An Exploration of Disciplinary Differences in the Use of Talis at the University of Auckland

by

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An Exploration of Disciplinary Differences in the Use of Talis at the University of Auckland

(hereafter referred to as 'The MIS Research Project')

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Abstract

Research problem: Resource list management systems (RLMSs) have recently seen a significant increase in popularity, but previous research has not fully explored the differences in uptake of these systems in different academic disciplines within a university setting. This research addresses this problem by identifying and exploring these differences in two academic faculties at the University of Auckland.

Methodology: This research was focussed on Semester 1 2016, and used a mixed-methods case study approach comprised of statistics generated from the virtual learning environment, Canvas, and Talis, the RLMS implemented at the University of Auckland. Seven semi-structured interviews were then conducted with a range of Subject Librarians and academic staff, and the results were analysed and themes identified.

Results: Three main themes in the uptake of Talis were identified – individual resistance, organisational approach, and disciplinary need. Disciplinary need was found to be the main factor affecting academic use of Talis.

Implications: This research adds to the body of knowledge surrounding RLMS implementations, and may offer some insights to other universities implementing similar systems. Future research could take the form of wider studies looking at a larger range of disciplines, or more generalizable studies focussed on testing the findings discussed here.

Keywords: resource list management systems, academic libraries, reading lists, resource lists, academic discipline, library systems

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1. Introduction

1.1 Rationale

Online "resource lists" (collections of resources selected by academic staff, provisioned and supported by academic libraries, for use by students) have seen a sharp increase in popularity in higher education in the last few years, and interest has been piqued in the pedagogical role these types of systems can play (Breeding, 2015; Cross, 2015; Derven, 2011). The product genre currently known as resource list management systems (RLMSs) are defined as dynamic shared databases of resource lists which are fully interoperable with a variety of platforms (see Akeroyd, 2004; Morgan, 2007). These platforms include virtual learning environments (VLEs), library and electronic resources, and digital content modules which enable usage tracking for the purpose of ensuring copyright compliance.[1]

RLMSs differ from other types of software being implemented in university libraries as they form a heterogeneous environment where the interests and workflows of librarians, academics and students converge (Bartlett, 2010; Derven, 2011, p. 2; Jones, 2009). In this sense RLMSs are unique in the landscape of faculty and library co-operation, and a robust understanding of the factors that make their implementation successful is useful as more university libraries turn to RLMS products. Uptake of RLMSs has been significant in the UK, and Talis Aspire currently has approximately 43% of UK universities as customers (Higher Education Statistics Agency, 2015; Talis, 2016). Ex Libris and EBSCO are both developing RLMS products, in order to access this lucrative market (Breeding, 2015).

The implementation of RLMSs in New Zealand is currently being driven by compliance with the "University Pilot Licence Agreement" between Copyright Licencing New Zealand (CLNZ) and the eight universities (Copyright Licensing New Zealand [formerly CLL], 2014). This pilot agreement has been negotiated as a result of legal proceedings undertaken by CLNZ against Universities New Zealand, and specifies that the eight universities are required to implement software solutions

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[1] I have used the term virtual learning environment (VLE) in order to prevent confusion between two different meanings for the acronym LMS, which is used in New Zealand most frequently to mean 'Learning Management System' (aka VLE), but is frequently used in the literature from the UK to mean 'Library Management System'.

within a particular time frame to enable electronic reporting on copyrighted material used under the CLNZ Education Licence.[2]

Within this context, RLMSs are seeing rapid uptake in New Zealand, and the question arises as to what factors may affect implementation processes, particularly where there is a sense of urgency in achieving uptake of the system. Recent studies on this topic indicate there is a need for further discussion around revising and enhancing RLMS practices in academic libraries, particularly with regards to increasing academic engagement (Cameron & Siddall, 2015; Cross, 2015).

In mid-2015 the University of Auckland (UoA) chose to implement Talis Aspire in order to fulfil the reporting requirements set out in the CLNZ agreement, and with approximately 33,500 students, UoA is one of the largest Talis customers (The University of Auckland, 2015). At UoA the decision was made to give reading list "ownership" to academic staff, with support from library staff in using the system, and uptake of the system has been good (Talis, 2016, 10 Feburary). UoA received an award from Talis for excellence in Academic Progress in 2016, which recognised UoA's outstanding adoption rate in such a short time period (Talis, 2016, April 20).

1.2   Problem Statement

Although the implementation of Talis at UoA has been considered successful, use of the system has not been consistent across the university, and in a report delivered at the Talis Asia-Pacific Insight Conference, UoA Library Project Manager Eileen Tollan noted that there wasn't a complete understanding of the reasons for these differences between faculties, as statistics are generally unable to provide context or holistic explanations (Talis, 2016, 10 Feburary). This study endeavours to explore these differences in uptake and use of Talis between academic disciplines, with the aim of gaining greater insight into the success factors and barriers to implementation of an RLMS.

Previous research has posited that there are differences in belief, engagement with university policy, and use of library resources between academic disciplines, but there is a lack of research exploring these differences in the context of uptake of a

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[2] The Copyright Act 1994 does not allow for sufficient provision of materials copied for teaching, so the license agreement permits copying beyond what is permitted by the Act (Grant, 2015). For more information, see http://www.copyright.co.nz/Licensing/Education/

system such as a RLMS. There appears to be a variety of factors at play in the implementation of Talis at UoA, including the simultaneous rollout of a new VLE, disciplinary differences in resource use and engagement, and faculty policy (Talis, 2016, 10 Feburary).

1.3   Significance

These tangled threads of context and actions are not easy to assess quantitatively, but an exploration into these factors is better supported by a qualitative study which aims to draw out the first-person understandings and experiences of how Talis has been implemented at UoA.

I hope that through this study success factors may be identified that can assist other universities in their implementation of not only RLMS, but also similar cross-institutional systems.

2.   Review of the Literature

This literature review encompasses three key areas: a brief history of the development of RLMSs; academic engagement with RLMSs; and an exploration of the differences in library resource use and engagement between academic disciplines. The focus of this literature review is on the UK, and to a lesser extent Australia, as they are most similar to the New Zealand academic and copyright environments.

2.1   History of RLMS Products

Before the widespread adoption of the internet, reading lists in higher education were "static" tools containing collections of resources, usually presented in paper form, and created primarily for academics and students (Beard & Dale, 2008, p. 104; Markland, 2003, p. 87). Libraries have long been interested in gaining systematic access to reading lists, as they support collection management that meets the teaching and research requirements of the institution (McKormick, 2006).

A key technological development in the provision of course materials was the learning management system, or virtual learning environment (VLE), an online classroom where lecturers can upload study resources, and that supports Web 2.0 features like discussion boards (Jones, 2009; Morgan, 2007). As VLEs increased in

popularity and functionality, academics could populate them directly with reading lists and electronic documents, marginalising the library in the delivery of course materials, but meeting the demands of students who expected resources to be embedded within VLEs (Rieger, Horne, & Revels, 2004; Stubley, 2005). Jisc funded a programme to investigate integration of VLEs and digital library systems, and resource lists were identified as a key tool in this integration (Johnson, Trabelsi, & Fabbro, 2008; Masson, 2009).[3] Commercial software began to leverage rapidly expanding web technology that allowed for 'crosswalks' between disparate systems, and a number of RLMSs emerged that could not only embed within VLEs, but could replace library-managed 'electronic reserves' systems altogether (Beard & Dale, 2008; Morgan, 2007).

RLMSs are usually purchased and implemented by libraries, but they create workflows requiring the collaboration of multiple departments within an institution. From a brief review of current literature on RLMSs, two products appear to dominate the market – Talis Aspire, with 90 customers around the world (Talis, 2016), and the Loughborough University open source RLMS (LORLS), although little has been written about LORLS over the last two years. New products are still emerging, and both EBSCO and Ex Libris have RLMS software in production (Breeding, 2015). In a brief article describing current developments in the RLMS product category, Breeding (2015) emphasises that RLMSs present academic libraries with the opportunity to ensure their collections are embedded in curricula, as well as ensuring they have statistics and analytics to support the acquisition of appropriate content (p.6).

2.2   Research on RLMS and Academic Engagement with RLMS

The majority of literature on this topic supports evidence-based practice, and usually assesses the success of RLMS projects undertaken, with tips for other institutions looking to take on similar products. Academic engagement with these processes or products is usually described tangentially, or as a single variable in the implementation process.

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[3] Jisc is a UK-based not-for-profit organisation which champions the use of digital technologies in education and research through advice, resources, and funding of research (Jisc, 2016).

2.2.1   1990s - early 2000s.

The literature on reading lists from the early 1990s demonstrates a common concern with improving processes to obtain reading lists from faculty in a timely manner, in order to assist with collection management (Sherwood & Lovecy, 1997; Smith, 1993; Stopforth, 1994; Vautier & White, 1991; Yeadon & Cooper, 1995). Throughout these early years of electronic resource delivery through 'e-reserves' repositories, a key narrative thread is that of library control. Most reports focussed on processes for meeting library needs, with little mention of faculty representation or involvement, beyond their role as (often recalcitrant) content providers. Academic reluctance to engage with these systems is not surprising given the library-controlled and initiated processes, and top-down one-way communication plans described in the reports. However, by the late 1990s the uptake of e-reserves systems led several researchers to call for closer engagement between library staff and the academic community if implementation of these systems was to be successful (Dugdale, 1999; Pickering & McMenemy, 1999).

Within the context of library and VLE integrations, resource lists were seen as drivers for collaboration and interaction between librarians, academic staff and learning technologists (Markland, 2003; Morgan, 2007; Secker, 2005). Beard and Dale (2008) found in a case study on pedagogy in Web 2.0 environments that resource lists were no longer "passive" tools, but could play central roles in student learning, particularly when delivered through an online learning portal or VLE.

As one of the earlier RLMS products, LORLS was developed in 2000 as an in-house solution to the problem of non-standardised provision of reading lists (Brewerton & Knight, 2003). Articles on LORLS were written by Loughborough staff frequently between 2003 and 2014, and although it was not as "flashy" as commercial products offered around this time, it had some success given the existing enthusiasm for open-source solutions (Boyle, 2004). Despite its ability to integrate with other systems, and the option to allow academics to control their own lists, the low rate of academic adoption of the system was a concern for both Loughborough University and Durham University, another LORLS customer (Atkinson, Conway, Taylorson, & Smith, 2010; Brewerton & Knight, 2003).

The majority of articles on LORLS took the form of reports describing challenges and successes, and gave tips on implementation. However, two comprehensive studies were undertaken on the LORLS system at Loughborough. McKormick (2006) used focus groups with academics and library staff to explore the value of lists for academics, and identified that barriers to lecturer participation in LORLS were primarily due to a "mismatch of Library/lecturer perceptions of LORLS at operational level", where lecturers felt they had to put in disproportionate effort towards making the system work (p. 50). McKormick describes how time-poor academics felt underappreciated, and believed that clear roles and policy guidelines were lacking. In a second study on LORLS, Brewerton (2014) conducted a case study on student and lecturer views of the system, and found that there was a need for greater academic engagement both in the implementation stages and beyond, as well as a need to develop a formal RLMS strategy for the university.

2.2.2 Push for academic ownership.

"Self-submission and self-management" by academic staff became increasingly popular targets for libraries, and were espoused in a report on implementing an RLMS at the University of Western Australia (Poleykett & Benn, 2007, p. 4). Despite these intentions for academic staff autonomy, when the first version of the RLMS was delivered library staff conducted all the set-up work by transferring existing items into the new system. Poleykett and Benn (2007) noted that although the interface was "slicker and more user-friendly" than the previous system delivered through the library management system, "academic staff had not changed the way they interacted with Course Materials Online" (p.10).

In order for resource lists to be current and relevant, they require a particular party to demonstrate ownership and responsibility (Akeroyd, 2004; Cross, 2015). For many institutions, the responsibility for resource lists seemed to reside with the library, but the 'ownership' of resource lists was not spelled out in policy documentation, leading to uncertainty from academics (Secker, 2005). However, the concept of course and resource list ownership is offset by an increasingly decentralised academic environment, particularly one with transient teaching staff and devolved administrative responsibilities (Berg, 2009). Dittemore (1993) conducted longitudinal research that found that faculty involvement in collection management decreased when responsibility was shifted to the library, despite the need for ongoing faculty

participation in the process, and Dittemore doubted that academic cooperation could be assured without real outreach efforts. Cross (2015) believed that a model RLMS should enable academics to "own and update their own lists", but that a conducive policy environment is required to support this (p.217). In a report on purchasing for course reserves, Chelin, McEachran, and Williams (2005) advocated for documenting "reading strategies" in policy statements, and being clear about how certain resources will be provisioned.

However, some libraries still advocate for library staff carrying out all the set-up work, as this ensures consistency and a good 'starting point' for academics to take over (Atkinson et al., 2010; Stubbings, 2012). This approach has been challenged by McKormick (2006), who found academics were reluctant to 'take the reins' of a library-initiated system, and in an account of encouraging academic self-service in e-reserves provision in US universities, Goodson and Frederiksen (2011) noted that shifting responsibility onto academics was a difficult process. H.-W. Kim and Kankanhalli (2009) created a model to look at user resistance to information systems implementation by combining user resistance literature with the status quo bias, and found a central factor in user resistance was "switching costs" of using the new system, which can be expressed as threat (fear) or loss (e.g. of power or time). Their findings suggest that user resistance pre-implementation can be mitigated through increasing the perceived usefulness of the system, and through organisational support (p.580).

As noted in their online guide to project management, Jisc (2014) advise that in their experience

> few information systems projects fail for technical reasons. They fail because of people's perceptions of what to expect from technology or because of their belief that technology can somehow adapt to their way of doing things without the need for associated business process change.

In spite of research that points to high-level endorsement as a key feature in successful systems implementation, a top-down approach to RLMS implementation may be unsuccessful within certain institutions (Jones, 2009). Akeroyd (2004) has identified that most reading list development has taken place at predominantly undergraduate level institutions, "where management may be much more centralist

than that at prestigious, and therefore somewhat anarchic, universities" (p.165). Although there is no one-size-fits-all approach to implementing an RLMS, the Jisc (2014) call for business process change may be worth heeding.

As the technology has become more connected, the emphasis on relationship building and collaboration has increased, and recent reports of RLMS implementation discuss the role of people and relationships as more important than the role of the actual technology being implemented. In an assessment of the implementation of Talis at Nottingham Trent University, Cross (2015) emphasised factors that focus on relationship building and collaboration as key to success, including: co-operation between multiple teams; supporting enthusiastic individual academics; and relationship building through training opportunities. Clear communication and accommodating the "various realities" of each party are essential factors for improving lateral relations within an organisation (Chu, 1995, 1997).

Jones (2009) made the perceptive observation that "reading list systems tend to stand or fall on the engagement of academic staff" (p.12). Indeed, reading lists are a place where academic workflows, student requirements and library services interact most directly. If there is no direct academic engagement, the administrative tasks tend to fall on library or administrative staff, which may lead to inaccuracies, work duplication and perceived uselessness of the system. In an exploratory study on the sociological nature of reading lists, Stokes and Martin (2008) argued for a more complex understanding of the conceptualisation of reading lists, and they demonstrated that resource lists are expressions of socially constructive processes which are intertwined with the "personal learning journeys" of teaching staff, curriculum design, and institutional validation (p.118).

2.3   Exploring the Differences between Academic Disciplines

Disciplinary differences have not been systematically explored as a factor in academic engagement with RLMSs, although many reports on RLMS implementation note anecdotal differences in faculty uptake across one institution, and caution that a one-size-fits-all approach may not work for ensuring academic engagement (Cameron & Siddall, 2015). Siddall (2016) investigated how academic staff viewed "reading list labels" on resources (e.g. essential, additional), and produced a set of recommendations for universities about reading lists, advising that

one reading list format "is not suitable across an institution. Reading lists should be tailored according to the subject area and student level" (p. 447).

A significant amount of research has been conducted around the notion of disciplinarity, and there is a clear consensus that differences exist in research expectations, activity, norms, metrics and benchmarks between different fields within academia (see Biglan, 1973; Krishnan, 2009; Linton, Tierney, & Walsh, 2012). These differences occur through a process of academic enculturation, a "dialogic formulation of academic disciplines and professions within dynamic cultural-historical fields", meaning it is not set in stone or clearly defined, but is a concept constantly being built by those involved in the discipline (Prior & Bilbro, 2012).

As early as the 1980s there were claims that disciplinary lines were "blurring" (Stone, 1982), and as more material became available online, some research has demonstrated a closing gap in library usage between disciplines (Chrzastowski & Joseph, 2006). However, recent research examining more general use of library resources and services across disciplines indicates clear differences in use, attributable to differences in disciplinary belief. In a study looking at the cost of providing physical textbooks and e-reserves, Pollitz, Christie, and Middleton (2009) were surprised by the low use of e-reserves by science and engineering departments, but raised questions about disciplinary resource needs that they didn't have the scope to answer.

Secker (2005) argued that services provided by academic libraries need to be tailored for specific disciplines, in order to better reflect the differences between them. Grafstein (2002) proposed a discipline-based approach to information literacy teaching, as there are key aspects of research and learning that differ between disciplines, including knowledge organisation, research scope, rules of evidence, criteria for evaluating claims, and sources of information (p.201). This is reinforced in an information studies Master's thesis by Anderson (2009) who strongly believed that "disciplinary context shapes the informational need" (p.48).

In an evaluation of library instruction through examining syllabi in two disciplines (Chemistry and History), Alcock and Rose (2016) found that the distinct course content of the two disciplines resulted in discrete information needs at different points during undergraduate study (p.94). Murphy and Black (2013) in their research

on embedding library guides into VLEs likewise found a correlation between course-related assessment and library use. Underpinning these differences in library resource use are publication trends, where there are clear distinctions between STEM and non-STEM disciplines (see Maurer & Shakeri, 2016).

The psychologist Anthony Biglan investigated the structure and output of university departments, and argued that "paradigmatic" (hard) sciences permit a more abbreviated form of scholarly communication than the soft or social sciences, and believed this was because less time needed to be spent defending or describing the paradigmatic basis of the work (Biglan, 1973). Biglan's conceptualising of hard and soft disciplines persists to this day, and publishing trends support many of his assertions about disciplinarity (Krishnan, 2009).

The technology acceptance model (TAM) is useful in explorations of the complex factors that affect the uptake/adoption of new technologies, and is demonstrated to be well-supported for library technology applications (Aharony, 2015). Y.-M. Kim (2010) used the TAM to explore the differences in web resource use based on academic discipline. Kim found that computer self-efficacy differed by discipline, and argued that the lower rates seen in science and arts compared to business meant that members of the former disciplines received more face-time with library staff for computer resource related assistance. Kim argued that in turn this produced the result that users in business were less appreciative of librarians' services than those in arts or science (p.16). Kim's use of the TAM helped in gaining deeper understandings of the underlying reasons for differences across disciplines, and gives an interesting perspective to differences in uptake and perception of a system.

Academic discipline was incorporated as a moderating factor in technology use and acceptance by Orji (2010) in a conference paper that describes a model called the Academic Discipline based Unified Theory of Acceptance and Use of Technology (ADUTAUT). ADUTAUT was adapted from the UTAUT model synthesised by Venkatesh, Morris, Davis, and Davis (2003). Orji (2010) proposed a new model of technology acceptance that presents a user's academic discipline as a non-technology-related factor that affects IT acceptance, and posited that disciplines have their own ways of producing and using knowledge. Orji (2010) argued that different approaches should be used to motivate people to accept technologies

based on their academic discipline (p.621). Although the research that underpins this paper focussed on students, it's not unreasonable to suggest that academics within the same fields would share similar world views, and would likely be the ones instilling such views into students.

Differences in system uptake have been explored through multiple 'levels' in a multi-case study approach to exploring information system implementation where Lapointe and Rivard (2007) explored three levels (individual, group and organisation) using three complementary theory models. Their research demonstrates how different 'levels' within an organisation are affected by different factors when it comes to technology resistance, and shows the value in understanding these factors through more granular theory models.

The TAM and ADUTAUT models were useful in addressing the research aims stated in this proposal, as these models enabled deeper and broader understandings of the motivations of individuals and groups with regards to technology adoption and use. These theory models assisted in conceptualising possible underlying reasons for academic engagement to vary between different 'levels' of uptake – individuals, departments, and institutions.

3. Research Objectives

The aim of this research was to explore the factors that affected the implementation of a RLMS within a higher education institution, with particular regards to academic engagement with the system.

As the phenomenon of standalone integrated RLMSs is relatively new, there are not many qualitative studies that have focussed on RLMS implementation with reference to the differences between academic disciplines within a university.

3.1 Research Questions

My main research question and two sub questions are as follows, and these have guided my enquiry:

Why are there differences between academic disciplines in the uptake of an RLMS?

- How do the views of faculty staff and subject librarians about academic engagement in the implementation of an RLMS differ between academic disciplines?
- How do the different approaches taken by faculties and subject librarians affect implementation and the resource lists created?

4. Research Design

I have used a case study design to facilitate the exploration of the complexity and particular nature of academic engagement with the RLMS product Talis Aspire at the University of Auckland (UoA).

Case study research generally favours qualitative methods, as they assist in generating intensive and detailed examination of a case, and understanding a case usually requires going beyond countable aspects and into the realm of exploring the social reality of a situation for those involved (Bryman, 2012; Yin, 2015). I have used both qualitative and quantitative data collection techniques, as they allow for complementary analysis (Mabry, 2008, p. 215). This research, like most case study research, has not aimed for generalisability, but has focussed on an in-depth exploration of the unique features of this case, with a view to arriving at a holistic understanding of academic engagement with Talis at UoA. The research approach taken seeks what Yin (2009) terms "ecological validity", in that it is concerned with findings that are drawn from a natural setting and are applicable to people's everyday social settings. This approach is supported in literature about case study research (see Matza, 1969, p.5; Hammersley & Atkinson, 1995, p.6).

The case study chosen for this research is a combination of two types:

Firstly, it is what Bryman (2012) terms "an exemplifying case", chosen because it is illustrative of a broader category of which it is a member. UoA is one of eight universities in New Zealand, all of which are signatories to the CLNZ agreement and are beginning to implement RLMS products within their own institutions. Additionally, as RLMSs grow in popularity around the world, the research conducted here will be situated within a growing context of RLMS implementation.

Secondly, it is a "unique case" as defined by Yin (2009), as it exhibits a semi-novel approach to RLMS implementation. UoA has taken an approach to implementation that gives list ownership and responsibility to academics, and was recently given an award by Talis for excellence in Academic Progress in 2016, to recognise UoA's outstanding adoption rate (Talis, 2016, April 20). Although the approach taken by UoA is described in the literature as an ideal, few implementation reports seem to have actually taken this approach from the outset. Additionally, UoA simultaneously implemented a new VLE, Canvas, and made the use of Canvas and Talis compulsory. Added to this combination of factors is the external pressure from CLNZ to implement an RLMS in order to create electronic reports within a specific time frame.

5. Research Methodology

This research consisted of a mixed method, single-case study approach, combining qualitative data gathered through interviews with quantitative statistical data gathered from UoA's instance of Talis. Although such quantitative data may demonstrate a correlation between faculty and uptake, it can't explain the underlying factors that might explain such a correlation, thus there was a need for a qualitative enquiry.

I have focussed my enquiry on the teaching period of Semester 1 2016 (February 29 – June 27). This is when Talis was rolled out for all courses at once, although there was a pilot programme in Semester 2 of 2015, and during Summer School 2016 participation was optional. Using just data from Semester 1 2016 ensures that data is well-defined and demonstrates adoption rates within a single teaching period.

I conducted interviews with a selection of academic staff from two faculties to explore differing perspectives on the implementation of Talis, as well as liaison library staff (Subject Librarians) associated with each discipline. Information gathered during the quantitative data collection phase was used to inform the line of questioning, as well as triangulate the information gathered.

5.1 Population and Sample

5.1.1 Quantitative data.

I gathered quantitative data from two sources:

- Data from UoA's VLE, Canvas, giving a 'snapshot' of the Canvas modules created for courses taught in Semester 1 2016.
- Reports from Talis on the lists created for the Semester 1 teaching period, including information about faculty associations, creation date, list length and resource types.

These two data sources offer the best opportunities for understanding Talis uptake at UoA, but the information provided in the Canvas snapshot needs to be taken with caution – this is discussed more in 5.3 Limitations (p.22).

5.1.2 Qualitative data.

I conducted seven semi-structured interviews with a selection of academic staff and subject librarians, from two faculties. Semi-structured interviews facilitated the development of subtle understandings about the case (Mabry, 2008, p. 218).

In the interest of completing this research within the time frame specified, and with limited resources, only two faculties were approached: the Faculty of Education and Social Work and the Faculty of Engineering. These faculties were chosen because they demonstrated very different implementation rates in uptake of Talis (Rubin & Rubin, 2012).

I used purposive sampling, as random sampling of participants may have failed to yield the most informative data. The selections made in this research were done so based on their likely informativeness and ability to demonstrate the two extremities of Talis uptake at UoA (Flick, 2009). Generating different data through deliberate variety in research samples has been identified as a useful approach in case study research, particularly in small projects (see Lapointe & Rivard, 2007; Mabry, 2008, p. 223).

I collected my qualitative data from a small number of interviewees – two Subject Librarians from each faculty, and an academic staff member for each Subject Librarian, with the exception of the Engineering faculty where I was unable to secure

an interview with a second academic. I relied on the Subject Librarians' selection of academics they believed would be willing to engage in an interview. I am aware that there was a potential for this to result in participants with a pro-adoption bias, but due to time and resource constraints this form of participant selection offered the most convenience.

I hoped to gain a wider perspective by interviewing the library staff as well as teaching staff. I believe that in their role as the liaison between the library and faculty, subject librarians at UoA have valuable insight into the experiences of the faculty staff as well as the expectations and rationale of the library as a whole. Furthermore, they held a central position in the implementation of Talis, as they conducted the training and support.

Henceforth, I will use abbreviations to represent the faculties and the participants, with EdSW representing the Education and Social Work faculty, ENG representing the Engineering faculty, SL representing an interviewed Subject Librarian and Ac representing an interviewed academic staff member. The following table demonstrates how the participants will be referred to:

	Education and Social Work	Engineering
Subject Librarian	EdSW SL1	ENG SL1
	EdSW SL2	ENG SL2
Academic	EdSW Ac1	ENG Ac1
	EdSW Ac2	

Table 1: Interview participants

5.2   Data Collection

5.2.1 Quantitative data from Canvas and Talis.

Data from Canvas was generated and sent to the Libraries and Learning Services Projects Librarian during the rollout phase of Talis in Semester 1 2016. I downloaded the Excel file containing this course information, and used it to cross-reference with the data gathered from Talis reports.

I generated Talis reports in mid-May on all lists created up to that point for 2016. Before cross-referencing this information with the Canvas data, I removed any lists identified as "test" lists; lists not linked to course codes in the Talis hierarchy; and

lists with obvious references to other teaching periods (e.g. Summer School or Semester Two).

5.2.2 Interviews.

I developed an interview protocol, and modified this as interviews were conducted to ensure my line of questioning was effective. This is included in Appendix A: Interview Questions (p.49).

My main questions were informed by my literature review and by information raised during the quantitative data analysis phase.

I first asked participants to describe how they first heard about Talis, or when they first started using it. This is in line with the advice of Rubin and Rubin (2012) to use "tour questions" to begin an interview.

I used the theoretical model described by H.-W. Kim and Kankanhalli (2009) about information systems resistance to guide my questions about what participants initially thought of Talis, how useful they considered it, and their thoughts on the workload and time requirements of using the system.

Differences in the way disciplines construct knowledge, define research scope, and assess information sources were discussed by Disciplinary differences were also used by in generating the ADUTAUT model which views discipline as a non-technological factor that affects IT acceptance.

I used the conceptualisations of disciplinary differences generated by Grafstein (2002) and Orji (2010) to guide my questions about the types of resources used in teaching, and to ask to what extent Talis supports the disciplines being examined.

The Technology Acceptance Model (TAM) described by Y.-M. Kim (2010) features the added variable of computer self-efficacy that differs by discipline, and I was interested in examining whether this theory had much bearing on this case. I used this model to guide my questions about the technical abilities of staff, and whether they considered technology to be a significant factor or barrier to the uptake of Talis.

I used the multi-tiered model of technology resistance described by Lapointe and Rivard (2007) to ask questions aimed at eliciting information about group resistance to Talis, and about the general 'mood' among colleagues within a department.

5.3   Limitations

There were a number of limitations to the research design and methodology described.

Proximity and externality: I have a high degree of proximity and a low degree of externality to this case. I am currently employed by UoA as a Reading List Coordinator, and was closely involved in the library side of the implementation of Talis at UoA. However, my lived experiences with this case have assisted in my interpretation of (particularly the qualitative) data, as I was less likely to misinterpret jargon or terminology.

Reliability and Validity: This is a key concern expressed in literature on case study research, but has been increased primarily through data triangulation. Unavoidable biases in qualitative research can be partially overcome by data triangulation and an acknowledgement that the participants selected are not representative of a larger population (Thomas, 2016; Yin, 2015). However, caution needs to be taken with the statistics I generated in the quantitative phase, and these statistics are only intended to be indicative.

The data generated from Canvas listed every course with a module created for 2016, differentiated by semester. However, this list may have included modules created for courses that were cancelled, or may not have ever had content uploaded into them (e.g. taught Masters or practicums). I chose to use this Canvas data, as although the enrolments office could have provided a complete list of all possible courses taught in 2016, this would have included courses such as overseas language exchange credits and 'Special Topic' holding codes for courses not taught regularly. The list provided by Canvas at least eliminates many of these 'content-less' courses, but is still not perfect. I have aimed to report on only those courses where there is a reasonable expectation that content would be given to students.

The reports generated from Talis were limited by only having one 'time period' available for Talis users to select, so there is a chance that lists created for Summer School were counted. Without the more granular time periods that have since been implemented, these lists were difficult to exclude unless the list creator had added "Summer School" to the list title or description. However, this was only a concern for courses taught in both Summer School and Semester 1.

Additionally, variations in the application of course codes by Talis users may have skewed the results – a small percentage of lists had multiple course codes, and some course codes were attached to multiple lists. Lists not linked to a course code were excluded from my results. Some lists may only have had one or two items, and were intended as test lists but never marked as such – these lists might never have been linked in Canvas. Academics were for the most part encouraged to use 'real' courses and content in learning to use Talis.

Sample size and selection of interview participants: Random participant selection was not possible given my time and resource constraints, so there was potentially a selection bias in the academics that Subject Librarian participants recommended.

Generalisability: This is a small case study, and is therefore limited in its generalisability.

5.4   Ethical Considerations

Permission was granted by UoA to use data about Talis and Canvas, and to interview UoA staff. This permission letter was presented as part of my human ethics submission, and this submission was approved by the School of Information Management's Human Ethics Committee.

I have anonymised the interview data collected, although information about subject area could not be removed as it was central to my enquiry. The faculties I have interviewed have many academic staff, so I don't anticipate academic participant identities would be easily deduced, but there are fewer numbers of Subject Librarians per faculty. The interviews conducted were recorded and transcribed, and these items will be retained for two years before being securely destroyed.

5.5   Data Analysis

5.5.1 Quantitative.

The data generated from Canvas included the course code, name and teaching semester, and I used the course codes to cross-reference this information with the data generated from Talis reports.

The first report from Talis called an "All Lists" report gave me a range of information including course codes, list names, published status, and number of items for each

list. I generated a second Talis report called a "Hierarchy Snapshot", which lists course codes and the departments and faculties they belong to.

Analysis of these sources allowed me to generate the following information:

- The number of lists per faculty, as well as their length and resource type distribution.
- The percentage of courses with live reading lists in each faculty to demonstrate the rate of engagement.

5.5.2 Qualitative.

I followed an analysis approach described by Miles and Huberman (1994) where I used ethnographic methods and analysis that tended towards the descriptive, with an emphasis on looking for patterns across multiple data sources (p. 8). I reviewed the interview transcripts, and identified key themes, which I then used to organise and code the data. I used thematic analysis to explore the data gathered, which involved "the identification of emerging patterns and categories from iterative reviews of the dataset" (Mabry, 2008, p. 218).

My analysis was also informed by the quantitative data gathered. Triangulating evidence from multiple sources is identified by Yin (2012) as a key element in data collection in case study research (p. 13). In exploring possible visualisations of my data, I used some response matrices of interview transcripts, as suggested by Miles and Huberman (1994), who believe this is a particularly valuable approach in small studies with a limited number of data sources.

I used NVivo as the main tool in coding my interview data, as it supports this task well. NVivo also supports a range of reporting and querying functions which enabled me to better visualise the themes as they emerged. This was an inductive approach, appropriate due to the exploratory nature of this enquiry. I was not testing theory, although my line of questioning was partially informed by the theory discussed in my literature review.

6. Results and Discussion

My results and discussion are split into two main sections reflecting the two main data types – quantitative and qualitative.

6.1 Quantitative Results

The descriptive statistics I have generated demonstrate clear trends. I have presented my results in the forms of graphs, as these best illustrate the information.

I have presented three data visualisations:

- Number of courses with reading lists
- Percentage of courses with reading lists
- Average number of resources per list

6.1.1 Number of courses with reading lists.

Figure 1 and Figure 2 demonstrate that EdSW had the highest percentage of courses with published reading lists with 77%, and ENG had the lowest with 34%.

Number of Courses with Published Reading Lists in Semester 1, 2016

■ Number of courses with a reading list ■ Number of courses without a reading list

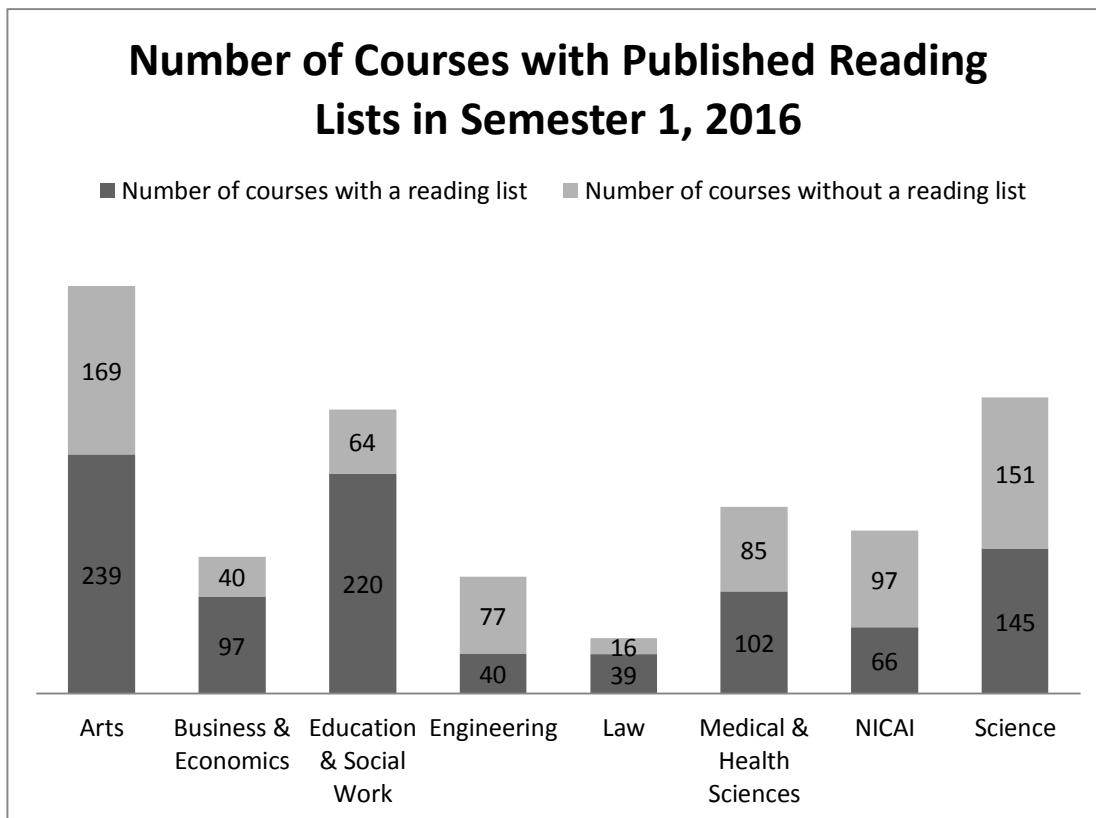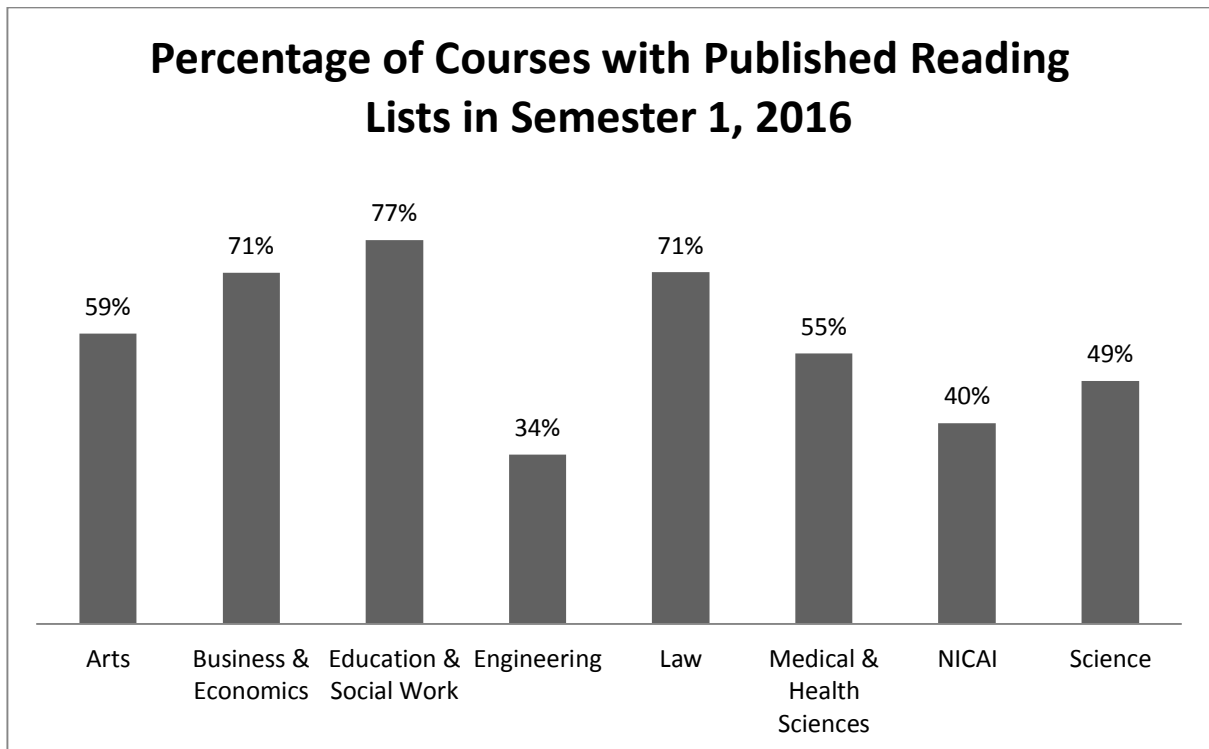| Faculty	With a reading list	Without a reading list
Arts	239	169
Business & Economics	97	40
Education & Social Work	220	64
Engineering	40	77
Law	39	16
Medical & Health Sciences	102	85
NICAI	66	97
Science	145	151

Figure 1: Number of courses with published reading lists in Semester 1, 2016.

Percentage of Courses with Published Reading Lists in Semester 1, 2016

Arts	59%
Business & Economics	71%
Education & Social Work	77%
Engineering	34%
Law	71%
Medical & Health Sciences	55%
NICAI	40%
Science	49%

Figure 2: Percentage of courses with published reading lists in Semester 1, 2016.

These graphs raise the following questions:

- Why are there differences in uptake?
    - Are these differences due to variances inherent in the disciplines, or variations in the training approaches?

My interview questions were informed by these queries and I was interested in finding out why there was such a difference. I intended to achieve this through asking interviewees to what extent an RLMS was relevant to their discipline.

The different levels of uptake demonstrated in this data suggest reasons related to discipline or faculty approach were likely to have impacted on the uptake of Talis. The results support the view demonstrated in the literature that there are inherent differences between academic disciplines that may have a direct impact on resource use or engagement with technology, and a one-size-fits-all approach to IT implementation may not work (see Alcock & Rose, 2016; Cameron & Siddall, 2015).

6.1.2 Average number of items on lists.

The data reveals a dramatic spread of average number of items on reading lists, with ENG with the lowest amount (2.68) and Law with the highest (57.84). EdSW is third-highest with 19.11.
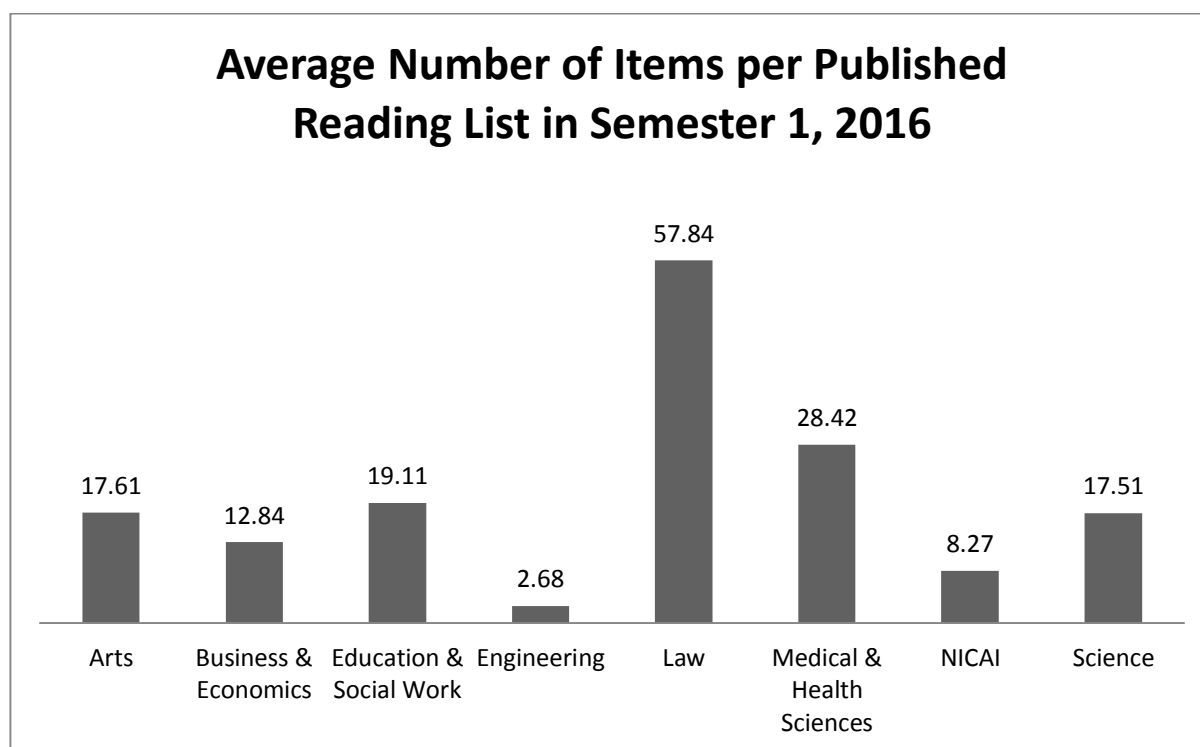

Figure 3: Average number of items per published reading list in Semester 1, 2016.

This data suggests that there are disciplinary differences underlying these numbers, as the content of reading lists is not dictated by faculty administration, but is set by the reading list creators, academic staff.

This graph raises the following questions:

- Why does Engineering have such short lists? Is this related to discipline, or does it simply reflect low uptake?
- Why does Law have such long lists?

Although there was not scope for me to explore the Faculty of Law's use of Talis, this would be an interesting area to explore in the future.

6.2 Qualitative Results

A wide range of topics were covered in the semi-structured interviews that I conducted, but for the purposes of attempting to answer my research questions I will

focus on the three key themes that emerged as significant factors in the uptake of Talis at UoA:

- Individual resistance
- Organisational approach
- Disciplinary need

6.2.1 Individual resistance.

This theme emerged from a range of questions about participants' initial perceptions of Talis, its technical interface, workload and time concerns, and the mood of academics within the faculty. I was particularly interested in exploring the model of group resistance described by Lapointe and Rivard (2007), which uses the Political Variant of Interaction Theory (PVIT) to describe this.

Across the interview participants, resistance to adopting Talis was almost always couched in the idea of the individual being either overwhelmed by workload and commitments, or underwhelmed by the prospect of changing to a new system. I identified two key subthemes:

- Workload and simultaneous Canvas rollout
- Resistance to change

Workload and simultaneous Canvas rollout.

Workload, in particular the simultaneous Canvas rollout, was a core concern for the Subject Librarians I interviewed, irrespective of their faculty association. All Subject Librarians reported that academics were under a lot of pressure in terms of workload commitments, and reported that academics were "overloaded" (EdSW SL2) with the "burden" (ENG SL1) of learning two systems at once. However, the academics I interviewed expressed much less concern about the work involved in using Talis. EdSW Ac2 said that "it doesn't mean anything different really for me in terms of extra workload, because as I said I would go through my list [every semester]." The likely reason for these differences in opinion is that Subject Librarians saw a wide variety of academics and skills, particularly at the early stages of implementation when new users were still coming to terms with Talis. Furthermore, my sample size was very small, but it would be valuable to conduct similar interviews with academics who had chosen not to use Talis.

Workload pressures affect individuals differently, and EdSW Ac1 noted that "some people got very stressed out about Talis. And I don't know if it was… I don't know why actually. Because I was determined that that wasn't going to happen."

Both EdSW and ENG faculties took combined approaches to training academic staff in using Canvas and Talis. Subject Librarian interviewees expressed mixed feelings about this, seeing it both as an added stressor for academics, but also an opportunity to engage academics in two new systems all at once, rather than having several new system rollouts within one calendar year.

Some coping techniques were mentioned by Subject Librarians, including use of PhD students or research assistants to create Talis reading lists on behalf of lecturers. The academics I spoke to were fairly dismissive of this approach, as they generally did not feel that the workload associated with using Talis was unmanageable. ENG Ac1 asked "why would you want to put that on a PhD student?"

Resistance to change.
Participants identified resistance to change as a factor related to the individual. EdSW Ac1 accurately summed up this concept - "I think people are people, and they're gonna be resistant no matter what support systems they have available to them".

Participants' conceptualisations of resistance to change did not hinge on demographics like age, discipline or technological ability. ENG SL1 said that "some of the older academics were a little bit more resistant, but I think that's just because they're resistant to change, more than anything electronic. That's how it is."

I found it surprising that technology self-efficacy was not a key concern in academic uptake, as that is a factor highlighted in the literature on technology acceptance (see H.-W. Kim & Kankanhalli, 2009; Y.-M. Kim, 2010). Subject Librarians did say they encountered a wide range of abilities, and EdSW SL1 believed that one-to-one training sessions were better as they allowed more flexibility to meet the specific technical needs of the academic. Although age was mentioned as a possible factor in resisting change, EdSW Ac2 reported that "One of the things I think about being here a long time is that you understand that things change often."

Relevance to research questions.

Individual resistance was a significant theme in the interviews, and goes some way to answering my first research sub question:

How do the views of academic staff and Subject Librarians about academic engagement in the implementation of an RLMS differ between academic disciplines?

In terms of workload concerns and personal resistance to using Talis, these were concerns evident across the two faculties. Participants' views did not differ by discipline in this area. This theme demonstrated that resistance to an RLMS implementation can be tied to the individual and how they feel affected by external pressures which are not necessarily the result of disciplinary differences.

I did not find evidence to support the model of group resistance described in the multi-level framework proposed by Lapointe and Rivard (2007). The PVIT model describes a process of group resistance within an organisation that is focussed on taking organised 'political' action (p. 90). However, more in-depth interviews with a larger sample would provide more definitive answers. The only report of group resistance to Talis was from ENG SL1, who said that during training sessions groups of academics would commiserate with one another. ENG SL1 went on to say that "I don't think we got open hostility, but we did get barrages sometimes of questions – why, why now, and why at all!"

The Technology Acceptance Model (TAM) proposed by Y.-M. Kim (2010) purports that computer self-efficacy has an impact on the relationship between academic staff and liaison librarians within a university setting. I did not find support for this model in the interviews I conducted. Subject Librarians reported a wide array of technical abilities, and did not believe there was necessarily a correlation between academics with low computer self-efficacy and repeated sessions with Subject Librarians, a central aspect of Kim's argument. The academic participants did not report difficulties with the technical interface, and found that for the most part the guides and handouts produced by the Library were sufficient for troubleshooting issues. Further research would need to be conducted to best assess this variation on TAM in a RLMS setting. It is worth noting that Talis is not overly technical software to learn, and has a fairly user-friendly interface. None of the participants reported issues with

Talis functionality, apart from the installation of a browser applet, the "bookmarklet", used for adding resources to lists (Talis Support, 2016).

6.2.2 Organisational approach.

This theme emerged from questions about Talis rollout, and particularly about how participants found the training and support and what aspects they considered successful or unsuccessful.

Two subthemes were evident in my analysis:

- Timing and time limitations
- Honesty in training

Timing and time limitations.

EdSW SL2 reported that the EdSW faculty's approach was "military" in its organisation, where academics were "trapped" by a training schedule that required attendance at Talis training before Canvas training could be undertaken. EdSW SL2 felt that although this approach was effective, the momentum couldn't possibly be maintained, and reported that

> there's a little bit of fraying around the edges. And I think it's highly unlikely we're going to have an opportunity to really... that was a once-off, that logistical thing; I can't see that happening again.

EdSW SL1 had some reservations about the faculty's approach, and thought that perhaps training was carried out too early for many academics, as training sessions were run as early as October 2015. Conversely, EdSW Ac1 was in favour of long lead-in times, and preferred to start using both Talis and Canvas as early as possible. Long group sessions were another concern of EdSW SL1, who believed that one-on-one sessions were more effective overall as they were tailored to the needs of the academic.

Subject Librarians from ENG talked about poor academic attendance at the training sessions they conducted, and ENG SL1 noted that

> some people said you could do [Talis] in 8 minutes, and we did sometimes teach Talis in 8 minutes, but normally we were given something like 20 minutes or half an hour – at the end of the Canvas session.

ENG Ac1 described the Talis training as a "rushed" and hands-off approach where academics were sent away with a handout to follow. However, this academic did mention they were part of the first round of training, a kind of pilot, so this approach may have changed over time.

Another concern of the ENG Subject Librarians was the timing of both Talis and Canvas implementation – ENG SL2 felt that these two systems should have been rolled out separately, and said that "next time if we have any new system or new software to roll out, we have to think about the timing very carefully."

Subject Librarians in general had more to say about the limitations of the training offered, but this is not surprising given that they were involved in creating and delivering training sessions, and saw across the spectrum of academics how the training was received.

In the research conducted by H.-W. Kim and Kankanhalli (2009) on pre-implementation user resistance to information systems, the authors found that resistance could be mitigated through actions taken before a new system is implemented, in particular around communicating the necessity of the system, and by providing adequate training and time. The time limitations of the training offered to ENG academics may have had an impact on the uptake of Talis within the ENG faculty, as the communication ahead of implementation may not have been sufficient to adequately mitigate user resistance.

Honesty in training.

This was an unexpected theme. Each faculty communicated the compulsory nature of Talis in a different way with different emphases. Both academic and Subject Librarian participants described the value of transparent and honest communication with academics but many of them thought this wasn't fully achieved in one way or another.

The "military" operation described by EdSW SL2 was questioned by EdSW Ac1, who attended a meeting after the initial Talis rollout where they felt it was revealed that Talis use was not necessarily compulsory, and reported that

> I *did* have a negative reaction when I found out we may have had a choice, but it wasn't put to us. Because it comes on the back of many, many other

things that happen where the ability to choose is taken away from you, and you just kind of think this is... you know bugger. Bugger you, again.

EdSW Ac1's very emotive response speaks to a desire to have a sense of agency in how time and resources are used. Was the "military" approach dishonest? EdSW SLs did openly and directly tell academics that the CLNZ licensing situation was the driving force behind the implementation of the system, although when EdSW SL2 used the term "trapped" to describe the training approach, it's not hard to see how the academic I spoke with felt misled. EdSW SL2 noted that the library was

in a very fortunate position because we weren't driving [the Talis implementation] really. It was actually the Faculty driving it, saying we have to do this. I mean, we could say things about copyright, you know, "everyone has to do this, it's just the way it is," but we weren't… we didn't have to really sell it. It wasn't optional.

Comparatively, the ENG faculty also communicated to academic staff that Talis was not optional, but the degree of resistance and number of academics who chose not to use Talis seemed to be much higher than in EdSW. ENG SL1 talked about honesty in regards to discussing copyright as the driving force behind UoA's Talis implementation:

Right from the start I would have given them the truth – and said "look, the reason why is the University has actually got into a bit of copyright bother, and was facing possible legal issues." It was alluded to, but that wasn't the big prime mover.

Each of the two faculties I have examined had very different CLNZ license compliance challenges in the implementation of an RLMS. EdSW are very high users of material copied under the CLNZ license, and this was no doubt a factor in the faculty's decision to take a strong top-down approach to compliance. For the faculty to have the best possible shot at avoiding non-compliance with the CLNZ license, they needed to ensure all academics attended training and understood the intentions behind implementing Talis.

Conversely, ENG have traditionally been very low users of material copied under the CLNZ license, and of library resources in general for 1st and 2nd year courses. UoA

decided not to pursue copyright compliance with course books and PowerPoint slides until a later date, and as a result the copyright compliance pressures on ENG were greatly reduced.

ENG Ac1 expressed confusion about how to manage the copyright compliance of course books, power points and lecture notes, which are relied on more heavily in the hard sciences such as Engineering, and which do not fit easily into the software capabilities of Talis.[4] ENG Ac1 felt there was a gap in the information about copyright compliance for these types of materials, and it was one of the first points they raised during the interview.

According to research into library-faculty collaboration conducted by Chu (1997), sometimes people within an organisation do not cooperate due to a lack of awareness about the needs or intentions of the other party. This view is highly relevant to the implementation of Talis, where if academic staff are unaware of UoA's intentions in implementing the RLMS, they are unlikely to appreciate its importance. EdSW Ac1 said that there will always be pressure when a new system is implemented because the people pushing for the changes don't fully understand the pressures already on other staff. This reinforces Chu's view that participants in a collaboration have limited understanding of constraints faced by other participants. Chu (1997) demonstrated that communication was the essential element for assuring a solid foundation for collaboration within an organisation (p. 18). These insights can help in understanding how communication can function in a lateral relationship between two parts of the university.

Relevance to research questions.

These responses go some way to answering my second sub question:

How do the different approaches taken by faculties and subject librarians affect implementation and the resource lists created?

The uptake statistics I generated earlier could have been affected by these different approaches to training.

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[4] These course books are written by teaching staff and self-published by the departments, then sold for approximately $15 either from the department office, or from the campus bookshop. They are usually thick spiral-bound A4 booklets containing notes, diagrams and practice assessments, and will usually cover the majority of a course's content.

EdSW had a very effective approach in terms of the percentage of courses with lists for Semester 1, at 77%. Without the training approach used, it is unlikely that EdSW would have had such high uptake – EdSW SL2 reported that "I don't think there was anything we could have done to have captured more people." Copyright was presented as one of the driving factors behind Talis implementation, an honest portrayal of the University's overall intentions for Talis. EdSW made Talis use compulsory, and ensured it was fairly difficult to avoid - academics were ticked off attendance lists, and only then could they progress to Canvas training. However, academics who felt "trapped" by the approach may have been resistant to using the system.

In contrast, uptake of Talis and resulting list length was much lower in ENG, at 34% and 2.68 respectively. The training sessions for ENG did not state up front the central role of copyright compliance in the implementation of Talis, but focussed on selling the benefits of the system to academics. Furthermore, UoA's decision not to pursue copyright compliance for all course books at that time added to the uncertainty for academics who were used to using course books and lecture notes, as they felt unsure about how they should be using Talis.

The differences in training approach were unlikely to account for all the differences in uptake evident in the statistics, but may have contributed to the overall trends. Orji (2010) argued that different methods are required for engaging different disciplines in an information system implementation, and my findings support this view that the training and support approach taken by an organisation can benefit from a focus on the particular disciplinary needs within a faculty.

The ADUTAUT model proposed by Orji (2010) is an interesting starting point in examining what affects the use of an RLMS, but I believe that discipline is a much more important factor for RLMS use than presented in this model, which would be better suited to assessing non-discipline-specific information technology, where discipline is only one factor of many that affect a user's intentions and behaviour.

6.2.3 Disciplinary need.

Disciplinary need did not have any clear subthemes, but was a significant overarching theme in its own right. I have discussed disciplinary need in terms of

academic enculturation, and view this theme in light of my quantitative data as I feel they complement and help to explain this theme.

Responses to key interview questions.

Two main questions were asked of all participants to get a sense of the types of materials used in each faculty, and the degree to which the participants believed an RLMS was useful or suitable for their discipline.

Describe the types of teaching materials used in this faculty. What sorts of resources are students required to use or read?

EdSW respondents described reading materials from a "wide range" of sources, and noted a great deal of variety in the resources used across the departments within EdSW. EdSW SL1 noted that "we get a sense that in Education there's quite a few chapters", and EdSW Ac1 listed resources that included electronic and web-based materials about teaching and assessment standards.

ENG participants indicated that very few resources were used overall, and ENG SL1 reported that Engineers "don't traditionally have large reading lists that they compile for their students", and would typically only refer to one or two textbooks. All interview participants referred to the use of course books in 1st and 2nd year Engineering courses. Throughout an undergraduate Engineering degree the resource needs of students change significantly. ENG Ac1 described "spoon-feeding" students with resources but gradually pulling away, and by 3rd and 4th year the students work independently on their own research topics.

Do you think a reading list system like Talis supports this discipline?

EdSW participants did not hesitate before responding positively to this question, and they had little doubt that Talis supports the teaching and resource needs of the EdSW faculty. Talis was viewed as almost unquestionably useful, and when pressed, EdSW Ac1 did not believe there was anything about Talis that could be changed to make it more relevant for EdSW.

According to EdSW SL2, the EdSW faculty dropped all other forms of reading material provision (including printed course books) in favour of using Talis. This reveals a clear confidence that an RLMS such as Talis is well suited to this

discipline. EdSW SL2 did believe that copyright presents more of a barrier to the proper use of an RLMS rather than Talis itself, as understandings about UoA's rights and restrictions under the CLNZ license are not fully devolved to all academic staff.

ENG respondents were much less sure, and doubted the usefulness of an RLMS on the basis that ENG courses do not require setting many readings for students. ENG Ac1 reported that Talis is "not that applicable to me because we teach courses where all readings are just course books". ENG SL2 reinforced this, and said that "Engineering assignments involve a lot of calculations, not a lot of *writing*", and made a clear link between the types of assessments given to students, and the types of resources they would need to use to complete these assessments.

Textbooks are used within ENG, but according to ENG Ac1 some departments do not actually set a textbook for courses, but recommend students refer to copies in the library if they need information about formulae, properties of materials, or engineering fundamentals. ENG Ac1 went on to say that "the degree structure is kind of rigid. You have to know this stuff before you graduate, and most of this stuff is found in textbooks." The rigid degree structure was touched on by ENG SL1, who noted that IPENZ plays a role in setting the course content, as an Engineering degree is a professional qualification where specific outcomes need to be met.[5] This same SL participant mentioned that only a handful of Engineering academics didn't seem to mind using Talis, and went ahead with it, but that the majority of academics either didn't use the system, or used it very begrudgingly.

Relevance of quantitative data.

The statistics generated during the quantitative phase of this research demonstrated clear trends across the two faculties. EdSW had the highest uptake of Talis at 77%, and an average list length of 19.11, the third highest from the faculties. These numbers support the assertions made by interview participants that Talis is a useful tool for the EdSW discipline. EdSW Ac1 noted that it's hard to get students to read, and advocated for reading lists that weren't overly long, which perhaps reveals a disciplinary pedagogical gap in the setting of readings, compared to the Law faculty where their lists had an average of 57.84 items. I didn't have the scope to explore

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[5] IPENZ is the Institution of Professional Engineers New Zealand. They are New Zealand's professional body for Engineers, and the four-year Engineering degree offered by the University of Auckland is listed as an IPENZ-accredited course, due for review in 2021(IPENZ, 2015).

more faculties in this research, but I believe there are some interesting insights hidden within the statistics I have generated.

These statistics also reveal that ENG had the lowest uptake of Talis across the different faculties at 34%, and that their lists tended to be very short with an average of 2.68 items per list. These numbers reflect the information reported in interviews regarding the types and number of resources used for teaching. Very little reading is required of students during their 1st and 2nd years, beyond the content provided through course books and lecture notes, and in the 3rd and 4th year most reading or research is self-directed.

Academic enculturation.

Academic enculturation generates certain world views and draws disciplinary lines between understandings of evidence and meaning in research (see Anderson, 2009; Grafstein, 2002; Krishnan, 2009). It is expressed through conceptual understandings, publishing trends, and degree and assessment structure.

Publishing trends.

EdSW SL2 reported that "there are a lot of book chapters on reading lists here; it's just one of the main ways that Education and Social Work publish." This view is reflected in the resources found on EdSW reading lists in Talis. Assessments usually involve writing with reference to previous written information sources, very much within the humanities and social sciences traditions.

As high users of books and sections of books, the EdSW faculty have been significant users of the digitisation system included in the UoA's instance of Talis, where academics can request sections be digitised and embedded within their Talis lists. These digitisations are reported to CLNZ as part of the license agreement.

Within the ENG discipline, articles and conference papers are the main publication styles for reporting on research, with textbooks published to support teaching. 1st and 2nd year students are directed to use lecturer-written course books along with textbooks covering fundamentals, and for 3rd and 4th year or postgraduate students, their information needs include a lot of "journal article stuff because we teach out students if you want up to date information you don't look at books, you look at journal articles and conference papers" (ENG SL1).

This disciplinary emphasis on currency is reflected in research conducted by Maurer and Shakeri (2016) on Library of Congress Subject Headings (LCSH), who found that STEM subjects were poorly represented in the subject headings, largely due to the differences in publication styles across disciplines. The researchers found that LCSH were suited to Humanities disciplines as they favoured a monograph-centric approach. STEM subjects tend to publish mostly in journal articles, but LCSHs can only be generated once multiple *monographs* have been published on a topic. This research demonstrates clear differences in research output trends between disciplines, and indicates that a one-size-fits-all approach to resource provision will not work.

According to Biglan (1973), academic enculturation reveals itself in the way that different disciplines publish their research, and he argued that soft sciences preferred longer publishing formats (like monographs) in order to better argue for their conceptual paradigms, a measure he thinks is unnecessary in the hard sciences where he saw an acceptance of clear paradigms that allow for more abbreviated publishing styles such as journal articles. Biglan's argument doesn't allow for the factor of currency in publication, as discussed by Maurer and Shakeri (2016) in regards to LCSH and disciplinary publishing trends, but he does demonstrate conceptual differences between disciplines.

Degree and assessment structure.

In a study looking at library guides embedded within VLEs, Murphy and Black (2013) found that high-use guides were usually linked to courses with significant research or written assessments. They demonstrated a clear link between assessment style and library engagement. This research is supported by my findings, where EdSW participants reported that student assessments are usually in the form of written work, but can also be structured as practicums or the production of practical learning materials. EdSW students often attend targeted library sessions for their courses, where the Subject Librarian will discuss resource search and use, and often focus on supporting a particular assessment. This is usually a feature of 1st year courses, and is a part of the academic enculturation into the EdSW discipline.

ENG participants reported that most undergraduate assessments are calculation based, with an independent research topic conducted in 4th year where students are

expected to read independently on a topic that is not proscribed to a whole cohort. These trends demonstrate that a reading list which is usually set for a whole class or cohort of students would not be suitable. ENG Ac1 did suggest that perhaps Masters level courses would proscribe articles for the purposes of critique by students, an exercise which could be supported through using an RLMS to direct students to these articles.

Alcock and Rose (2016) compared the syllabi of undergraduate history and chemistry courses in order to examine how information literacy is woven into these courses, and they noted that the information needs of students varied at different points in their programmes. Their research supports my findings, particularly regarding the ENG faculty where student use of library resources changes significantly throughout the undergraduate degree. The resources on a reading list will never be agnostic, as they are tailored to the needs of each course that a list is created for, and exist as part of a process of academic enculturation where students learn to review and use information sources in line with the paradigms of their discipline.

Alcock and Rose (2016) found that in their research, low rates of library information skills sessions did not necessarily mean that information literacy teaching was any less successful. They argued that within each department students were being taught information literacy skills particular to their disciplinary needs. This insight is relevant to my exploration of Talis uptake at UoA, as I believe the information I have gathered demonstrates that disciplinary need for resources is the primary factor in use of an RLMS. Low use of the system does not necessarily indicate that the implementation has failed, or that students are not receiving the information they need to complete their courses. Rather, I believe that this research demonstrates that curriculum needs are one of the driving factors behind RLMS use, and a one-size-fits-all approach is inappropriate. Using markers of success from other disciplines to measure uptake across the University risks alienating disciplines that do not use many external resources in teaching, and does them a disservice by suggesting they are not complying with best practice. Previous research has demonstrated the need to tailor resource and library approaches to discipline and teaching level in order to see the best results (see Alcock & Rose, 2016; Linton et al., 2012; Siddall, 2016).
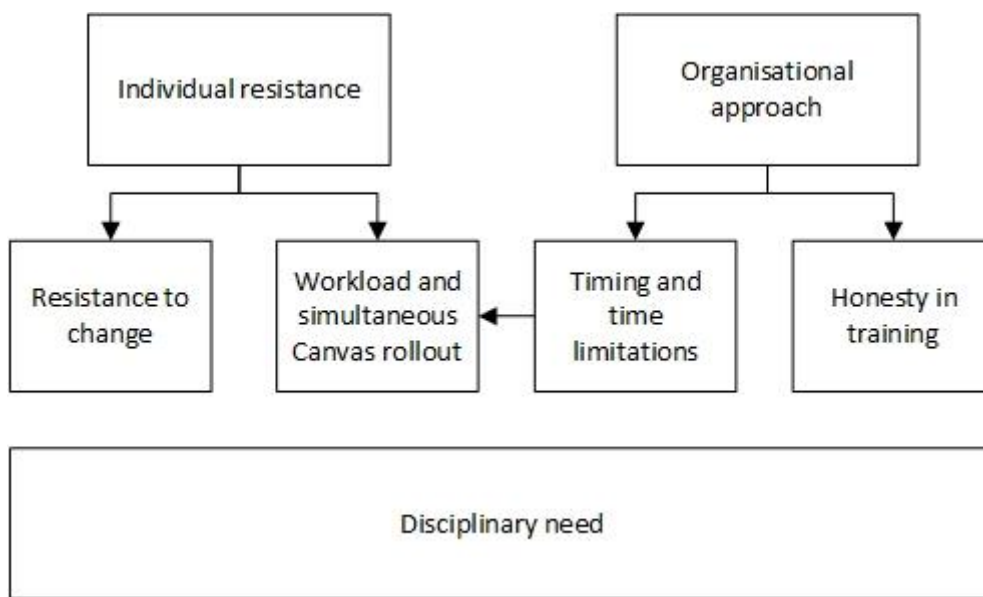
Relevance to research questions.

The data reveals that disciplinary need is the most important factor for answering my main research question:

Why are there differences between academic disciplines in the uptake of an RLMS?

The main reason for differences in uptake between disciplines is the very nature of those disciplines and the impact they have on resource use in teaching. The core function of a RLMS, to direct students to resources they need in order to fulfil their course requirements, means that the usefulness of a RLMS cannot be separated from the discipline for which it is employed. The literature I have referred to reinforces this connection between assessment and resource use, and a RLMS sits at the heart of that exchange. The following diagram illustrates the themes and subthemes I have discussed in the preceding sections:

```
┌─────────────────────┐                    ┌─────────────────────┐
│ Individual resistance│                    │   Organisational    │
│                     │                    │     approach        │
└─────────────────────┘                    └─────────────────────┘
    ┌──────┴──────┐                           ┌──────┴──────┐
    ▼             ▼                           ▼             ▼
┌─────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐
│Resistance│  │Workload and│◄─│Timing and│  │Honesty in│
│to change │  │simultaneous│  │  time    │  │training  │
│          │  │Canvas rollout│ │limitations│ │          │
└─────────┘  └──────────┘  └──────────┘  └──────────┘

┌──────────────────────────────────────────────────┐
│                Disciplinary need                  │
└──────────────────────────────────────────────────┘
```

Figure 4: Themes and subthemes

I found that resistance to change and workload concerns did not have a direct impact on the differences between EdSW and ENG use of Talis. This supports my assertion that discipline and to a lesser extent organisational approach had the most impact on Talis use for these two faculties.

Organisational approach within each faculty had an impact on not only the lists created and the rate of uptake, but also affected concerns about workload due to the

added pressure of a simultaneous Canvas rollout. However, disciplinary need provided the foundation for understanding the usefulness of a RLMS for the two disciplines I examined. Disciplinary need did not have any clear subthemes, but was a predominant concept in this exploratory study.

7. Conclusions and Implications

As this research was only intended to be exploratory in nature and only had a small sample size, it is not possible to make generalisations beyond the University of Auckland. However, I believe this research offers some insight into how academic engagement with RLMS implementations can be best understood, and adds to understandings of why there are observable differences in RLMS use between disciplines.

The quantitative data that I generated showed clear trends in uptake and list length between the different faculties at UoA. Through the interviews I conducted I found that these differences were underpinned by a number of factors. I did not find evidence that personal workloads had widely affected the rate of uptake within EdSW and ENG faculties to an extent which would explain these differences.

The training approaches taken by the two faculties had some impact on the lists created, particularly in regards to the time given to training, and the communication around the intentions of the University in implementing Talis. The importance of transparency in this communication was an unexpected but important theme.

I found that the disciplinary need for reading lists was the main reason for differences in uptake and use of Talis within the two faculties I examined. The process of academic enculturation and the differences in academic publishing and resource use between EdSW and ENG underpinned different views on the usefulness of Talis. ENG did not see a significant pedagogical need for reading lists, whereas EdSW had a long-standing tradition of using many resources in their courses.

This research adds to the body of knowledge around RLMS implementation projects, and supports an evidence-based approach to library practice. This research makes a small contribution to understandings of RLMS implementations and why there are observable differences in uptake across the disciplines within a higher education

institution. I hope that this might assist other universities in their approaches to implementing a RLMS.

7.1   Suggestions for Future Research

The statistics I generated in the first phase of this research demonstrated a range of uptakes and list lengths across the different faculties at the University of Auckland. There is scope to conduct a wider study looking at a larger variety of disciplines over a longer period of time. Furthermore, this area of research would benefit from more generalizable approaches aimed at testing previous findings such as my own, through the use of research tools such as surveys and focus group interviews.

Another direction for future research on RLMSs would be to explore further the relationships between course structure, syllabi and assessments, and resource list use. I mentioned these relationships briefly in this research but there is scope to explore this further, with reference to the similar research conducted by Alcock and Rose (2016) which was focussed on exploring library instruction for undergraduate students rather than reading list use.

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9. Appendices

Appendix A: Interview Questions

Subject Librarians

1. Describe your faculty's approach to Talis.
   a. How were academics informed about the new system?
   b. How did this approach change over the course of Semester 1?
   c. What aspects were successful? What aspects were unsuccessful?
   d. Is there anything you'd do differently, or you have done differently for Semester 2?
2. Do you feel many academics engaged with Talis?
   a. Do you have any thoughts on why this might be?
3. Describe the types of teaching materials used in this faculty. What sorts of resources are students required to use or read?
   a. Do you think a reading list system like Talis supports this discipline?
4. How would you describe your regular interactions and relationships with academics?
5. Describe the computer abilities of the academics you've met from this faculty.
   a. How do you think this faculty's academics found Talis, from a technical perspective?

Academics

1. Do you remember how you first heard about Talis?
   a. What did you initially think of Talis?
   b. How useful did you find Talis?
   c. How did you find the workload or time requirements?
2. Have you spoken with your colleagues about Talis?
   a. How would you describe the general mood within this faculty in regards to Talis?
3. How much/what type of material do students need to read for your subject?
   a. Do you feel reading list software like Talis is well-suited to your subject area?
4. How did you find the technical interface?

a. How did you find the support offered, like Subject Librarians and user guides, or support from colleagues?

5. How would you describe your usual interaction with Subject Librarians – do you see them often?

a. What kind of impact has the introduction of Talis had on your relationship with Subject Librarians?

6. Thinking back on Semester 1 and how the training went, is there anything you think could have been done differently to encourage more academic staff to use the system?

Appendix B: Participant Information Sheet

Participant Information Sheet

Research Project Title: **An exploratory study of academic engagement with Talis Aspire at the University of Auckland**

Researcher: **Rose Beasley, School of Information Management, Victoria University of Wellington**

As part of the completion of my Master of Information Studies degree, this study is designed to explore academic engagement with Talis Aspire, a resource list management system, at the University of Auckland. My research will aim to explore perspectives of academic staff and subject librarians on academic engagement with Talis, with a particular focus on the difference in uptake between two academic faculties.

Resource list management systems are a growing category of software products being deployed in academic libraries globally, yet there is currently very little research which focusses on academic engagement with these products. I hope that through this study, success factors may be identified that can assist universities in their implementation of not only resource list management systems, but also similar cross-institutional software.

Victoria University requires, and has granted, approval from the School of Information Management's Human Ethics Committee for me to conduct this research.

I am inviting a small group of Subject Librarians and academic teaching staff from the University of Auckland to participate in this research. Participants will be asked to take part in a 45-minute interview. Permission will be asked to record the interview, and a transcript of the interview will be sent to participants for checking.

Participation is voluntary, and you will not be identified personally in any written report produced as a result of this research, including possible publication in academic conferences and journals. However, the faculty you are associated with will be identified for the

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purposes of comparing two different academic disciplines. All material collected will be kept confidential, and will be viewed only by myself and my supervisor, Dr Dan Dorner, Senior Lecturer at the School of Information Management. The final research report will be submitted for marking to the School of Information Management, and subsequently deposited in the University Library. Should any participant wish to withdraw from the project, they may do so until the 15th of September 2016, and the data collected up to that point will be destroyed. All data collected from participants will be destroyed within 2 years after the completion of the project.

If you have any questions or would like to receive further information about the project, please contact me at beaslerose@myvuw.ac.nz or telephone (09)923 8342/0221260870, or you may contact my supervisor, Dr Dan Dorner, at dan.dorner@vuw.ac.nz or telephone 04 463-5781.

Kind regards,

Rose Beasley

Appendix C: Interview Participant Consent Form

Participant Consent Form

Research Project Title: **An exploratory study of academic engagement with Talis Aspire at the University of Auckland**

Researcher: **Rose Beasley, School of Information Management, Victoria University of Wellington**

I have been given and have understood an explanation of this research project. I have had an opportunity to ask questions and have them answered to my satisfaction.

I understand that I may withdraw myself (or any information I have provided) from this project, without having to give reasons, by e-mailing beaslerose@myvuw.ac.nz by the 15th of September 2016.

I understand that any information I provide will be kept confidential to the researcher and their supervisor, the published results will not use my name, and that no opinions will be attributed to me in any way that will identify me. However, I am aware that the faculty I am associated with will be identified for the purpose of comparing two different academic disciplines.

I understand that the data I provide will not be used for any other purpose or released to others.

I understand that, if this interview is audio recorded, the recording and transcripts of the interviews will be erased within 2 years after the conclusion of the project. Furthermore, I will have an opportunity to check the transcripts of the interview.

Please indicate (by ticking the boxes below) which of the following apply:

☐   I would like to receive a summary of the results of this research when it is completed.

☐   I agree to this interview being audio recorded.

Signed:

Name of participant:

Date:

Rose Beasley

ID number: 300324763

Word count (excluding appendices): 14, 469