a series of short questionnaires will be circulated for your participation in this study. The Delphi Technique elicits the anonymous collaboration and refinement of expert opinion, with the objective of exploring trends, probabilities, difficulties, consequences and developing strategies through either consensus or dissensus.

Please make your judgements in regard to:

- the changing nature of your academic work,
- your learning across your lifespan,
- your acquisition, maintenance, development and accumulation of a variety of related literacies, (e.g. information literacy skills, digital literacy skills, library literacy skills, ICT literacy skills)
- the resource services, access services and client services of academic libraries.

Delphi Questionnaire Round One, Glossary of Terms

Alerts (Journal/Search)

Alert is a colloquial term used to define a machine-to-person communication that is important and/or time sensitive. (4)

Atom feed

An atom feed adheres to the web standard for *Atom Syndication Format* which uses XML language for web feeds or news feeds. (4)

Bibliometrics

The use of mathematical and statistical methods to study and identify patterns in the usage of materials and services within a library or to analyse the historical development of a specific body of literature, especially its authorship, publication, and use. Prior to the mid-20th century, the quantitative study of bibliographic data and usage was known as statistical bibliography. (1)

Controlled Vocabulary

An established list of preferred terms from which a cataloguer or indexer must select when assigning subject headings or descriptors in a bibliographic record, to indicate the content of the work in a library catalogue, index, or bibliographic database. (1)

Cybermetrics

Description and evaluation of the impact of the Internet as a scholarly communication tool, primarily by means of quantitative analysis of Web-based scholarly and scientific communications. Sometimes used synonymously with webometrics. (1)

Data Curation (*Curation Lifecycle Model*)

A curation lifecycle model documents the relationships between all the stages in the existence of digital information, to enable active management of the resource over time thus maintaining accessibility and usability. (3)

Database content aggregation (*Metadatabase*)

A database of databases, usually formed by aggregating two or more smaller databases to allow the user to search their contents as a whole, instead of repeating the same search in each separately. (1)

Database content syndication (*Distribution*)

Also, the sale of a new book or edition by a publisher other than the company that issued the title, for example, by a publisher in another country. (1)

Digital Surrogate (*Surrogate, Substitution*)

A substitute used in place of an original item, for example, a facsimile or photocopy of a document too rare or fragile to be handled by library users or an abstract or summary that provides desired information without requiring the reader to examine the entire document. In preservation, a surrogate is usually made in a more durable medium. In a library catalog, the description provided in the bibliographic record serves as a surrogate for the actual physical item. (1)

Echo360

eLearning platform for the capture of lectures, including voice, video and visual aids.

Folksonomy

A portmanteau word coined from the terms folk and taxonomy by Internet developer Thomas Vander Wal to describe a grass-roots system of classification in which users collaboratively create, assign, and manage tags to annotate and categorise information content. On the Web, folksonomies first became popular in 2004 in software applications that allow social bookmarking and photograph annotation. The practice is also known as collaborative tagging, social classification, social indexing, and social tagging. (1)

Informetrics

The use of mathematical and statistical methods in research related to libraries, documentation, and information. Synonymous with *infometrics*. (1)

Microcontent

There are at least two interpretations of the term microcontent. Usability adviser Jakob Nielsen originally referred to microcontent as small groups of words that can be skimmed by a person to get a clear idea of the content of a Web page. He included article headlines, page titles, subject lines and e-mail headings. Such phrases also may be taken out of context and displayed on a directory, search result page, bookmark list, etc. The second use of the term extends it to other small information chunks that can stand alone or be used in a variety of contexts, including instant messages, blog posts, RSS feeds, and abstracts. (4)

Ontology

In computer science and information science, an ontology is a formal representation of knowledge as a set of concepts within a domain, and the relationships between those concepts. (4)

Open Access

Information content made freely and universally available via the Internet in easy to read format, usually because the publisher maintains online archives to which access is free or has deposited the information in a widely known open access repository. Open access is a new model of scholarly publishing developed to free researchers and libraries from the limitations imposed by excessive subscription price increases for peer-reviewed journals, particularly in the sciences and medicine. By breaking the monopoly of publishers over the distribution of scientific research, open access makes access to scientific information more equitable and has the added advantage of allowing the author to retain copyright. (1)

Open Source Applications/Software

A computer program for which the source code is made available without charge by the owner or licensor, usually via the Internet, to encourage the rapid development of a more useful and bug-free product through open peer review. (1)

Personal Information Management (PIM)

The skilful exercise of control over the acquisition, organisation, storage, security, retrieval, and dissemination of the information resources essential to the successful

operation of a business, agency, organisation, or institution, including documentation, records management, and technical infrastructure. (1)

Personal Knowledge Management (PKM)

Refers to a collection of processes that an individual carries out to gather, classify, store, search, retrieve, and share knowledge in his/her daily activities and how these processes support work activities. (4)

RSS feed

RSS (most commonly expanded as Really Simple Syndication) is a family of web feed formats used to publish frequently updated works—such as blog entries, news headlines, audio, and video—in a standardised format. (4).

Scientometrics

Scientometrics is the science of measuring and analysing science. In practice, scientometrics is often done using bibliometrics which is a measurement of the impact of (scientific) publications. (4)

Social Media

Social media are media for social interaction, using highly accessible and scalable publishing techniques. Social media uses web-based technologies to turn communication into interactive dialogues. ... Businesses also refer to social media as consumer-generated media (CGM). A common thread running through all definitions of social media is a blending of technology and social interaction for the co-creation of value. (4)

Taxonomy

The science of classification, including the general principles by which objects and phenomena are divided into classes, which are subdivided into subclasses, then into sub-subclasses, and so on. Taxonomies have traditionally been used in the life sciences to classify living organisms (see Tree of Life), but the term has been applied more recently within the information sector to the classification of resources available via the World Wide Web. (1)

Web Synchronization (*Synchronousness*)

Of, used in, or being digital communication (as between computers) in which a common timing signal is established that dictates when individual bits can be transmitted and which allows for very high rates of data transfer. (2)

These terms have been derived from the following sources;

1. Reitz, J. M. (2010). ODLIS: Online dictionary for Library and Information Science. <http://lu.com/odlis/> Retrieved online 12 December 2010.
2. Merriam-Webster's Collegiate(R) Dictionary. Springfield: Merriam-Webster, 2004. Credo Reference. Web. Retrieved online 11 December 2010.
3. Digital Curation Centre. (2010). Glossary. <http://www.dcc.ac.uk/digital-curation/glossary> Retrieved online 12 December 2010.
4. Wikipedia, the free encyclopedia. (2010). http://en.wikipedia.org/wiki/Main_Page Retrieved online 11 December 2010.

Table C1. Extract of a sample round two Delphi questionnaire presenting the academic work factors, panel mean score, and participant's previous score

Round 2 Delphi Questionnaire Academic Work Factors	Mean Significance	Participant's previous judgement of the Significance of the factor
1. Diversification and changing priorities of responsibilities	Medium Significance	Medium Significance
2. Level of responsibility	Medium Significance	Medium Significance
3. Increased accountability	Medium Significance	High Significance
4. Closer nexus between teaching and research	Medium Significance	High Significance
5. Changes in organisational culture	Medium Significance	High Significance
6. Knowledge of and availability of people and services for provision of support	Medium Significance	High Significance
7. Position held in the organisation (level in hierarchy)	Low Significance	Not at all Significant
8. Increased workload	High Significance	High Significance
9. Increasing research emphasis in universities	Medium Significance	Medium Significance
10. Support from IT services	Medium Significance	Low Significance
11. Increasing vocational emphasis in universities	Low Significance	Medium Significance
12. Changing government policy in higher education	Medium Significance	Low Significance

Note. Factors shaded grey were eliminated from further judgement in the Delphi Survey.

Table C2. Extract of a sample round two Delphi questionnaire presenting the libraries and literacies factors, panel mean score, and participant's previous score

Round 2 Delphi Questionnaire <i>Libraries and Literacies</i> Factors	Mean Importance	<i>Participant's previous judgement of the Importance of the factor</i>
1. Keeping up-to-date with scholarly knowledge which necessitates keeping up-to-date with other skills to access information resources	Medium Importance	High Importance
2. Data curation skills to support the constantly changing knowledge base in an academic field	Medium Importance	Medium Importance
3. Keeping up-to-date with information resources which requires contextual legal knowledge e.g. copyright, intellectual property, open access	Medium Importance	Low Importance
4. Troubleshooting, incorporating tracing challenges when locating, identifying and accessing information	Medium Importance	Low Importance
5. The transfer of scholarly knowledge for eLearning e.g. BlackBoard	Medium Importance	High Importance
6. Constantly changing technological processes employed in teaching, learning and knowledge acquisition and transfer e.g. changing use of mobile devices	Medium Importance	Low Importance
7. The transfer of scholarly knowledge for lecturing and teaching purposes e.g. PowerPoint, Echo360/Podcast, Video	Medium Importance	Medium Importance
8. Support for individuals managing their own information including folksonomies and synchronisation	Medium Importance	Not at all Important
9. Scholarly communication via micro content including atom, aggregation and social media	Low Importance	Not at all Important
10. Identification and application of database content for syndication and aggregation	Low Importance	Not at all Important
11. Support in the technical aspects of advanced search skills including alerts for searches, journals and RSS feeds to deliver specific information	Medium Importance	Low Importance
12. Provision of data storage, archiving and preservation techniques/skills	Medium Importance	Not at all Important

Note. Factors shaded grey were eliminated from further judgement in the Delphi Survey.

Table C3. Extract of a sample round two Delphi questionnaire presenting the lifelong learning factors, panel mean score, and participant's previous score

Round 2 Delphi Questionnaire Lifelong Learning Factors	Mean Importance	Participant's previous judgement of the Importance of the factor
1. Provision of Personal Information Management (PIM) skills	Medium Importance	High Importance
2. Provision of Personal Knowledge Management (PKM) skills	Medium Importance	Medium Importance
3. Opportunity to identify literacies and skills for development	Medium Importance	Medium Importance
4. Opportunities to explore, experiment with and experience new modes of working	Medium Importance	Low Importance
5. Opportunities to explore, experiment with and experience new modes of learning	Medium Importance	Low Importance
6. Support in the development and management of personal files and collections, and their digital surrogates	Medium Importance	Low Importance
7. Opportunities to explore the role of corporate influence on electronic information, both scholarly and non-scholarly, incorporating bias data validity, data integrity, disinformation and information neutrality	Medium Importance	Low Importance
8. Provision of analysis of trends in specific research areas and practices generated by university library researchers	Medium Importance	Not at all Important
9. Opportunities to explore the metrics that are applied to information, both scholarly and non-scholarly, including bibliometrics, cyber metrics, informetrics and scientometrics	Low Importance	Not at all Important
10. Support of accessible publishing practices including awareness of copyright, intellectual property rights and licensing issues	Medium Importance	Medium Importance
11. Provision of information classification techniques/skills including taxonomies, folksonomies, ontologies and controlled vocabularies	Medium Importance	Medium Importance
12. Opportunities and support for Open Source applications and software	Medium Importance	Low Importance

Note. Factors shaded grey were eliminated from further judgement in the Delphi Survey.

Table C4. Extract of a sample round three Delphi questionnaire presenting the academic work factors, panel mean score, and participant's previous score

Round 3 Delphi Questionnaire Academic Work Factors	Mean Significance	Sample previous judgement of the Significance of the factor
1. Diversification and changing priorities of responsibilities	Medium Significance	Medium Significance
2. Level of responsibility	Medium Significance	Medium Significance
3. Increased accountability	Medium Significance	High Significance
4. Closer nexus between teaching and research	Medium Significance	High Significance
5. Changes in organisational culture	Medium Significance	High Significance
6. Knowledge of and availability of people and services for provision of support	Medium Significance	High Significance
8. Increased workload	High Significance	High Significance
9. Increasing research emphasis in universities	Medium Significance	Medium Significance
10. Support from IT services	Medium Significance	Medium Significance
12. Changing government policy in higher education	Medium Significance	Medium Significance

Note. Shaded blank rows were used to indicate a factor eliminated from the questionnaire.

Table C5. Extract of a sample round three Delphi questionnaire presenting the libraries and literacies factors, panel mean score, and participant's previous score

Round 3 Delphi Questionnaire <i>Libraries and Literacies</i> Factors	Mean Importance	<i>Sample previous judgement of the Importance of the factor</i>
1. Keeping up-to-date with scholarly knowledge which necessitates keeping up-to-date with other skills to access information resources	Medium Importance	High Importance
2. Data curation skills to support the constantly changing knowledge base in an academic field	Medium Importance	Medium Importance
3. Keeping up-to-date with information resources which requires contextual legal knowledge e.g. copyright, intellectual property, open access	Medium Importance	Low Importance
4. Troubleshooting, incorporating tracing challenges when locating, identifying and accessing information	Medium Importance	Medium Importance
5. The transfer of scholarly knowledge for eLearning e.g. BlackBoard	Medium Importance	High Importance
6. Constantly changing technological processes employed in teaching, learning and knowledge acquisition and transfer e.g. changing use of mobile devices	Medium Importance	Medium Importance
7. The transfer of scholarly knowledge for lecturing and teaching purposes e.g. PowerPoint, Echo360/Podcast, Video	Medium Importance	Medium Importance
8. Support for individuals managing their own information including folksonomies and synchronisation	Medium Importance	Not at all Important
11. Support in the technical aspects of advanced search skills including alerts for searches, journals and RSS feeds to deliver specific information	Medium Importance	Medium Importance
12. Provision of data storage, archiving and preservation techniques/skills	Medium Importance	Low Importance

Note. Shaded blank rows were used to indicate a factor eliminated from the questionnaire.

Table C6. Extract of a sample round three Delphi questionnaire presenting the lifelong learning factors, panel mean score, and participant's previous score

Round 3 Delphi Questionnaire Lifelong Learning Factors	Mean Importance	<i>Sample previous judgement of the Importance of the factor</i>
1. Provision of Personal Information Management (PIM) skills	Medium Importance	High Importance
2. Provision of Personal Knowledge Management (PKM) skills	Medium Importance	Medium Importance
3. Opportunity to identify literacies and skills for development	Medium Importance	Medium Importance
4. Opportunities to explore, experiment with and experience new modes of working	Medium Importance	Low Importance
5. Opportunities to explore, experiment with and experience new modes of learning	Medium Importance	Low Importance
6. Support in the development and management of personal files and collections, and their digital surrogates	Medium Importance	Low Importance
7. Opportunities to explore the role of corporate influence on electronic information, both scholarly and non-scholarly, incorporating bias data validity, data integrity, disinformation and information neutrality	Medium Importance	Low Importance
8. Provision of analysis of trends in specific research areas and practices generated by university library researchers	Medium Importance	Not at all Important
10. Support of accessible publishing practices including awareness of copyright, intellectual property rights and licensing issues	Medium Importance	Medium Importance
11. Provision of information classification techniques/skills including taxonomies, folksonomies, ontologies and controlled vocabularies	Medium Importance	Medium Importance
12. Opportunities and support for Open Source applications and software	Medium Importance	Low Importance

Note. Shaded blank rows were used to indicate a factor eliminated from the questionnaire.

Table C7. Academic Work Factors summary Round one Delphi questionnaire

Rank	Judgement Score	Academic Work Factors	n	%
1	85	8. Increased workload (n=24)		
		High Significance	16	66.7
		Medium Significance	5	20.8
		Low Significance	3	12.5
		Not at all Significant	0	0
		Impact on Stress Levels (n=22)		
		Yes	18	81.8
		No	4	18.2
2	78	12. Changing government policy in higher education (n=25)		
		High Significance	10	40
		Medium Significance	9	36
		Low Significance	5	20
		Not at all Significant	1	4
		Impact on Stress Levels (n=23)		
		Yes	12	52.2
		No	11	47.8
3	77	5. Changes in organisational culture (n=25)		
		High Significance	10	40
		Medium Significance	7	28
		Low Significance	8	32
		Not at all Significant	0	0
		Impact on Stress Levels (n=25)		
		Yes	16	64
		No	9	36
4	76	6. Knowledge of and availability of people and services for provision of support (n=24)		
		High Significance	11	45.8
		Medium Significance	6	25
		Low Significance	7	29.2
		Not at all Significant	0	0
		Impact on Stress Levels (n=24)		
		Yes	13	54.2
		No	11	45.8

Table C7 CONT. Academic Work Factors summary Round one Delphi questionnaire

Rank	Judgement Score	Academic Work Factors	n	%
4	76	9. Increasing research emphasis in universities (n=24)		
		High Significance	12	50
		Medium Significance	6	25
		Low Significance	4	16.7
		Not at all Significant	2	8.3
		Impact on Stress Levels (n=23)		
		Yes	15	65.2
		No	8	34.8
		3. Increased accountability (n=24)		
		High Significance	8	33.3
5	72	Medium Significance	11	45.9
		Low Significance	3	12.5
		Not at all Significant	2	8.3
		Impact on Stress Levels (n=24)		
		Yes	16	66.7
		No	8	33.3
		1. Diversification and changing priorities of responsibilities (n=24)		
		High Significance	8	33.3
		Medium Significance	8	33.3
		Low Significance	7	29.2
6	71	Not at all Significant	1	4.2
		Impact on Stress Levels (n=24)		
		Yes	17	70.8
		No	7	29.2
		10. Support from IT services (n=24)		
		High Significance	8	33.3
		Medium Significance	9	37.5
		Low Significance	5	20.9
		Not at all Significant	2	8.3
		Impact on Stress Levels (n=24)		
6	71	Yes	11	45.8
		No	13	54.2

Table C7 CONT. Academic Work Factors summary Round one Delphi questionnaire

Rank	Judgement Score	Academic Work Factors	n	%
7	68	4. Closer nexus between teaching and research (n=23)		
		High Significance	9	39.1
		Medium Significance	6	26.1
		Low Significance	6	26.1
		Not at all Significant	2	8.7
		Impact on Stress Levels (n=23)		
		Yes	12	52.2
8	66	No	11	47.8
		2. Level of responsibility (n=24)		
		High Significance	4	16.7
		Medium Significance	13	54.1
		Low Significance	4	16.7
		Not at all Significant	3	12.5
		Impact on Stress Levels (n=24)		
9	56	Yes	15	62.5
		No	9	37.5
		7. Position held in the organisation (level in hierarchy) (n=24)		
		High Significance	4	16.6
		Medium Significance	7	29.2
		Low Significance	6	25
		Not at all Significant	7	29.2
10	49	Impact on Stress Levels (n=24)		
		Yes	11	45.8
		No	13	54.2
		11. Increasing vocational emphasis in universities (n=23)		
		High Significance	2	8.7
		Medium Significance	7	30.4
		Low Significance	6	26.1
		Not at all Significant	8	34.8
		Impact on Stress Levels (n=21)		
		Yes	5	23.8
		No	16	76.2

Table C8. Libraries and Literacies Factors summary Round one Delphi questionnaire

Rank	Judgement Score	Libraries and Literacies Factors	n	%
1	87	2. Data curation skills to support the constantly changing knowledge base in an academic field (n=25)		
		High Importance	14	56
		Medium Importance	9	36
		Low Importance	0	0
		Not at all Important	2	8
		Aware of developments (n=23)		
		Yes	10	43.5
		No	13	56.5
2	83	1. Keeping up-to-date with scholarly knowledge which necessitates keeping up-to-date with other skills to access information resources (n=25)		
		High Importance	14	56
		Medium Importance	7	28
		Low Importance	2	8
		Not at all Important	2	8
		Aware of developments (n=22)		
		Yes	20	90.9
		No	2	9.1
3	81	3. Keeping up-to-date with information resources which requires contextual legal knowledge e.g. copyright, intellectual property, open access (n=25)		
		High Importance	13	52
		Medium Importance	7	28
		Low Importance	3	12
		Not at all Important	2	8
		Aware of developments (n=23)		
		Yes	15	65.2
		No	8	34.8

Table C8 CONT. Libraries and Literacies Factors summary Round one Delphi questionnaire

Rank	Judgement Score	Libraries and Literacies Factors	n	%
3	81	7. The transfer of scholarly knowledge for lecturing and teaching purposes e.g. PowerPoint, Echo360/Podcast, Video (n=25)		
		High Importance	14	56
		Medium Importance	6	24
		Low Importance	2	8
		Not at all Important	3	12
		Aware of developments (n=23)		
		Yes	15	65.2
		No	8	34.8
		5. The transfer of scholarly knowledge for eLearning e.g. BlackBoard (n=25)		
		High Importance	12	48
4	79	Medium Importance	7	28
		Low Importance	4	16
		Not at all Important	2	8
		Aware of developments (n=23)		
		Yes	20	87
		No	3	13
		11. Support in the technical aspects of advanced search skills including alerts for searches, journals and RSS feeds to deliver specific information (n=25)		
		High Importance	10	40
		Medium Importance	8	32
		Low Importance	4	16
5	75	Not at all Important	3	12
		Aware of developments (n=21)		
		Yes	10	47.6
		No	11	52.4
		6. Constantly changing technological processes employed in teaching, learning and knowledge acquisition and transfer e.g. changing use of mobile devices (n=24)		
		High Importance	11	45.8
		Medium Importance	6	25
		Low Importance	4	16.7
		Not at all Important	3	12.5
		Aware of developments (n=21)		
6	73	Yes	14	66.7
		No	7	33.3

Table C8 CONT. Libraries and Literacies Factors summary Round one Delphi questionnaire

Rank	Judgement Score	Libraries and Literacies Factors	n	%
7	71	12. Provision of data storage, archiving and preservation techniques/skills (n=25)		
		High Importance	9	36
		Medium Importance	7	28
		Low Importance	5	20
		Not at all Important	4	16
		Aware of developments (n=22)		
		Yes	2	9.1
8	66	No	20	90.9
		4. Troubleshooting, incorporating tracing challenges when locating, identifying and accessing information (n=23)		
		High Importance	7	30.4
		Medium Importance	9	39.2
		Low Importance	4	17.4
		Not at all Important	3	13
		Aware of developments (n=21)		
9	56	Yes	10	47.6
		No	11	52.4
		9. Scholarly communication via micro content including atom, aggregation and social media (n=24)		
		High Importance	4	16.6
		Medium Importance	7	29.2
		Low Importance	6	25
		Not at all Important	7	29.2
10	50	Aware of developments (n=21)		
		Yes	3	14.3
		No	18	85.7
		8. Support for individuals managing their own information including folksonomies and synchronisation (n=22)		
		High Importance	3	13.6
		Medium Importance	6	27.3
		Low Importance	7	31.8
		Not at all Important	6	27.3
		Aware of developments (n=23)		
		Yes	1	4.3
		No	22	95.7

Table C8 CONT. Libraries and Literacies Factors summary Round one Delphi questionnaire

Rank	Judgement Score	Libraries and Literacies Factors	n	%
10	50	10. Identification and application of database content for syndication and aggregation (n=23)		
		High Importance	2	8.7
		Medium Importance	6	26.1
		Low Importance	9	39.1
		Not at all Important	6	26.1
		Aware of developments (n=21)		
		Yes	3	14.3
		No	18	85.7

Table C9. Lifelong Learning Factors summary Round one Delphi questionnaire

Rank	Judgement Score	Lifelong Learning Factors	n	%
1	75	10. Support of accessible publishing practices including awareness of copyright, intellectual property rights and licensing issues (n=24)		
		High Importance	9	37.6
		Medium Importance	11	45.8
		Low Importance	2	8.3
		Not at all Important	2	8.3
		Aware of developments (n=22)		
		Yes	12	54.5
		No	10	45.5
		4. Opportunities to explore, experiment with and experience new modes of working (n=25)		
		High Importance	6	24
2	73	Medium Importance	13	52
		Low Importance	4	16
		Not at all Important	2	8
		Aware of developments (n=25)		
		Yes	7	28
		No	18	72
		5. Opportunities to explore, experiment with and experience new modes of learning (n=24)		
		High Importance	8	33.3
		Medium Importance	10	41.7
		Low Importance	5	20.8
3	72	Not at all Important	1	4.2
		Aware of developments (n=23)		
		Yes	12	52.2
		No	11	47.8
		3. Opportunity to identify literacies and skills for development (n=25)		
		High Importance	7	28
		Medium Importance	11	44
		Low Importance	4	16
		Not at all Important	3	12
		Aware of developments (n=25)		
		Yes	9	36
		No	16	64

Table C9 CONT. Lifelong Learning Factors summary Round one Delphi questionnaire

Rank	Judgement Score	Lifelong Learning Factors	n	%
4	67	6. Support in the development and management of personal files and collections, and their digital surrogates (n=25)		
		High Importance	9	36
		Medium Importance	3	12
		Low Importance	9	36
		Not at all Important	4	16
		Aware of developments (n=25)		
		Yes	4	16
		No	21	84
5	64	7. Opportunities to explore the role of corporate influence on electronic information, both scholarly and non-scholarly, incorporating bias data validity, data integrity, disinformation and information neutrality (n=24)		
		High Importance	5	20.8
		Medium Importance	10	41.7
		Low Importance	5	20.8
		Not at all Important	4	16.7
		Aware of developments (n=25)		
		Yes	5	20
		No	20	80
6	60	1. Provision of Personal Information Management (PIM) skills (n=22)		
		High Importance	7	31.8
		Medium Importance	5	22.7
		Low Importance	7	31.8
		Not at all Important	3	13.6
		Aware of developments (n=24)		
		Yes	2	8.3
		No	22	91.7
6	60	2. Provision of Personal Knowledge Management (PKM) skills (n=22)		
		High Importance	6	27.3
		Medium Importance	7	31.8
		Low Importance	6	27.3
		Not at all Important	3	13.6
		Aware of developments (n=23)		
		Yes	1	4.3
		No	22	95.7

Table C9 CONT. Lifelong Learning Factors summary Round one Delphi questionnaire

Rank	Judgement Score	Lifelong Learning Factors	n	%
6	60	8. Provision of analysis of trends in specific research areas and practices generated by university library researchers (n=24)		
		High Importance	3	12.5
		Medium Importance	11	45.9
		Low Importance	5	20.8
		Not at all Important	5	20.8
		Aware of developments (n=25)		
		Yes	3	12
		No	22	88
7	59	12. Opportunities and support for Open Source applications and software (n=23)		
		High Importance	5	21.7
		Medium Importance	6	26.2
		Low Importance	9	39.1
		Not at all Important	3	13
		Aware of developments (n=23)		
		Yes	5	21.7
		No	18	78.3
8	45	11. Provision of information classification techniques/skills including taxonomies, folksonomies, ontologies and controlled vocabularies (n=19)		
		High Importance	1	5.3
		Medium Importance	10	52.6
		Low Importance	3	15.8
		Not at all Important	5	26.3
		Aware of developments (n=21)		
		Yes	1	4.8
		No	20	95.2

Table C9 CONT. Lifelong Learning Factors summary Round one Delphi questionnaire

Rank	Judgement Score	Lifelong Learning Factors	n	%
9	42	9. Opportunities to explore the metrics that are applied to information, both scholarly and non-scholarly, including bibliometrics, cyber metrics, informetrics and scientometrics (n=23)		
		High Importance	1	4.3
		Medium Importance	4	17.4
		Low Importance	8	34.8
		Not at all Important	10	43.5
		Aware of developments (n=25)		
		Yes	0	0
		No	25	100

Table C10. Academic Work Factors summary Round two Delphi questionnaire

Rank	Judgement Score	Academic Work Factors	n	%
1	69	8. Increased workload (n=20)		
		High Significance	14	70
		Medium Significance	3	15
		Low Significance	1	5
		Not at all Significant	2	10
2	64	9. Increasing research emphasis in universities (n=20)		
		High Significance	10	50
		Medium Significance	6	30
		Low Significance	2	10
		Not at all Significant	2	10
3	62	1. Diversification and changing priorities of responsibilities (n=20)		
		High Significance	7	35
		Medium Significance	9	45
		Low Significance	3	15
		Not at all Significant	1	5
3	62	5. Changes in organisational culture (n=20)		
		High Significance	6	30
		Medium Significance	7	35
		Low Significance	4	20
		Not at all Significant	3	15
3	62	12. Changing government policy in higher education (n=20)		
		High Significance	8	40
		Medium Significance	7	35
		Low Significance	4	20
		Not at all Significant	1	5
4	60	4. Closer nexus between teaching and research (n=20)		
		High Significance	7	35
		Medium Significance	8	40
		Low Significance	3	15
		Not at all Significant	2	10
5	59	6. Knowledge of and availability of people and services for provision of support (n=20)		
		High Significance	8	40
		Medium Significance	4	20
		Low Significance	7	35
		Not at all Significant	1	5

Table C10 CONT. Academic Work Factors summary Round two Delphi questionnaire

Rank	Judgement Score	Academic Work Factors	n	%
6	58	2. Level of responsibility (n=20)		
		High Significance	3	15
		Medium Significance	13	65
		Low Significance	3	15
		Not at all Significant	1	5
6	58	3. Increased accountability (n=20)		
		High Significance	6	30
		Medium Significance	9	45
		Low Significance	2	10
		Not at all Significant	3	15
7	56	10. Support from IT services (n=20)		
		High Significance	5	25
		Medium Significance	8	40
		Low Significance	5	25
		Not at all Significant	2	10

Table C11. Libraries and Literacies Factors summary Round two Delphi questionnaire

Rank	Judgement Score	Libraries and Literacies Factors	n	%
1	64	1. Keeping up-to-date with scholarly knowledge which necessitates keeping up-to-date with other skills to access information resources (n=20)		
		High Importance	10	50
		Medium Importance	5	25
		Low Importance	4	20
		Not at all Important	1	5
2	58	3. Keeping up-to-date with information resources which requires contextual legal knowledge e.g. copyright, intellectual property, open access (n=20)		
		High Importance	5	25
		Medium Importance	9	45
		Low Importance	5	25
		Not at all Important	1	5
3	57	5. The transfer of scholarly knowledge for eLearning e.g. BlackBoard (n=20)		
		High Importance	8	40
		Medium Importance	5	25
		Low Importance	3	15
		Not at all Important	4	20
3	57	7. The transfer of scholarly knowledge for lecturing and teaching purposes e.g. PowerPoint, Echo360/Podcast, Video (n=20)		
		High Importance	7	35
		Medium Importance	6	30
		Low Importance	4	20
		Not at all Important	3	15
3	57	11. Support in the technical aspects of advanced search skills including alerts for searches, journals and RSS feeds to deliver specific information (n=20)		
		High Importance	4	20
		Medium Importance	12	60
		Low Importance	1	5
		Not at all Important	3	15

Table C11 CONT. Libraries and Literacies Factors summary Round two Delphi questionnaire

Rank	Judgement Score	Libraries and Literacies Factors	n	%
4	56	6. Constantly changing technological processes employed in teaching, learning and knowledge acquisition and transfer e.g. changing use of mobile devices (n=19)		
		High Importance	6	31.6
		Medium Importance	8	42.1
		Low Importance	3	15.8
		Not at all Important	2	10.5
5	55	2. Data curation skills to support the constantly changing knowledge base in an academic field (n=20)		
		High Importance	3	15
		Medium Importance	12	60
		Low Importance	2	10
		Not at all Important	3	15
6	54	4. Troubleshooting, incorporating tracing challenges when locating, identifying and accessing information (n=20)		
		High Importance	3	15
		Medium Importance	10	50
		Low Importance	5	25
		Not at all Important	2	10
7	51	12. Provision of data storage, archiving and preservation techniques/skills (n=20)		
		High Importance	4	20
		Medium Importance	6	30
		Low Importance	7	35
		Not at all Important	3	15
8	41	8. Support for individuals managing their own information including folksonomies and synchronisation (n=20)		
		High Importance	1	5
		Medium Importance	6	30
		Low Importance	6	30
		Not at all Important	7	35

Table C12. Lifelong Learning Factors summary Round two Delphi questionnaire

Rank	Judgement Score	Lifelong Learning Factors	n	%
1	59	3. Opportunity to identify literacies and skills for development (n=20)		
		High Importance	4	20
		Medium Importance	12	60
		Low Importance	3	15
		Not at all Important	1	5
2	58	10. Support of accessible publishing practices including awareness of copyright, intellectual property rights and licensing issues (n=20)		
		High Importance	5	25
		Medium Importance	10	50
		Low Importance	3	15
		Not at all Important	2	10
3	56	5. Opportunities to explore, experiment with and experience new modes of learning (n=20)		
		High Importance	4	20
		Medium Importance	10	50
		Low Importance	4	20
		Not at all Important	2	10
4	54	4. Opportunities to explore, experiment with and experience new modes of working (n=20)		
		High Importance	2	10
		Medium Importance	12	60
		Low Importance	4	20
		Not at all Important	2	10
5	52	2. Provision of Personal Knowledge Management (PKM) skills (n=20)		
		High Importance	3	15
		Medium Importance	9	45
		Low Importance	5	25
		Not at all Important	3	15
6	50	12. Opportunities and support for Open Source applications and software (n=20)		
		High Importance	3	15
		Medium Importance	6	30
		Low Importance	9	45
		Not at all Important	2	10

Table C12 CONT. Lifelong Learning Factors summary Round two Delphi questionnaire

Rank	Judgement Score	Lifelong Learning Factors	n	%
7	49	6. Support in the development and management of personal files and collections, and their digital surrogates (n=20)		
		High Importance	4	20
		Medium Importance	6	30
		Low Importance	5	25
		Not at all Important	5	25
7	49	8. Provision of analysis of trends in specific research areas and practices generated by university library researchers (n=20)		
		High Importance	2	10
		Medium Importance	10	50
		Low Importance	3	15
		Not at all Important	5	25
8	48	1. Provision of Personal Information Management (PIM) skills (n=20)		
		High Importance	2	10
		Medium Importance	8	40
		Low Importance	6	30
		Not at all Important	4	20
8	48	11. Provision of information classification techniques/skills including taxonomies, folksonomies, ontologies and controlled vocabularies (n=20)		
		High Importance	2	10
		Medium Importance	8	40
		Low Importance	6	30
		Not at all Important	4	20
9	40	7. Opportunities to explore the role of corporate influence on electronic information, both scholarly and non-scholarly, incorporating bias data validity, data integrity, disinformation and information neutrality (n=20)		
		High Importance	0	0
		Medium Importance	6	30
		Low Importance	8	40
		Not at all Important	6	30

Table C13. Academic Work Factors summary Round three Delphi questionnaire

Rank	Judgement Score	Academic Work Factors	n	%
1	71	8. Increased workload (n=20)		
		High Significance	14	70
		Medium Significance	4	20
		Low Significance	1	5
		Not at all Significant	1	5
2	67	12. Changing government policy in higher education (n=20)		
		High Significance	10	50
		Medium Significance	8	40
		Low Significance	1	5
		Not at all Significant	1	5
3	66	4. Closer nexus between teaching and research (n=20)		
		High Significance	8	40
		Medium Significance	10	50
		Low Significance	2	10
		Not at all Significant	0	0
3	66	9. Increasing research emphasis in universities (n=20)		
		High Significance	11	55
		Medium Significance	5	25
		Low Significance	3	15
		Not at all Significant	1	5
4	62	2. Level of responsibility (n=20)		
		High Significance	4	20
		Medium Significance	14	70
		Low Significance	2	10
		Not at all Significant	0	0
5	61	3. Increased accountability (n=20)		
		High Significance	6	30
		Medium Significance	11	55
		Low Significance	1	5
		Not at all Significant	2	10
5	61	5. Changes in organisational culture (n=20)		
		High Significance	7	35
		Medium Significance	8	40
		Low Significance	4	20
		Not at all Significant	1	5

Table C13 CONT. Academic Work Factors summary Round three Delphi questionnaire

Rank	Judgement Score	Academic Work Factors	n	%
5	61	6. Knowledge of and availability of people and services for provision of support (n=20)		
		High Significance	7	35
		Medium Significance	8	40
		Low Significance	4	20
		Not at all Significant	1	5
6	60	1. Diversification and changing priorities of responsibilities (n=19)		
		High Significance	6	31.6
		Medium Significance	10	52.6
		Low Significance	3	15.8
		Not at all Significant	0	0
7	59	10. Support from IT services (n=20)		
		High Significance	5	25
		Medium Significance	10	50
		Low Significance	4	20
		Not at all Significant	1	5

Table C14. Libraries and Literacies Factors summary Round three Delphi questionnaire

Rank	Judgement Score	Libraries and Literacies Factors	n	%
1	66	1. Keeping up-to-date with scholarly knowledge which necessitates keeping up-to-date with other skills to access information resources (n=20)		
		High Importance	10	50
		Medium Importance	7	35
		Low Importance	2	10
		Not at all Important	1	5
2	60	6. Constantly changing technological processes employed in teaching, learning and knowledge acquisition and transfer e.g. changing use of mobile devices (n=20)		
		High Importance	8	40
		Medium Importance	6	30
		Low Importance	4	20
		Not at all Important	2	10
2	60	7. The transfer of scholarly knowledge for lecturing and teaching purposes e.g. PowerPoint, Echo360/Podcast, Video (n=20)		
		High Importance	8	40
		Medium Importance	7	35
		Low Importance	2	10
		Not at all Important	3	15
3	59	3. Keeping up-to-date with information resources which requires contextual legal knowledge e.g. copyright, intellectual property, open access (n=20)		
		High Importance	5	25
		Medium Importance	10	50
		Low Importance	4	20
		Not at all Important	1	5
4	58	5. The transfer of scholarly knowledge for eLearning e.g. BlackBoard (n=20)		
		High Importance	6	30
		Medium Importance	9	45
		Low Importance	2	10
		Not at all Important	3	15

Table C14 CONT. Libraries and Literacies Factors summary Round three Delphi questionnaire

Rank	Judgement Score	Libraries and Literacies Factors	n	%
5	55	2. Data curation skills to support the constantly changing knowledge base in an academic field (n=20)		
		High Importance	4	20
		Medium Importance	10	50
		Low Importance	3	15
		Not at all Important	3	15
6	54	11. Support in the technical aspects of advanced search skills including alerts for searches, journals and RSS feeds to deliver specific information (n=20)		
		High Importance	4	20
		Medium Importance	9	45
		Low Importance	4	20
		Not at all Important	3	15
7	53	4. Troubleshooting, incorporating tracing challenges when locating, identifying and accessing information (n=20)		
		High Importance	3	15
		Medium Importance	8	40
		Low Importance	8	40
		Not at all Important	1	5
8	51	12. Provision of data storage, archiving and preservation techniques/skills (n=20)		
		High Importance	3	15
		Medium Importance	7	35
		Low Importance	8	40
		Not at all Important	2	10

Table C15. Lifelong Learning Factors summary Round three Delphi questionnaire

Rank	Judgement Score	Lifelong Learning Factors	n	%
1	58	10. Support of accessible publishing practices including awareness of copyright, intellectual property rights and licensing issues (n=20)		
		High Importance	5	25
		Medium Importance	10	50
		Low Importance	3	15
		Not at all Important	2	10
	57	3. Opportunity to identify literacies and skills for development (n=20)		
		High Importance	2	10
		Medium Importance	14	70
		Low Importance	3	15
3	55	5. Opportunities to explore, experiment with and experience new modes of learning (n=20)		
		High Importance	4	20
		Medium Importance	9	45
		Low Importance	5	25
		Not at all Important	2	10
	54	4. Opportunities to explore, experiment with and experience new modes of working (n=20)		
		High Importance	3	15
		Medium Importance	10	50
		Low Importance	5	25
5	50	2. Provision of Personal Knowledge Management (PKM) skills (n=20)		
		High Importance	1	5
		Medium Importance	10	50
		Low Importance	7	35
		Not at all Important	2	10

Delphi Survey Round three Levels of Dispersion

Round 3 Academic Work Factors

1. Diversification and changing priorities of responsibilities								Total	
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
0	0	3	15.8	10	52.6	6	31.6	19	100
Valid Cases		19		Missing Cases		6			

2. Level of responsibility								Total	
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
0	0	2	10.0	14	56.0	4	20.0	20	100.0
Valid Cases		20		Missing Cases		5			

3. Increased accountability								Total	
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	1	5.0	11	55.0	6	30.0	20	100.0
Valid Cases		20		Missing Cases		5			

4. Closer nexus between teaching and research								Total	
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
0	0	2	10.0	10	50.0	8	40.0	20	100.0
Valid Cases		20		Missing Cases		5			

5. Changes in organisational culture								Total	
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
1	5.0	4	20.0	8	40.0	7	35.0	20	100.0
Valid Cases		20		Missing Cases		5			

6. Knowledge of and availability of people and services for provision of support								Total	
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
1	5.0	4	20.0	8	40.0	7	35.0	20	100.0
Valid Cases		20		Missing Cases		5			

7. Position held in the organisation (level in hierarchy)								Total	
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
Valid Cases				Missing Cases					

(No data was collected for Delphi survey round three)

8. Increased workload								Total	
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
1	5.0	1	5.0	4	20.0	14	70.0	20	100.0
Valid Cases				Missing Cases		5			

9. Increasing research emphasis in universities								Total	
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
1	5.0	3	15.0	5	25.0	11	55.0	20	100.0
Valid Cases				Missing Cases		5			

10. Support from IT services								Total	
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
1	5.0	4	20.0	10	50.0	5	25.0	20	100.0
Valid Cases		20		Missing Cases		5			

11. Increasing vocational emphasis in universities								Total	
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
Valid Cases				Missing Cases					

(No data was collected for Delphi survey round three)

12. Changing government policy in higher education								Total	
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
1	5.0	1	5.0	8	40.0	10	50.0	20	100.0
Valid Cases		20		Missing Cases		5			

Round 3 Libraries and Literacies Factors

1. Keeping up-to-date with scholarly knowledge which necessitates keeping up-to-date with other skills to access information resources									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
1	5.0	2	10.0	7	35.0	10	50.0	20	100.0
Valid Cases		20		Missing Cases		5			

2. Data curation skills to support the constantly changing knowledge base in an academic field									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
3	15.0	3	15.0	10	50.0	4	20.0	20	100.0
Valid Cases		20		Missing Cases		5			

3. Keeping up-to-date with information resources which requires contextual legal knowledge e.g. copyright, intellectual property, open access									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
1	5.0	4	20.0	10	50.0	5	25.0	20	100.0
Valid Cases		20		Missing Cases		5			

4. Troubleshooting, incorporating tracing challenges when locating, identifying and accessing information								Total	
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
1	5.0	8	40.0	8	40.0	3	15.0	20	100.0
Valid Cases		20		Missing Cases		5			

5. The transfer of scholarly knowledge for eLearning e.g. BlackBoard								Total	
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
3	15.0	2	10.0	9	45.0	6	30.0	20	100.0
Valid Cases		20		Missing Cases		5			

6. Constantly changing technological processes employed in teaching, learning and knowledge acquisition and transfer e.g. changing use of mobile devices								Total	
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	4	20.0	6	30.0	8	40.0	20	100.0
Valid Cases		20		Missing Cases		5			

7. The transfer of scholarly knowledge for lecturing and teaching purposes e.g. PowerPoint, Echo360/Podcast, Video									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
3	15.0	2	10.0	7	35.0	8	40.0	20	100.0
Valid Cases		20		Missing Cases		5			

8. Support for individuals managing their own information including folksonomies and synchronisation									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
Valid Cases		Missing Cases							

(No data was collected for Delphi survey round three)

9. Scholarly communication via micro content including atom, aggregation and social media									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
Valid Cases		Missing Cases							

(No data was collected for Delphi survey round three)

10. Identification and application of database content for syndication and aggregation									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
Valid Cases					Missing Cases				

(No data was collected for Delphi survey round three)

11. Support in the technical aspects of advanced search skills including alerts for searches, journals and RSS feeds to deliver specific information									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
3	15.0	4	20.0	9	45.0	4	20.0	20	100.0
Valid Cases					Missing Cases				

12. Provision of data storage, archiving and preservation techniques/skills									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	8	40.0	7	35.0	3	15.0	20	100.0
Valid Cases					Missing Cases				

Round 3 Lifelong Learning Factors

1. Provision of Personal Information Management (PIM) skills									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
Valid Cases					Missing Cases				

(No data was collected for Delphi survey round three)

2. Provision of Personal Knowledge Management (PKM) skills									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	7	35.0	10	40.0	1	5.0	20	100.0
Valid Cases					Missing Cases				

3. Opportunity to identify literacies and skills for development									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
1	5.0	3	15.0	14	70.0	2	10.0	20	100.0
Valid Cases					Missing Cases				

4. Opportunities to explore, experiment with and experience new modes of working									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	5	25.0	10	50.0	3	15.0	20	100.0
Valid Cases		20		Missing Cases		5			

5. Opportunities to explore, experiment with and experience new modes of learning									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	5	25.0	9	45.0	4	20.0	20	100.0
Valid Cases		20		Missing Cases		5			

6. Support in the development and management of personal files and collections, and their digital surrogates									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
Valid Cases		Missing Cases							

(No data was collected for Delphi survey round three)

7. Opportunities to explore the role of corporate influence on electronic information, both scholarly and non-scholarly, incorporating bias data validity, data integrity, disinformation and information neutrality									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
Valid Cases					Missing Cases				

(No data was collected for Delphi survey round three)

8. Provision of analysis of trends in specific research areas and practices generated by university library researchers									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
Valid Cases					Missing Cases				

(No data was collected for Delphi survey round three)

9. Opportunities to explore the metrics that are applied to information, both scholarly and non-scholarly, including bibliometrics, cybermetrics, informetrics and scientometrics									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
Valid Cases					Missing Cases				

(No data was collected for Delphi survey round three)

10. Support of accessible publishing practices including awareness of copyright, intellectual property rights and licensing issues									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	3	15.0	10	50.0	5	25.0	20	100.0
Valid Cases		20		Missing Cases		5			

11. Provision of information classification techniques/skills including taxonomies, folksonomies, ontologies and controlled vocabularies									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
Valid Cases					Missing Cases				

(No data was collected for Delphi survey round three)

12. Opportunities and support for Open Source applications and software									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
Valid Cases					Missing Cases				

(No data was collected for Delphi survey round three)

Delphi Survey Round three Paired Factor Correlations

Personal Knowledge Management

12. Provision of data storage, archiving and preservation techniques/skills								Total	
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	8	40.0	7	35.0	3	15.0	20	100.0
Valid Cases		20		Missing Cases		5			

2. Provision of Personal Knowledge Management (PKM) skills								Total	
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	7	35.0	10	40.0	1	5.0	20	100.0
Valid Cases		20		Missing Cases		5			

Problem-solving and troubleshooting

4. Troubleshooting, incorporating tracing challenges when locating, identifying and accessing information									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
1	5.0	8	40.0	8	40.0	3	15.0	20	100.0
Valid Cases		20		Missing Cases		5			

3. Opportunity to identify literacies and skills for development									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
1	5.0	3	15.0	14	70.0	2	10.0	20	100.0
Valid Cases		20		Missing Cases		5			

New Modes of Working

7. The transfer of scholarly knowledge for lecturing and teaching purposes e.g. PowerPoint, Echo360/Podcast, Video									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
3	15.0	2	10.0	7	35.0	8	40.0	20	100.0
Valid Cases		20		Missing Cases		5			

4. Opportunities to explore, experiment with and experience new modes of working									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	5	25.0	10	50.0	3	15.0	20	100.0
Valid Cases		20		Missing Cases		5			

New Modes of Learning

6. Constantly changing technological processes employed in teaching, learning and knowledge acquisition and transfer e.g. changing use of mobile devices									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	4	20.0	6	30.0	8	40.0	20	100.0
Valid Cases		20		Missing Cases		5			

5. Opportunities to explore, experiment with and experience new modes of learning									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	5	25.0	9	45.0	4	20.0	20	100.0
Valid Cases		20		Missing Cases		5			

Accessible Publishing

3. Keeping up-to-date with information resources which requires contextual legal knowledge e.g. copyright, intellectual property, open access										Total
No Significance		Low Significance		Medium Significance		High Significance				
N	%	N	%	N	%	N	%	N	%	
1	5.0	4	20.0	10	50.0	5	25.0	20	100.0	
Valid Cases		20		Missing Cases		5				

10. Support of accessible publishing practices including awareness of copyright, intellectual property rights and licensing issues										Total
No Significance		Low Significance		Medium Significance		High Significance				
N	%	N	%	N	%	N	%	N	%	
2	10.0	3	15.0	10	50.0	5	25.0	20	100.0	
Valid Cases		20		Missing Cases		5				

Data Analysis Informing the Focus Group Instrument: Factors with No Correlation

Table C16. Correlation analysis of Personal Knowledge Management as a service or learning opportunity

Personal Knowledge Management									
Provision of data storage, archiving and preservation techniques/skills				No significant correlation		Provision of Personal Knowledge Management (PKM) skills			
12. Provision of data storage, archiving and preservation techniques/skills									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	8	40.0	7	35.0	3	15.0	20	100.0
Valid Cases		20		Missing Cases		5			
2. Provision of Personal Knowledge Management (PKM) skills									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	7	35.0	10	40.0	1	5.0	20	100.0
Valid Cases		20		Missing Cases		5			

A Spearman's rho was computed to assess the relationship between 'the library's provision of personal knowledge management services' and 'the opportunity for personal knowledge management (lifelong) learning'. There was no significant relationship between the two variables, $r = 0.336$, $n = 20$, $p = 0.148$.

Table C17. Correlation analysis of Problem-solving and troubleshooting as a service or learning opportunity

Problem-solving and troubleshooting									
Troubleshooting, incorporating tracing challenges when locating, identifying and accessing information				No significant correlation		Opportunity to identify literacies and skills for development			
4. Troubleshooting, incorporating tracing challenges when locating, identifying and accessing information									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
1	5.0	8	40.0	8	40.0	3	15.0	20	100.0
Valid Cases			20	Missing Cases			5		
3. Opportunity to identify literacies and skills for development									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
1	5.0	3	15.0	14	70.0	2	10.0	20	100.0
Valid Cases			20	Missing Cases			5		

A Spearman's rho was computed to assess the relationship between 'the library's provision of problem-solving and troubleshooting services' and 'the opportunity for problem-solving and troubleshooting (lifelong) learning'. There was no significant relationship between the two variables, $r = 0.272$, $n = 20$, $p = 0.246$.

Table C18. Correlation analysis of New Modes of Working as a service or learning opportunity

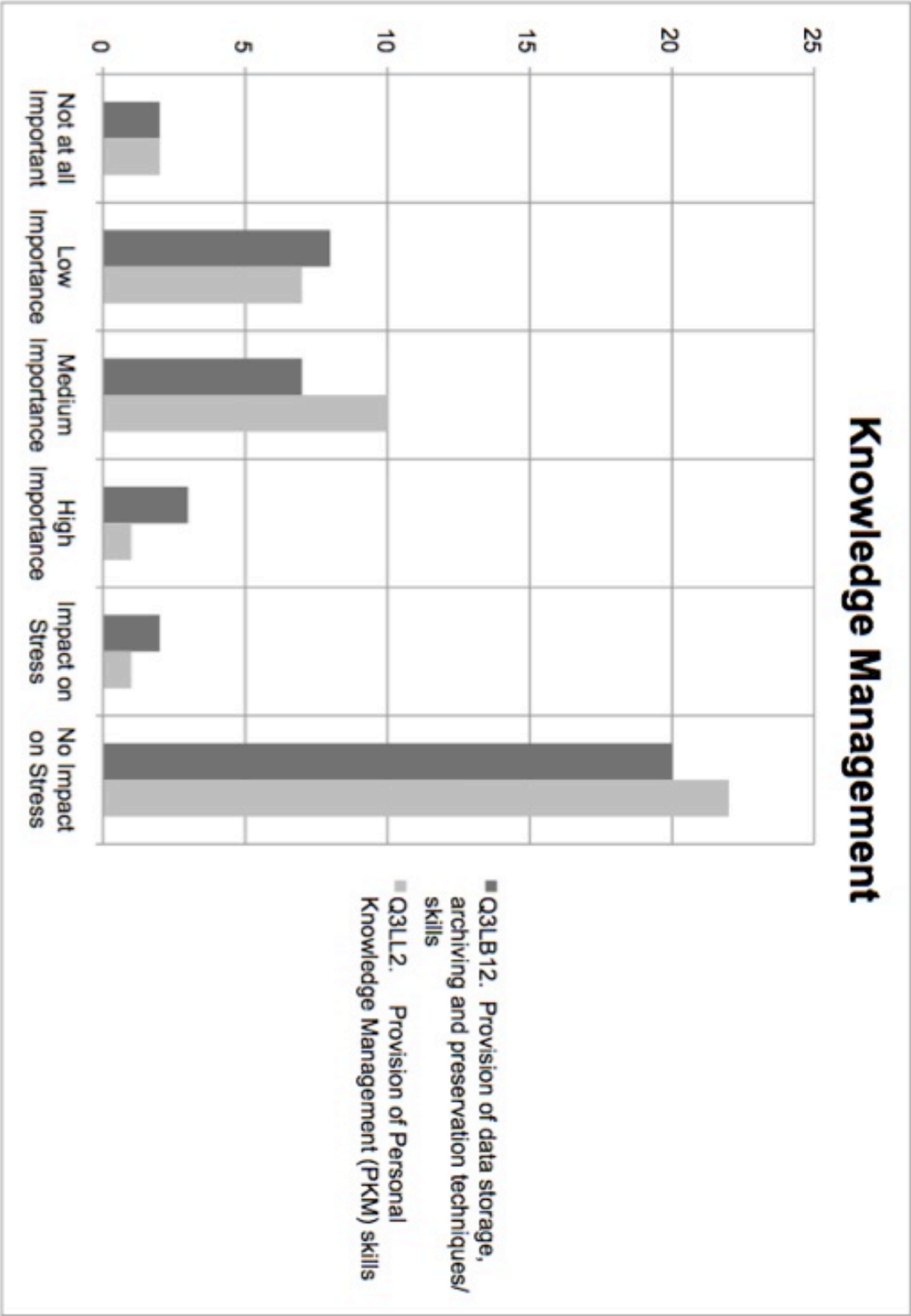
New Modes of Working									
The transfer of scholarly knowledge for lecturing and teaching purposes e.g. PowerPoint, Echo360/Podcast, Video				No significant correlation		Opportunities to explore, experiment with and experience new modes of working			
7. The transfer of scholarly knowledge for lecturing and teaching purposes e.g. PowerPoint, Echo360/Podcast, Video									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
3	15.0	2	10.0	7	35.0	8	40.0	20	100.0
Valid Cases		20		Missing Cases		5			
4. Opportunities to explore, experiment with and experience new modes of working									Total
No Significance		Low Significance		Medium Significance		High Significance			
N	%	N	%	N	%	N	%	N	%
2	10.0	5	25.0	10	50.0	3	15.0	20	100.0
Valid Cases		20		Missing Cases		5			

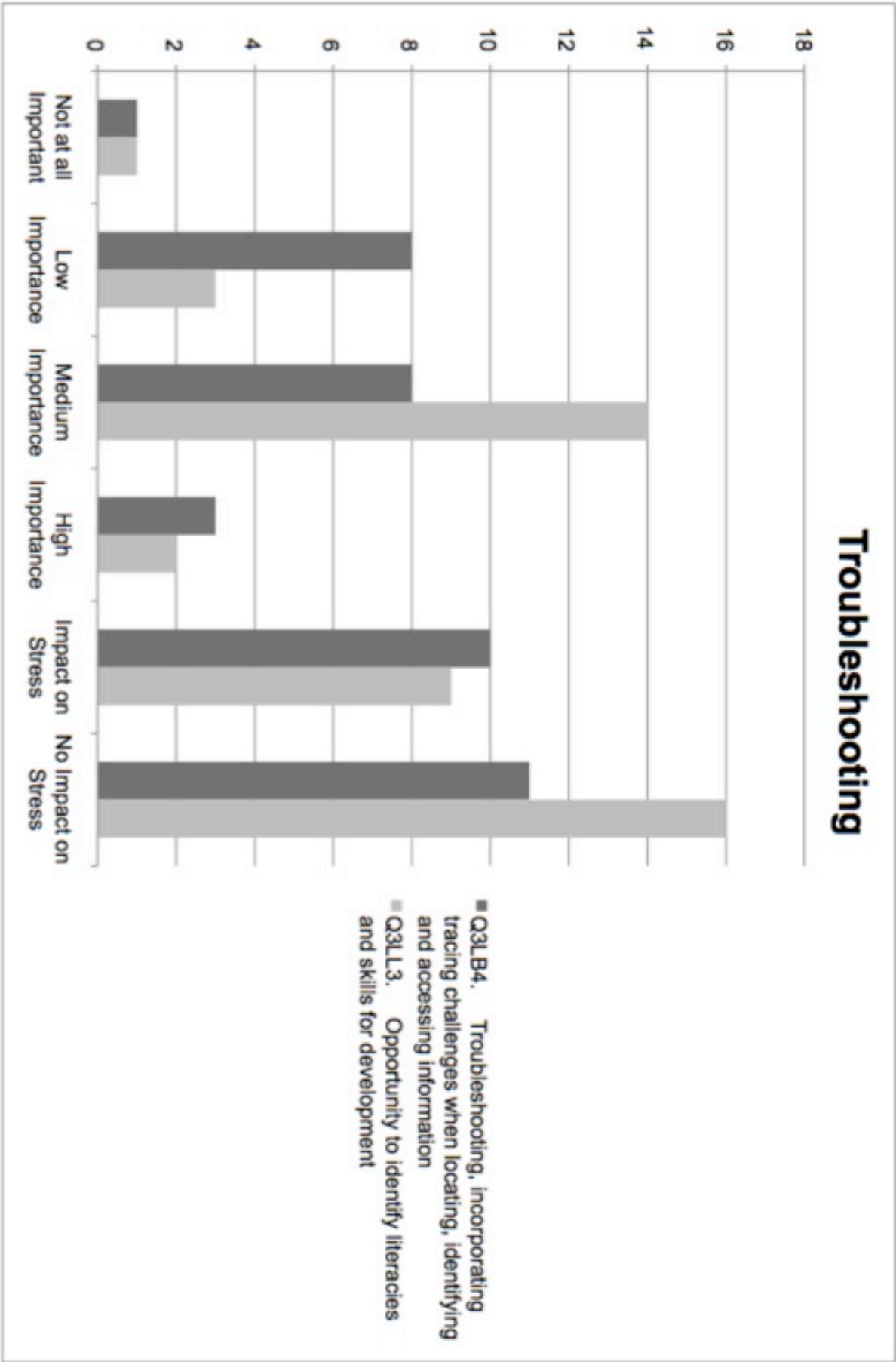
A Spearman's rho was computed to assess the relationship between 'the library's provision of services for the transfer of scholarly knowledge to new modes of working' and 'the opportunity for new modes of scholarly knowledge transfer and working lifelong learning opportunities'. There was no significant relationship between the two variables, $r = 0.319$, $n = 20$, $p = 0.171$.

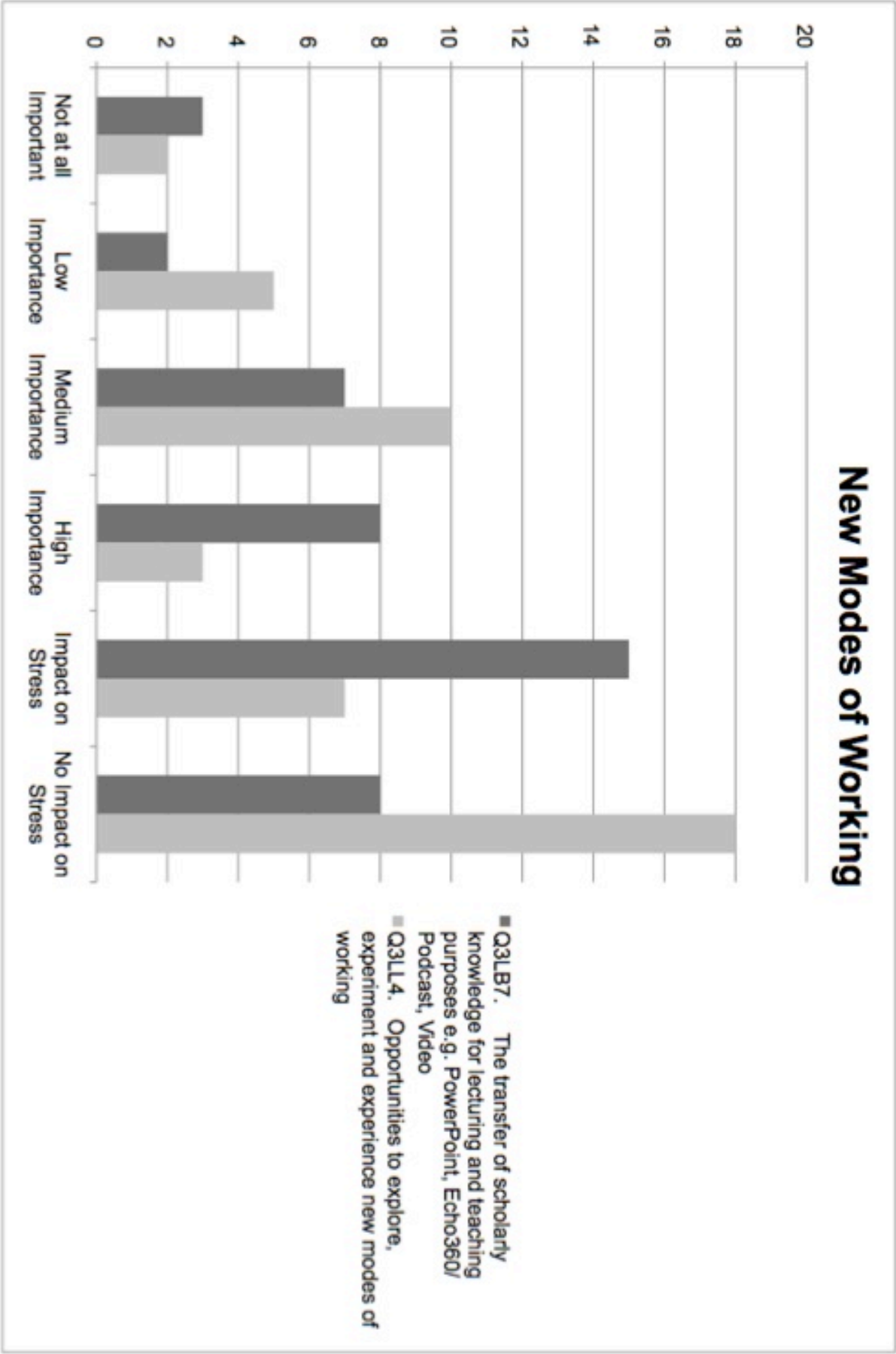
Appendix D

Phase Three Focus Groups

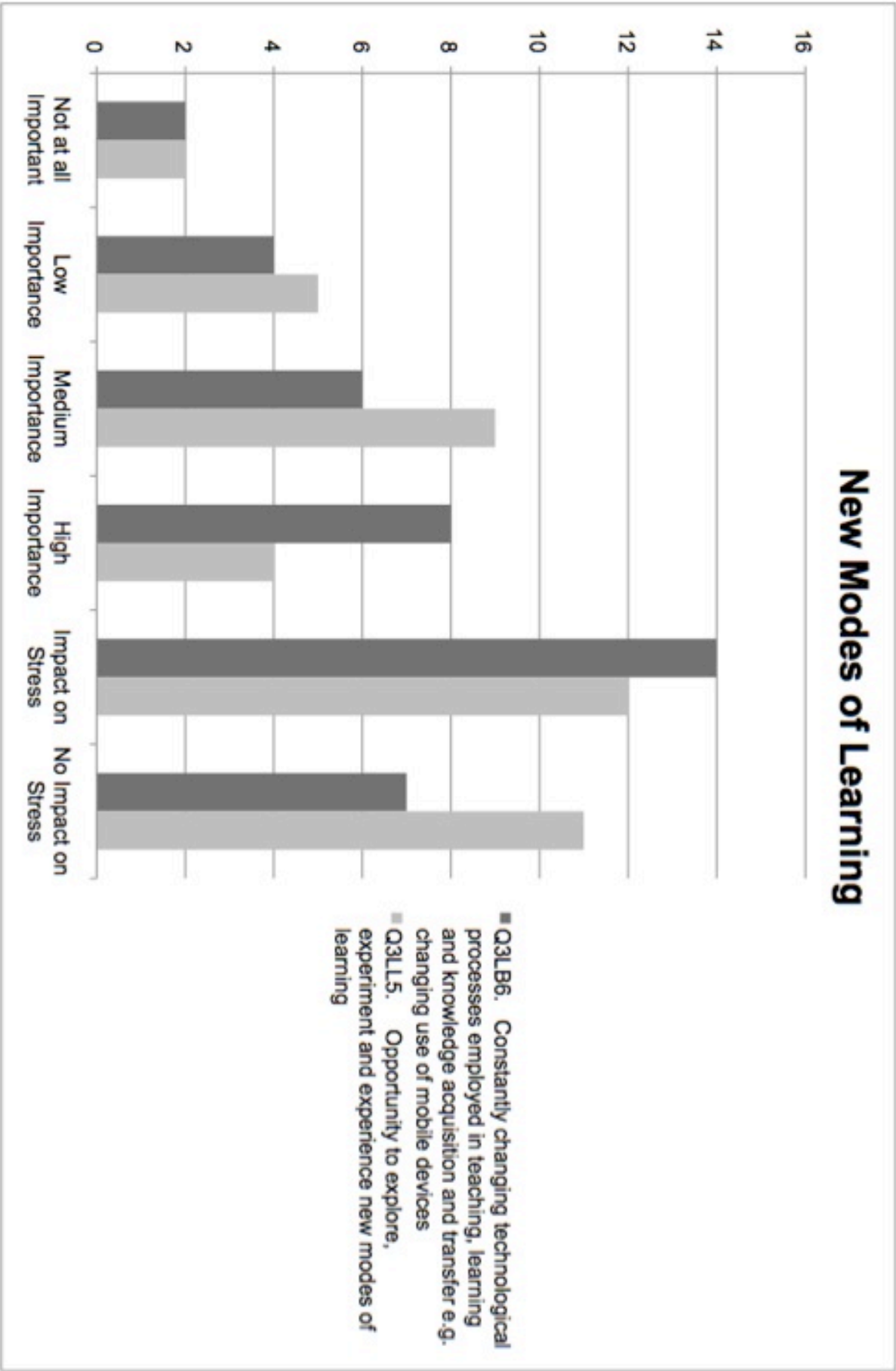
Focus Group Instrument

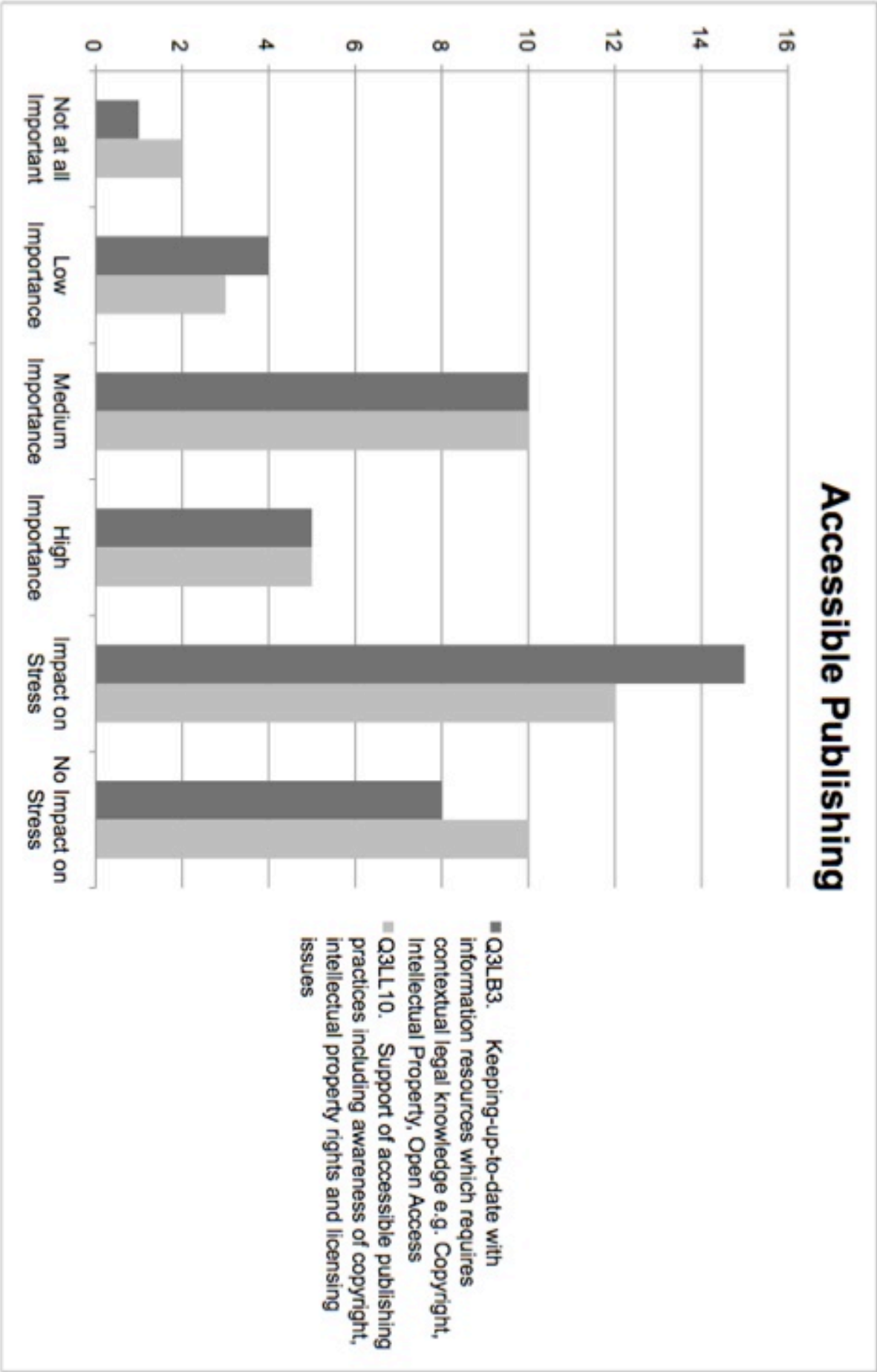






New Modes of Learning





Appendix E

Phase Four Personal Lens on Lifelong Learning Interviews

Personal Lens on Lifelong Learning Instrument

Lifelong Learning Semi-structured Interview Questions

Discuss the learning opportunities within your higher education employment that you would also characterise as lifelong learning opportunities, that is experiences, individuals and/or organisations that have simultaneously enhanced both your academic work and your life.

- Do you have a learning schedule for maintaining and developing your abilities?
- Do you have a lifelong learning role model or mentor
- (Do you know your role model and/or do they know you?)
- How do you learn from them or with them?

Do you feel there is a comparable exchange between the life skills you bring to your academic work, and the academic skills you bring into your life?

Appendix F

Publications Associated with the Thesis

- McPherson-Crowie, T. (2010). *Libraries, literacies and lifelong learning: Looking forward within higher education institutions*. Paper presented at the SCUTREA 2010 40th Annual Conference. Looking back, looking forward: Learning, teaching and research in adult education past, present and future. University of Warwick, England.
- McPherson-Crowie, T. (2011). *Lifelong learning in Australian academic libraries*. Paper presented at The Third Asian Conference on Education 2011, Learning and Teaching in a Globalized World, October 27-30 2011, Osaka, Japan.
- McPherson-Crowie, T. (2012a). Libraries, literacies and lifelong learning: The practices within higher education institutions. In D. N. Aspin, J. Chapman, K. Evans & R. Bagnall (Eds.), *Second international handbook of lifelong learning* (Vol. Part III: Programmes and practices; Section Editor: Judith D. Chapman). Dordrecht, The Netherlands: Springer.
- McPherson-Crowie, T. (2012b). Boutique influences on structures and lifelong learning at Australian Catholic University (Case Study H). In A. Priestner & E. Tilley (Eds.), *Personalised library services in higher education: The boutique approach*. London, England: Ashgate.