Putting support where the learners are:

A multiple case study

of the practice of embedding librarians

in New Zealand online tertiary classes

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Abstract

The emerging practice of embedding librarians in online tertiary classes creates new opportunities for the delivery of learner support. This research sought to identify how this new form of embedded librarian learner support was practiced in the New Zealand context and what made it effective as a form of learner support. A multiple case study was conducted to investigate this contemporary phenomenon. Six online classes from two New Zealand tertiary education institutions formed the case studies for this research. These classes were observed for a semester, sixty-nine students completed a questionnaire, and interviews were conducted with seventeen students, six faculty, and six embedded librarians across the online classes. In three of the online classrooms, learner support was provided primarily through an interactive discussion forum led by the assigned embedded librarian. In the other three online classrooms, the primary form of learner support was Reusable Learning Objects embedded into the course at strategic points to deliver mini-tutorials of targeted support at the point of need. Results showed that six factors affecting the effectiveness of the embedded librarian learner support were present in all six case study classrooms, namely, relationality, immediacy, relevancy, interactivity, parity, and faculty-librarian collaboration. An Embedded Librarian Support Model, based on the findings of this study, was introduced, conceptualising the key factors of support provided by and involving the embedded librarian. This model, derived from this multiple case study, fills a gap in the literature of embedded library service as a form of learner support and contributes toward a pathway for maximising the effectiveness of embedded librarians in online tertiary classrooms in the New Zealand context.
Publications and Presentations during Enrolment


Fields, A. (2016). *I thought these students wouldn’t need support – and I was wrong!* Paper presented at TELSIG forum, 4-5 July 2016, University of Canterbury, Christchurch.


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Chapter 1: Introduction

This research evaluated a relatively new and growing form of learner support for online learners, of embedding librarians inside online tertiary classrooms to provide course-specific assistance directly to students and in their learning space. Embedded librarians have the opportunity to use this new environment to develop and use both traditional and innovative ways to communicate and interact with students to support their learning. The research was set within the context of New Zealand tertiary education, using a multiple case study approach to research six online classrooms where embedded librarians were delivering this new service. It sought to identify how embedded librarians worked in practice in this new environment and what made this practice effective in providing support. While this research was undertaken at the tertiary level in the New Zealand context, its findings may also inform research and practice at the school levels and beyond New Zealand.

This chapter is set out in three main sections. Firstly, the Background and Statement of the Problem section outlines the context of the research and explains the nature of the problem being investigated. Secondly, The Study section outlines the approach to and conduct of the research, including its purpose, the research questions, the conceptual model, theoretical framework and the significance of the study. Thirdly, The Researcher section outlines the background, interests and position of the researcher as they relate to this study. A short Summary of the Chapter and an Overview of the Thesis conclude this chapter.

Background

A librarian is defined as “a professionally trained person responsible for the care of a library and its contents, including the selection, processing, and organization of materials and the delivery of information, instruction, and loan services to meet the needs of its users” (Reitz, 2014a). More specifically within online education, an embedded librarian is defined as one who meets students at their point of need amid their individual online courses, as they become integral to the online teaching space where student learning happens (Xiao, 2012). Current literature (Crane, 2016; Huwiler, 2015; Kumar & Ochoa, 2012) considers librarian support as a form of learner support being located not just within traditional library services but also strategically placed within online classrooms where interaction is more immediate and can be tailored to individual students’ needs.
The practice of embedding librarians in work and business units is now reasonably established (Shumaker, 2011), but as the practice of using embedded librarians as a form of learner support is an emerging area in online education, little has yet been written about it in this context, and little identification of its effectiveness has been investigated. This study sought to fill part of this knowledge gap. It contributed to the literature available on embedded librarians within the New Zealand context, and provided a multiple case study enabling comparisons to be made between classrooms within an educational institution and also between educational institutions, both of which were not commonly documented in the literature at the time the research was planned and the data was collected. This study also sought to understand how this new form of learner support worked, allowing opportunities specific to the practice of embedding librarians to be more readily and purposefully utilised, and for the effectiveness of this form of learner support to be maximised. As part of a professional doctorate, this research is also of value to the development of my own teaching practice. As an online tertiary educator within an Information and Library Studies programme, I needed to be modelling the use of embedded librarians in my teaching.

**Statement of the Problem**

Academic learner support is adapting to the new environment of online education. Library support, as one aspect of academic learner support, is adapting to this new setting in a variety of ways, including the creation of embedded librarians who provide course-specific support directly to students inside their online classrooms. There are opportunities that may be afforded by this new form of library support, and these need to be identified and effectively implemented and managed.

Often in a new or emerging field such as academic learner support in online learning, by necessity, the practice develops ahead of the theory (Swart, 2010). Practice is not uniformly organised or enacted, and often develops at an institutional level to meet the needs and constraints experienced locally. A review of the literature in this field, as reported more fully in Chapter Two, supports this view: there are a growing number of publications on the topic of embedded librarians but as yet little has been written that explores how this new model works or measures the effectiveness of this new practice, and there is almost nothing on the underlying theory behind this new form of academic learner support. Within New Zealand, little has been written about the development or practice and if or how it differs from embedded librarian support in online tertiary classrooms elsewhere in the world. It has been
reported that the practice of providing an embedded librarian service in some online classrooms in New Zealand may have evolved differently than in tertiary institutions in other countries, and this may have created a slightly different expression of embedded librarian practice at the local level (Fields & Clarke, 2014). No literature has been located which identifies or explores the theory behind this new practice of embedded librarianship in New Zealand.

This led to two areas which both presented a problem in need of solving. The first area was understanding how embedded librarian practice worked within specific online tertiary classrooms so that the effectiveness of this practice could be maximised locally. The second area was developing a model which provided an underlying framework on which the understanding, implementation, adaptation and improvement of embedded librarian practice could be made on a wider scale.

**The Study**

**Purpose**

The purpose of this research was to understand how embedded librarians in tertiary education worked in practice, particularly in the New Zealand setting, and identify how the effectiveness of this new form of learner support could be maximised. Within this key purpose, other research aims were also pursued: to identify and understand the ways in which value in learner support is provided through embedded librarians in online classrooms, to identify and understand ways in which unanticipated value may be occurring, and to identify and understand ways in which relationships work within and beyond the online classroom with the embedded librarian. This research also sought to develop a new theory around the practice of embedded library support in the online classroom, in order to provide a deeper understanding of how this practice can be effectively implemented, developed and managed in a wider context. The findings of this study would contribute to the literature of learner support and enable informed planning and delivery of embedded library support in online tertiary classrooms.
Research Questions

This research addressed two research questions (RQs):

**RQ1: What is the practice of embedding librarians in online tertiary classrooms in the New Zealand context?**

**RQ2: What makes this practice effective in providing support to online classroom participants?**

The first research question was designed to investigate the current practice of embedding librarians in online classrooms in the New Zealand context. This would enable an understanding to be developed of the current practice of embedded librarian support in this particular setting. In investigating the practice of embedding librarians in online tertiary classrooms in the New Zealand context, a range of classrooms were identified and observed so that the practice could be recorded in its natural setting without influence from the researcher. A multi-faceted approach needed to be taken so that the practice can be understood from several different perspectives in order to gain a good overall understanding of the complexities and intricacies of this practice. A multiple case study may also provide a record of the practice as it currently is within the New Zealand context. The primary purpose of this research question is to determine *what* the practice is.

The second research question built on the first by asking what makes this practice effective. This takes the record of practice from the first research question and analyses it to determine which factors are present in the delivery of this form of learner support and which of these contributed towards the success or effectiveness of this practice. This may involve both procedural and more conceptual or theoretical factors that contributed to its effectiveness of this practice in providing learner support. The primary purpose of this research question was to determine *why* the practice was effective.

The match of exploration into the practical aspects of this learner support in RQ1 and exploration into the more conceptual or theoretical factors of this learner support in RQ2 provides a rounded and sound view of this practice. It may also provide the basis for the building of theory relating to the provision of embedded library support in online classrooms.
Conceptual Model

This section seeks to visually conceptualise the place of embedded librarians within online classrooms. As this is an emerging field of research, and conceptual models are not readily available, I have developed a preliminary model illustrating the placing of an embedded librarian inside an online classroom. Figure 1.1 illustrates this placing and is based on my own experience and understanding from over 30 years’ involvement in four New Zealand tertiary educational institutions as student, librarian and faculty.

Figure 1.1 Conceptual model of an online classroom showing embedded librarian support inside the same classroom.

This conceptual model depicts the relationships between the faculty, students, embedded librarian and the library, all within the setting of the educational institution. The embedded librarian is located within the online classroom, and the library exists as a separate entity outside of the classroom but still within the educational institution. The way that academic learner support may be provided is at once apparent, as the embedded librarian is embedded in the context of the classroom which is subject-specific and works directly with students while the educational institution’s library is external to the classroom context and is
more remote and generic in its support. This model formed the basis of my thinking about the embedded librarian at the outset of this study and the research questions outlined previously would provide information to confirm or further refine or develop this model.

Theoretical Perspective

This study fits within the learning theory of constructivism, where students actively engage with their environment to construct knowledge and meaning (Crotty, 1998). More precisely, Piaget (1977) outlined cognitive constructivism as a learning theory emphasizing individual construction of knowledge through experience while Vygotsky (1978) outlined social constructivism as a learning theory emphasizing the shared construction of meaning within a social setting. In the setting of the online learning, students can experience both forms of constructivism, with cognitive constructivism occurring through students’ individual interaction with online course materials and social constructivism occurring through students’ shared interaction with others in the online classroom context (Doolittle & Hicks, 2003; Felix, 2005; Swan, 2005; Woo & Reeves, 2007). As learner support can only be effective when students are able to make sense of the support they receive and relate this to their learning, this research needs to be framed within these learning theories.

Significance

As stated previously, the purpose of this research was to understand how embedded librarians work in practice, particularly in the New Zealand setting, and identify what made this practice effective. This research will add to the literature available on embedded librarians within the New Zealand context and contribute to the literature on embedded librarians worldwide. More generally, it will provide a multiple case study which will enable comparisons to be made both between classrooms within an educational institution and also between educational institutions, both of which are not common in the literature at present. Furthermore, by identifying where practice is effective, it may create a guide for others seeking to improve the effectiveness of their own embedded librarian practice. Building theory based on practice (Eisenhardt, 1989) will help provide this basis for making this form of learner support more effective and to provide more benefits to the students. It is envisaged that building a theory from this study will be of benefit to other tertiary education providers in New Zealand providing or considering providing this form of learner support, and more widely to others around the globe.
The Researcher

The researcher’s background may have a bearing on the choice of research, its conduct and interpretation of results (Hara, 1995; Yin, 2014). As the researcher for this study, I brought a range of personal and professional experiences, prior knowledge and current involvement in the field being examined. I set out here an explanation of my background and my interest in this area of research, as it provides an understanding of the approach and lens through which this research has been conducted. This allows readers to understand the perspective from which this research was undertaken and the importance of this topic in a practical dimension. It also enables me to identify and minimise researcher bias in the study as there is conscious thought regarding my own position, approach to and conduct of the research (Burke, 1997; Mehra, 2002; Miles, Huberman & Saldana, 2014).

My professional experience has spanned over three decades in two related professions. My first career as a librarian spanned more than one and a half decades from the mid-1980s. This involved work at two public libraries, two College of Education libraries and one corporate library, all in New Zealand. Most of this work was within the library context but there was a degree of embeddedness, particularly in the corporate library, working within a team comprising IT, finance, records and research. My professional experience in my second career as an academic has also spanned more than one and a half decades, as a lecturer in Information and Library Studies teaching at the Bachelor’s degree level in New Zealand since 2000. As this is with a solely distance education provider, I have spent this time working with a variety of distance teaching methods including print and online, delivered with print, phone and online support. During this time the shift from print to online preference for delivery has taken place, with a corresponding shift in student support. In recent years the development and rise of embedded library service in the online classroom has occurred, and has manifested itself at my educational institution, though it has been relatively slow in appearing in other tertiary education providers in New Zealand.

Prior to commencing this research, I had been actively involved in the embedded librarian programme at my own educational institution. Here, my own classrooms were early hosts of embedded librarians, and I have been involved in daily workings and growth of the embedded librarian service for the past several years. In the wider context I had also been involved with other librarians and faculty working within the sphere of tertiary or online education through several LIANZA (Library and Information Association of New Zealand Aotearoa) groups, through FLANZ (Flexible Learning Association of New Zealand) and through intimate contact with relevant professional literature as Editor-In-Chief of the Journal
of Open, Flexible and Distance Learning (JOFDL) and Reviews Editor for the *Journal of the Australian Library and Information Association* (JALIA).

With respect to the nature of the involvement I personally had in the proposed study itself, there was very little overlap if any between my professional role as an educator and my role as researcher as I did not examine any online classrooms in which I currently taught or was otherwise involved. This was a conscious choice as I wished to observe how courses run across different institutions and be equally positioned in regard to all courses observed rather than being directly involved in some and not others.

It is intended that the results of this research will inform my own teaching practice in addition to contributing to the wider knowledge in this field. The answers to the research questions should provide a basis for implementing improvements within my own teaching practice as my increased understanding of the embedded librarian model will identify how to best facilitate and encourage learner support for my own students. For my students studying information and library studies, it will also provide an exemplar of effective library service within the online classrooms.

It is with this background that I have conducted this research, while actively working with my own practice at the same time. This allows me to be immersed in the subject from all angles – as a distance student, as faculty, and through the eyes of a librarian. It also places me ideally as the researcher to conduct this particular study.

**Summary of the Chapter**

The first chapter of this thesis has focused on introducing this study on embedded librarians as a form of learner support. It has identified and outlined the context for this investigation by stating the nature of the problem, identifying what embedded librarians are, and outlining the purpose and significance of this study. The research questions have been identified, as has the theoretical perspective in which the investigation takes place. Finally, I have described my own background as researcher so that readers can understand why this topic is of significance to me, why it has been investigated the particular way it has, and what my own background contributes to both the undertaking and interpretation of this research.
Overview of the Thesis

Chapter One presents the introduction to this thesis. Chapter Two presents a literature review of this emerging topic, showing the growth of literature over the past decade and the broad areas into which it falls. The key areas covered by the literature review include the origins and development of the field of embedded librarianship, learner support theory and practice, embedded librarian theory and practice, and embedded librarianship in the New Zealand context. Current gaps in the literature identify this study as useful in reducing scarcity of knowledge in at least one of those areas.

Chapter Three identifies and discusses the method used in this research. A multiple case study was chosen for the conduct of this research, providing both individual and comparative data for analysis. Detailed information is provided on the specifics of the research method, and an explanation is given as to how these methods are used to gather information to answer the research questions outlined in the first chapter.

Chapters Four and Five present the research findings: Chapter Four presents the findings from the individual case studies used in this research, while Chapter Five presents the cross-case analysis. This cross-case analysis aggregates data to provide an overall picture of the embedded librarian practice, and also highlights similarities and differences in the delivery of learner support in the case study classrooms.

Chapter Six, the final chapter in this thesis, presents the discussion of the findings and considers the implications of the research. It also presents theory built from the findings of this research. The chapter comes to its conclusion and considers the significance and limitations of the research, identifies areas for further investigation and presents a closing reflection.
Chapter 2: Literature Review

Introduction

This review is a synthesis of the literature concerning embedded librarians working in the context of online tertiary classrooms and includes a focus on this practice in the New Zealand context. This synthesis of the literature situates the current study within the existing literature and also identifies areas where there are gaps in the current knowledge and understanding of embedded librarian practice. The review begins with an outline of learner support and an identification of the characteristics of online learners and the types of support needed in the online learning environment, and within this context, library support is outlined. The emergence of embedded librarians and related forms of learner support are traced from 2004 when the first recorded use of the term ‘embedded librarian’ was used (Dewey, 2004). From the literature, a clear definition is sought of an ‘embedded librarian’ in the specific context of online classrooms in higher education, to provide clarity and understanding of this term. Following this, a synthesis of embedded librarian best practice is outlined, showing how the practice is enacted before looking at models and theories relating to embedded library service. Finally, this review looks at the New Zealand experience of embedded librarians to date, to clearly identify the particular context in which this research takes place and the stage of development of embedded librarianship in this country at the time this research was conducted.

Literature Review Method

The method chosen for this review is an integrative synthesis which reviews works that are illustrative and representative of the wider field to identify the main characteristics of each area outlined in the review (Cooper, 2003). The scope of the review is international but contains a New Zealand focus toward the end as the context of this study required a more detailed look at this national level. The time period for embedded librarian literature and other library support services dates from the beginning of the 21st century while the learner support literature has a longer history and coverage.

Literature for this review was initially located via Google Scholar and the University of Otago’s library catalogue using Summon, a search engine across the library’s aggregated resources, to search an extensive collection including books and electronic resources such as journal databases, eBooks and other media. Search terms were various, focusing on ‘learner support’, ‘embedded librarian’ and various synonyms to uncover items of interest. Blogs and
academic social network sites were also searched for references to key items. The key items from this first sweep were examined for references to further items which were actively sought for possible inclusion in this review. This method identified a wide range of literature items including books and eBooks, journals, journal articles and other media.

Learner Support

Learner support, or student support, has been broadly defined as “all activities beyond the production and delivery of course materials that assist in the progress of students to success in their studies” (Simpson, 2012, p. 13). Learner support can be further divided into academic and non-academic support; the first deals with support related to understanding course content and the provision of skills and literacies needed for this, and the second deals with other support related to wider institutional or study issues such as programme advice, mentoring, counselling or administration (Karp, 2011; Simpson, 2012; Subotzky & Prinsloo, 2011). Academic learner support is the area of interest in this study and is reviewed below. Within academic learner support, online learner support is reviewed, and within that, library support is reviewed. Finally, this section looks at the emergence of specialised library support roles which includes embedded librarians. This provides the full context for the longer review on embedded librarians which follows.

Academic Learner Support

Learner support can be divided into academic learner support and non-academic learner support (Simpson, 2012), with academic support including areas of “defining, explaining, assessing, chasing progress, developing skills, exploring and enriching” (Simpson, 2012, p. 16) student learning. Mactague (2004) developed a model of academic support in distance education, comprising types of support such as assessment, tutoring, community building, mentoring and counselling. These are all types of support which assist students in meeting the academic requirements of their study. In contrast, non-academic learner support includes course advice and assistance with disabilities (Davis, Little, & Stewart, 2008).

Online Learner Support

In online learning students have a slightly different set of needs than their face to face learning counterparts, partly brought about by the separation of teachers from their learners, creating both geographical and pedagogical distance (Moore, 2013) and creating cognitive
and social demands (Lai, 2002). Learner support needs to adapt to deliver support that bridges these distances in order to be effective in supporting students in the online environment. Online learners have been characterised as facing obstacles that make studying on-campus unviable, including geographic remoteness, combining study with paid work, personal and family commitments (Kara, Erdoğdu, Kokoç, & Cagiltay, 2019). These lead to the need for increased learner support in online learning including the need to mitigate higher attrition rates, meet student demands and expectations, and combat student isolation in open and distance learning (ODL) (Simpson, 2012). Adaptation of traditional services provided on campus and enhanced for the online environment need to be made to meet learner expectations and take advantage of new options for the delivery of this support (Davis et al., 2008). Learner support in this environment is delivered in three key areas: support inside the classroom includes learning materials, faculty, and embedded librarians; support outside the classroom includes programme advice, study skills, and the library; and support in effectively managing communication in the online environment includes technical advice in accessing and using information and communication technology (ICT) and software, and netiquette (Fields, 2014; Keegan, 1996; McLoughlin, 2002; Thorpe, 2002).

**Library Support**

Library support is situated within the stream of academic support as it supports the development of academic skills and literacies needed to further students’ learning (Hagel, Horn, Owen, & Currie, 2012; Wilson, 2017). Off-campus library support often replicates these services but delivers them using digital technologies and it is anticipated that “a variety of roles and titles will continue to develop, incorporating the range of local needs for support to the communication and discursive requirements of particular courses and learning groups” (Thorpe, 2002, p. 116).

The importance of both learner support and library support is recognised as having positive effects on student achievement (Poll & Payne, 2006), and library support is credited as assisting with improvement in student retention, adding to students’ long-term academic experience, and promoting academic rapport and student engagement (Association of College and Research Libraries, 2017). In addition, library support is also seen as an indicator of quality assurance in higher education and ODL - learner support is frequently mentioned as an indicator and library support is also mentioned separately in some instances (Inglis, 2005; New Zealand Qualifications Authority, 2014). This highlights the value of both learner support and library support to online students and to their institutions. The manner in which
library support is being provided is evolving in this setting and one of the new ways of providing library support in the online classroom is by embedding librarians in the courses, thus providing learner support directly into the context of the students’ learning environment in their online classrooms (Fields, 2014).

**The Emergence of Specialised Library Support Roles**

The growth of ICTs and the ongoing development of the knowledge society are being matched with growth in the tools and skills needed to successfully navigate and participate in this new environment, particularly in education (Zorica, Špiranec, & Zauder, 2007). Librarians are ideally placed to assist students to acquire various skills and strategies in this new environment, but they need to step outside of their traditional roles to provide new skills and new competencies in new ways (Bedford, Donley, & Lensenmayer, 2015). With the increasing need for students to acquire new literacies in the knowledge-based society, librarians’ traditional role in teaching information literacy is now expanded to include teaching of scientific, economic, visual, environmental, multicultural, media and multi-literacies (Markauskaite, 2006).

Corrall (2005) has identified a range of related professional areas into which library and information services are expanding, thus blurring traditional boundaries between what were previously separate areas of expertise. As can be seen from Figure 2.1, Corrall (2005) highlighted the key areas of potential growth and diversification in librarians’ roles, and the range is likely to have grown even further in recent years. The arrows in the diagram highlight examples of services widely provided by libraries and information professionals that meet in the intersections of these wider professional specialisms. This model shows the overlapping areas provided by libraries and information services and identifies further opportunities for librarians to expand their roles with new expertise to provide new forms of library and learner support that may be needed in the evolving online environment.


It is with this growth and evolution of roles that new expressions of librarianship are emerging to meet the literacy needs of the knowledge society. These new expressions of librarianship are taking form as a variety of specialist librarian roles (Abrizah, Inuwa, & Afiqah-Izzati, 2016; Jaguszewski & Williams, 2013). In a systematic review of new and evolving roles adopted by librarians, Vassilakaki and Moniarou-Papaconstantinou (2015) included embedded librarians as one of the six identified roles, putting this particular strand of library support back into context within the wider field of library services. The increasing use of the term “embedded librarian” and other specialist librarian roles in the literature can be seen from a chart (refer Figure 2.2) developed by the author using data retrieved from Google Scholar. Figure 2.2 shows that the term “embedded librarian” only appeared 80 times in Google Scholar’s literature database in 2009, but 345 times in 2013. This highlights the rise of the term ‘embedded librarian’ as the dominant expression of these new roles. Descriptions of this and other identified terms - instructional design librarian and blended librarian - are outlined below to show how the focus of each role differs. These help to identify what embedded librarians are and what they are not and helps to show the complexity of the emerging field in which they operate.
The term ‘embedded librarian’ was first used by Dewey in 2004, who stated that “Overt purposefulness makes embedding an appropriate definition of the most comprehensive collaborations for librarians in the higher education community” (p. 6). At the same time as Dewey’s term ‘embedded librarian’ emerged, Bell and Shank (2004) were credited with coining the term ‘blended librarian’ within the education sector. They defined this as “an academic librarian who combines the traditional skill set of librarianship with the information technologist’s hardware/software skills, and the instructional or educational designer’s ability to apply technology appropriately in the teaching-learning process” (Bell & Shank, 2004, p. 374). This is a hybrid of a traditional librarian role with other roles following the evolving professional specialisms illustrated in Figure 2.1. A later work by the same authors (Shank & Bell, 2011) reconsidered blended librarianship in the digital information age, viewing the role of librarians as more akin to educators in the ODL setting.

The term ‘instructional design’ has various definitions, focussing overall on “a systematic process by which instructional interventions are designed, developed and delivered” (Turnbow & Roth, 2017, p.526). Instructional design librarians are concerned with interventions which focus on library and information skills, creating instructional resources and investigating new technologies which can be used to deliver library and information instruction (Turnbow & Roth, 2017). An example of instructional resources are eLearning objects, often referred to as Reusable Learning Objects (RLOs), a form of pre-packaged tutorials which may be placed in multiple locations including within courses to deliver information instruction where and when it is needed.
In practice, these embedded and instructional design roles may be standalone, combined, blended or may change over time to meet the requirements of the educational setting in which they operate. The tasks undertaken by an embedded librarian may include some or all of the tasks undertaken in these related roles. However, the primary feature of embedded librarians is, as Dewey (2004) pointed out, the ‘overt purposefulness’ within the primary group in which they are embedded.

The quantity of literature on embedded librarians has grown disproportionately in comparison with the literature for the other emerging expressions of library service. Xiao (2012) referred to a ‘surge’ of literature on embedded librarians as the practice becomes more common and the use of online classrooms becomes more prevalent. It is visible in Figure 2.2 that the use of the term ‘embedded librarian’ exceeded other terms by a large margin.

The geographical spread of literature on embedded librarians has also grown disproportionately, with the term originating and most frequently appearing in the United States of America. This is the region where the practice of embedding librarians most often occurs, and it is now spreading to other regions including the United Kingdom, Australia, New Zealand and further afield.

There is a difficulty, however, in the understanding of this term, as there is no universally accepted definition of embedded librarian. The term is used in different contexts to mean different things, such as embedded librarians in business teams, in research teams, in education within faculties and in education within online classrooms, and the term does not indicate the degree of embeddedness in each of these contexts. Because this research concerns only those embedded librarians who work in online classrooms in higher education, the identification, definition and the literature relating to this particular strand of embedded librarianship is addressed next.

**Embedded Librarians**

The literature provides a good trail showing a developing definition and understanding of the emerging role of embedded librarians. It is important to note that the emerging definition follows the emergence of the practice and develops as the practice develops. This section begins by defining embedded librarianship and then identifies what best practice is for this service. Following this, models and theories relating to embedded librarian practice are
identified and discussed, and the New Zealand experience of this practice is outlined to provide context for the multiple case study.

**Defining Embedded Librarianship**

Within library services, embedding means working primarily in the group, unit or space where the group is working, such as a librarian assisting a research and development team, inside a university faculty team or inside an online classroom (Dewey, 2004). The term is derived from the ‘embedded journalists’ in US military units in the Iraq war where embedding was seen to be needed since the context “require[d] more direct and purposeful interaction than acting in parallel with another person, group, or activity” (Dewey, 2004, p. 6). Likewise, the action of librarians embedded in various work or educational units requires a degree of integration and interaction that is more purposeful and tailored to the group than librarians based in the library would normally provide. Dewey (2004) defined embedding as “the group seeking to integrate is experiencing and observing, as near as possible, the daily life of the primary group” (p. 6). Some specialties have developed within embedded librarianship, based on the nature of the teams or organisations in which they are embedded. Examples include librarians who are now strategically placed within work or business units providing specialist services in this new context (Shumaker, 2011), and more specifically within the education sector, examples include embeddedness within faculty to assist with research (Carlson & Kneale, 2011; Kesselman & Watstein, 2009), in online communities of practice including learning and research-based communities (Kesselman & Watstein, 2009), in curriculum design (Butera, Gomes, & Kakar, 2014) and in online classrooms where services can be tailored to the immediate needs of students in their learning space (Allen, 2017; Brindley, Walti, & Zawacki-Richter, 2004; Brower, 2011; Florea, 2008; Guillot, Stahr, & Meeker, 2010; Ibrahim & Omar, 2015).

Brower’s (2011) review of the literature on embedded librarians identified characteristics of embedded librarian work including partnering in teaching and evaluation, and the practicalities of working in virtual environments. Just a year later, Schulte’s (2012) review of the literature focussed on research on embedded librarian practice and included case studies. Schulte found that there was no one unified definition of the term ‘embedded librarian’ and that activities conducted by these people varied, although most case studies identified tasks of embedding content and providing ready access to library services. Schulte identified a paucity of quantitative research in the literature and suggested this is what is required to “explore the impact of large scale, customised, embedded programs” (p. 135).
Little quantitative research in this area has been identified since 2012, indicating a possible gap in the literature in terms of method and evidence to support current thinking on embedded library support.

Other definitions of embedded librarians have emerged since Dewey’s (2004) definition, and many focussed directly on embedded librarians in the context of online education. For example, Shumaker, Talley and Miervaldis (2009) added a new focus by considering the overriding change from a service model in traditional library-based support to a partnership model within the classroom, described as “shifting the model from transactional to high trust collaboration, and shared responsibility for outcomes” (p. 9). More recently Kvenild and Calkins (2011) provide clarity to the definition by using a descriptive list to define embedded librarians by the tasks and roles they undertake within online classrooms, identifying that by this time embedded librarians in online classrooms work closely over extended periods of time with non-library groups, whether by joining a semester-long course, maintaining an ongoing presence in online courses, participating in broad curriculum planning efforts, or joining the staffs of academic departments, clinic settings or performing groups (p. vii).

Additionally, Xiao (2012) focussed on the place of embedded librarians, both physically and functionally, identifying that embedded librarians are integrated into the online classrooms to the point that they become part of the classroom itself, working directly in the space where students’ primary learning takes place. These definitions add more detail and complexity to the understanding of embedded librarian role, and also serve to trace the development of this new form of learner support.

The term ‘online embedded librarians’ within higher education was introduced by Fredericksen and Phelps (2014), bringing another new term into play. Their definition of this role was “someone who establishes a library presence in a virtual learning space” (p. 3), acknowledging that there are different ways, tasks and levels of involvement that can be manifest within this. This new term is useful as it distinguishes embedded librarians in the context of online education and their placement in online classrooms from librarians who may be embedded in groups or units outside the education sector, or within education but not within the context of the online classroom. Despite this, the term ‘embedded librarian’ continues to be used in the literature, without distinguishing the location or purpose of the embedding. This makes the literature a little more difficult to navigate if focussing on one particular area such as embedded librarians in online learning in higher education.
There is a lack of clarity around what an embedded librarian actually does within the online classroom. Shumaker (2011) identified a range of tasks typically undertaken by embedded librarians in online classrooms at that time. These included facilitating the provision of standard library services to students in the online classroom as well as tailored services, support and instruction to students based on their particular course and assessment needs and delivered to students individually or as a group. When working with faculty, the range of tasks undertaken by embedded librarians may also involve updating course content, resources and assignments, and working directly with faculty (West-Pawl, 2012; Xiao, 2012). This range of tasks appears to have remained reasonably consistent over time (Allen, 2017; Brindley et al., 2004; Fields & Clarke, 2014; Florea, 2008; Guillot et al., 2010; Matthew & Schroeder, 2006; Xiao, 2012), and notes embedded librarians as strategic participants inside the online classroom, not only for students but also collaborating with faculty.

In this thesis, I followed Fredericksen and Phelps’ (2014) suggestion, defining an online embedded librarian as “someone who establishes a library presence in a virtual learning space” (p. 3). The exact nature of that presence will differ in individual contexts, and will also evolve over time as new technologies, practices, collaborations and services develop. It is the literature of embedded librarians in online classroom in higher education that is the focus of the remainder of this literature review.

Best Practice

The literature surveyed in this study documented identification, examples and discussion on best practice in the provision of embedded librarian support. One of the earliest works was York and Vance’s (2009) consideration of best practices for embedded librarians based on a lengthy literature review and survey. They identified ten useful practices including knowing the software platform online courses are delivered on, getting the library linked into this platform, going beyond the initial service and marketing their services to faculty.

In the literature there are case studies providing examples of best practice, and a growing number of them on embedded librarian practice within online classrooms in higher education as the practice has become more widespread in recent years (e.g., Andrews, 2015; Chisholm & Lamond, 2012; Hartsell-Gundy & Tumbleson, 2012; Hawes, 2011; Matthew & Schroeder, 2006). However, there were few studies which attempted to measure the effects or benefits of having embedded librarians in these classrooms (Bennett & Simning, 2010; Hoffman, 2011; Kumar, Edwards, & Ochoa, 2010; Poll & Payne, 2006). A critical bibliography of ideas and practices surrounding embedded librarians was compiled by
Andrews (2014), focusing on case studies conducted in undergraduate academic settings over the period from 1999 to 2013. A year later, Andrews (2015) used this bibliography to identify themes emerging from the literature on embedded librarians including key features common to many of the case studies.

As well as the identification of best practice from individual case studies (Edwards, Kumar, & Ochoa, 2010; York & Vance, 2009), articles are now also appearing which identify best practice from multiple sources (Hoffman, 2011; Hoffman & Ramin, 2010; Sullo, Harrod, Butera, & Gomes, 2012) and from meta-analyses (Fredericksen & Phelps, 2014). In addition, Fredericksen and Phelps (2014) cited the following characteristics of successful embedded librarians in online education: proactivity, collaboration with faculty, using instructional design skills and technical expertise in creating RLOs and other learning and instructional materials, and considering the sustainability and marketing of the service.

A few case studies exist which consider the perceptions of faculty, librarians or students set within this context (Carrico & Neff, 2012; Edwards et al., 2010; Yousef, 2010), but there is a paucity of case studies which consider the perceptions or relationship between all three participant groups in a single classroom. This means the dynamics of the relationships in online classroom utilising embedded librarians have not yet been fully explored. This is also perhaps to be expected given the newness of this particular field in the rapidly growing online tertiary education market, but it does indicate a further gap in the current literature.

Models of Practice

Within the wider field of library service, it has been suggested that literature on models of practice are scarce (Kwanya, Stilwell, & Underwood, 2012), and it appears that the literature in the narrower field of embedded library support follows the same pattern. To complicate matters, in searching the literature, a number of publications refer to a model but use the term as indicating a general example rather than a specific representation of a defined practice (e.g., Sullo et al., 2012). Kwanya et al. (2012) maintained that while it is difficult to pinpoint a particular model of practice, it is clear that “models are continuously evolving along general socio-economic and technological development patterns in society” (p. 145) and this should also equally apply to specialties within library service such as the more narrowly defined embedded librarian practice.
Only five models relating to embedded librarian service were identified in the literature, confirming this is an area where further contribution may be valuable to the field. Shumaker et al. (2009) presented the Virtuous Cycle for Embedded Library Services which outlines practical steps for managers who are implementing embedded librarian service for the first time. Hoffman, Beatty, Feng, and Lee (2017) complemented this with a wider view of embedded librarian services in a model, with four suggested support points in the evolution of library involvement in tertiary courses: starting with one-shot support (a single tutorial), followed by multi-shot support (multiple tutorials), ongoing resource (providing ongoing advice from a librarian for the duration of a course) and finally to deep integration (maintaining a presence and involvement in course and assessment design). The other three models by Thorpe (2002), Lowe (2005) and Fields (2016) are more complex and are outlined below in more detail.

Thorpe (2002) wrote about learner support prior to when the first embedded librarian practice emerged. Thorpe’s model, shown in Fig. 2.3, focused on the workings of an online classroom and looked at different generations of providing learner support within this context. In this model the initial iteration included relational contact with support and in the second this was replaced with selected information content, moving support from a social constructivist perspective to a cognitive constructivist perspective. The arrows indicate communication and interaction within these classrooms. This model is useful in showing changing ideas of how the online classroom and associated learner support can best be provided.

Taking a different approach, Lowe’s (2005) PARS (Providing Academic and Relational Support) model considered the relative levels of learner support needed by students as they progress through their studies, gaining skills and confidence as they learn. This model, shown in Fig. 2.4, identified stages in the students’ journey and the levels of academic and relational support needed to best meet their learning support needs at each stage. This model focussed on the type and amount of learner support needed during the student journey. This is useful in understanding the changing nature of students’ learning needs as they progress through their studies.

Fields (2016), the researcher of this current study, developed an applied SAMR (Substitution, Augmentation, Modification and Redefinition) model for integrating embedded librarians into online classrooms. Fields’ (2016) SAMR/ILS (Substitution, Augmentation, Modification, Redefinition in Information and Library Studies) model of the integration of embedded library support in online classrooms is illustrated in Fig. 2.5. The original SAMR model (Puentedura, 2015) outlined four stages of integration and was originally intended for use in integrating ICT into classroom settings. It has since been applied to the integration of other aspects into classroom settings. The shaded area is the library support and its primary location alters as the integration becomes deeper.
Fields’ (2016) model provided an alternate view to Hoffman et al’s (2017) model of the evolution of library involvement in tertiary courses, by focussing not on the specific type of service provided at different levels of interaction with online education students but in the underlying premises behind the degree of integration into the online classroom itself. The SAMR/ILS model also differed from Thorpe’s (2002) model and Lowe’s (2005) model in that it applies specifically to embedded librarian support rather than being at the wider learner support level.

These models are useful in providing an understanding of different aspects of embedded librarianship. Thorpe (2002) begins by demonstrating the lines of connection between various things in online classrooms showing how collaborative learning and online learning can afford new relationships. Later, models showing how to embed librarians in online classrooms (Fields, 2016; Hoffman et al., 2017; Shumaker et al., 2009;) provided different views of the theoretical and practical aspects of embedded librarian support. Lowe’s
(2005) PARS model focussed more widely on the provision of academic support and relational support during students’ journey to self-directedness. These aspects of embeddedness displayed in these models explains that embedding can be done, how it can be done and what kind of balance of support can be provided. What is lacking in the literature, however, is a model or explanation showing what it is that an embedded librarian provides or does that a librarian external to the classroom cannot provide – it is the essential ‘why’ question about having an embedded librarian at all, that is not yet addressed in a model.

The New Zealand Experience

New Zealand literature on embedded librarians also includes examples of best practice, case studies and models. Case studies of embedded librarian service have been reported from the higher education sector at Auckland University in face-to-face teaching (Brebner & Reid, 2012), in the online teaching environments at Massey University (Chisholm & Lamond, 2012) and at the distance education provider Open Polytechnic of New Zealand (Fields & Clarke, 2014). An interesting point to note is that the development of embedded library services occurred in at least one of the New Zealand educational institutions as an initiative of the library rather than of faculty, in an effort to directly promote library services to students on a scalable footing (Fields & Clarke, 2014). Librarians at this institution were not full-time embedded librarians but added online classroom work alongside their existing work as liaison librarians supporting particular subject areas (Fields & Clarke, 2014). In another educational institution, two staff worked full-time as embedded librarians, but instead of interacting with students in each classroom through the teaching period, they created a series of RLOs to target specific information skills and needs in individual courses, and these were strategically placed in postgraduate courses in liaison with faculty (Chisholm & Lamond, 2012). Both of these practical moves supported the notion of scalability. The importance of faculty-library collaboration to make these practices work effectively was noted in both case studies. Theory supporting the practice of embedded librarianship has also begun to be explored by a New Zealand researcher, as noted above (Fields, 2016).

Discussion and Conclusion

Overall, the literature in the field of embedded librarians in online classrooms in higher education is characterised by a high representation of case studies and examples of practice, a growing number of best practice discussions, and a small number of models,
theories and glimpses of the future. The scarcity of literature in the latter categories of models, theories and the future indicate a current gap in the literature, particularly in relation to specific embedded librarian practices or specific environments and locations where this practice is evolving. It also indicates that the larger proportion of the literature leans towards practice and often reports how practice is conducted rather than looking more deeply at why practice is the way it is and what can be done to improve it.

It is interesting to note that as the field of embedded librarianship develops, it has not yet found a uniform expression or method of practice, so defies a definition or description that is all-encompassing. In addition, the reading of the literature on embedded librarians is potentially difficult, as the practice does not always equate to full-time roles and it may be one of many tasks undertaken by a librarian. This combining of several library practices including embedded work and other work can make the identification of this new form of work difficult to locate in the literature. It is also noted that practices may differ in various areas in the world and may develop according to local needs and within local constraints, as well as with the identified drivers of changing technologies and educational delivery media. It is also likely that as this form of learner support adapts to new conditions, situations and opportunities, changes to the practice will follow.

One view of the future of embedded librarians was set out by Fredericksen and Phelps (2014), describing future changes in software and communications technologies as being the drivers for change in embedded librarian practice. They also considered the implications of Massive Open Online Courses (MOOCs) and the library services that may need to support this new delivery model for education. Mahraj (2012) agreed, saying that embedded library support in MOOCs will need to “make the transition from open content to open instruction” (p. 364) by providing support in a way that combines useful information instruction with open education practices. Apart from the identification of changing technologies and educational delivery media as drivers, there is little in the literature that identified major directions or tangible avenues for the future, although agreement is common that change and innovation will inevitably occur.

The areas identified in the literature where there is currently not adequate coverage were: case studies showing feedback from all participant groups including students, faculty and embedded librarians to understand the roles and relationships between these participants, quantitative studies to determine the impact of large scale embedded programmes, theories
and models to explain practice as it is and provide guidance for design and implementation of new and revised programmes, and planning for the future.

This synthesis of the literature has identified embedded library support in online classrooms in higher education as being part of the wider field of learner support, has traced its development as an emerging field and identified a working definition of the practice. It has considered the overall characteristics of the literature as a body of knowledge, identifying and exploring reviews of the literature, case studies, best practice, models and theories, the New Zealand experience, and the future. It has also identified a number of gaps or areas of limited coverage in the literature, particularly in terms of case studies with views from all participants, quantitative research, and development of models or theories, and studies based in the New Zealand context. This current research seeks to make an original contribution to the knowledge in this field by exploring and addressing some of these gaps in the literature, which may in turn both help to round out the knowledge in this emerging field and guide its continuing development.
Chapter 3: Methodology

This chapter outlines the theoretical perspective on which this research is built, the choice of a multiple case study for its conduct and provides details of the research design and method chosen to address the research questions. Issues in validity, reliability and trustworthiness are discussed, as are ethical considerations, as these are concerns relating to this research. A short summary ends this chapter.

The research questions are again presented here as they form the foundation from which the methodology for the research has been chosen.

*RQ1: What is the practice of embedding librarians in online tertiary classrooms in the New Zealand context?*

*RQ2: What makes this practice effective in providing support to online classroom participants?*

Theoretical Perspectives

Constructivism has been chosen as the theoretical perspective for this research. Mascolo and Fischer (2005) defined constructivism as “the philosophical and scientific position that knowledge arises through a process of active construction” (p. 49). As a learning theory, constructivism follows the notion that knowledge is not imparted by teachers to students but is instead constructed by students as they actively engage with their environment to create knowledge and meaning (Crotty, 1998). There is agreement that under the overall constructivist perspective, students construct meaning when their experiences and ideas interact (Kala, Isaramalia, & Pohthong, 2010; Kolb & Kolb, 2012; Liu & Ju, 2010). There remains debate on exactly how this happens, with two of the key proponents of different forms of constructivism holding differing views: Piaget (1977) is a proponent of cognitive (or individual) constructivism which emphasises on individual cognition and asserts that student development occurs first and learning follows, while Vygotsky (1986) is a proponent of social constructivism which emphasises social interactions and argues that learning occurs first and development follows. In the research setting of the online classroom featuring an embedded librarian, both forms of constructivism are possible – individual learning methods using cognitive constructivism may occur where the student interacts individually with learning and supporting materials and social learning methods using social constructivism may occur.
where the student engages in social interactive activities and peer work (Powell & Kalina, 2009).

**Research Design**

A multiple case study (Yin, 2014) has been chosen as the methodology for this research, and it is used to investigate six online classrooms using embedded librarians from two New Zealand tertiary education institutions. Yin (2014) argued that a case study is “an empirical inquiry that investigates a contemporary phenomenon (the ‘case’) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident” (p. 16). In this thesis research, each classroom having an embedded librarian was a case, which was examined in a real-life context where clear boundaries between participants and actions could not be easily made. The multiple case study method fits well with the theoretical perspective of constructivism as it allows observations of case study classrooms in their normal mode of operation and without impacting or changing students’ experience in constructing knowledge in the classroom setting.

A multiple case study covers several rather than a single case and draws a “single set of ‘cross-case’ conclusions” (Yin, 2014, p. 18). A multiple case study also provides results that are often more compelling and more robust than a single case study (Yin, 2014). Cunningham (1997) supports this stance, arguing “a variety of cases can provide a better demonstration of a theory or set of concepts, because they permit replication and extension among the individual cases” (p. 405). Eisenhardt (1989) adds an identification of three purposes for case study research: to “provide description, test theory, or generate theory” (p. 535). In this research the case study is being used to both provide description and to generate theory. Figure 3.1 outlines the structure of the overall methodological approach taken in this research.
Selection of Case Studies

The selection of the multiple cases followed Yin (2014) in using replication logic. Yin (2014) explained that “Each case must be carefully selected so that it either (a) predicts similar results (a literal replication) or (b) predicts contrasting results but for anticipatable reasons (a theoretical replication)” (p. 57). The ideal number of case studies for this form of case study design is six to ten cases as if all cases are found to be similar then the initial concepts would be well supported, and if the cases are found to be dissimilar then the initial concepts would require revision and retesting with new cases (Yin, 2014).

New Zealand had eight universities and 18 Institutes of Technology and Polytechnics (ITPs) at the time this research began, all of which were considered possible locations for case study classrooms. Those institutions which did not provide any online courses or provided online classes as merely supplementary to physical classes were eliminated from the pool of possible case study providers. Contact was made with relevant library staff through the researcher’s own professional networks for the remaining universities and through the ITP librarians’ network for the remaining institutes of technology and polytechnics to determine
which institutions had an embedded librarian practice in their online classrooms. This resulted in only two institutions being identified; one university and one polytechnic.

The two New Zealand tertiary institutions were then contacted directly to identify willing embedded librarians for this study, resulting in seven embedded librarians involved in a wide range of online classes. Possible classes using these embedded librarians were then identified and contact was made with faculty involved in teaching these classes to determine the full range of online classrooms from which a selection could be made. Seven online classrooms were identified which had willing faculty and embedded librarians. One class became unavailable and the remaining six became the case studies for this research. The selected case studies cover both institutions, different embedded librarians and faculty members, first year and more experienced students, undergraduate and postgraduate classes and a range of different subject areas. The two institutions were named A and B respectively and case studies were named A1, A2 and A3 as the three classes from the first institution, and B1, B2 and B3 as the three classes from the second institution.

Methods and Instruments

Four principles of data collection for multiple case studies (Yin, 2014) were followed within the research design: using multiple sources of evidence, creating a study database, maintaining a chain of evidence and exercising care when using data from electronic sources. These principles are inherent in the methods outlined in this section.

The multiple case studies were conducted within the New Zealand context, providing results from two tertiary institutions using embedded librarians in their online classrooms. Three online classrooms from each institution were researched for the duration of a semester (16 weeks), gathering information in four datasets as outlined in Table 3.1, to address the research questions. These four datasets constituted the multiple sources of evidence which is the first of Yin’s (2014) principles of data collection for multiple case studies.
Table 3.1

Relationship between the research questions and the datasets

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<td><strong>Questionnaire data analysed using SPSS, supported with open-ended answers</strong></td>
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<td><strong>Interviews analysed using Thematic Analysis</strong></td>
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<td>Notes from interactions with case study participants, observations, field notes, usage statistics generated from classroom activity</td>
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RQ1: What is the practice of embedding librarians in online tertiary classrooms in the New Zealand context?

RQ2: What makes this practice effective in providing support to online classroom participants?

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First Dataset Procedure

The first dataset comprised background and contextual data which formed the basis of the descriptions of the educational institutions within which the online classrooms were set. This information provided details of the context, setting and culture of the institution as well as the details of the courses being observed, particularly discipline, subject, and level and the expected level of independent research and involvement in library and information resources by students. Course descriptors, course outlines and assessment questions provided much of this data.

Second Dataset Procedure

The second dataset comprised data generated from an online questionnaire completed by students in the case study classrooms. The questionnaire was conducted near the end of the semester being researched and was voluntary. The questionnaire generated both quantitative and qualitative data, with students completing a demographic section, a series of Likert scale questions, and open-ended questions. The demographic information provided background
information on the students completing the questionnaire and allowed analysis by individual
demographic factors.

**Questionnaire design.**

The questionnaire was designed to be conducted online as this would be a familiar and
accessible medium for all participants in online classrooms. The questionnaire comprised
three sections: demographic information, Likert-style questions, and open-ended questions.
Open-ended questions provided the opportunity for students to provide some insight or
clarification into their responses or to raise new issues not covered in the questionnaire.

Demographic questions on gender, age, ethnic group (classification of ethnicities was
taken from Statistics New Zealand Classification – Ethnicity, Level 2), course currently
enrolled in, qualification currently enrolled in, major or discipline being studied, full-time or
part-time student status, length of time studying and studying online at the tertiary level and
level of ease in using online technologies were asked. These demographic questions were
developed from factors identified and discussed in embedded librarian best practice, case
studies and questionnaires in learner support reported in the literature, particularly personal
factors of gender, age and ethnic group (Helms, Whitesell, 2013; Hoffman, 2011; Ismail,
2011), factors around course subjects, qualification and major (Helms, Whitesell, 2013;
Hoffman, 2011; Hoffman & Ramin, 2010), and factors around students’ experience studying
full-time or part-time, length of time studying in higher education and studying online, and
ease of use with online technology (Bennett & Simning, 2010; Edwards, Kuman & Ochoa,
2010; Ismail, 2011). The Likert-style questions (strongly agree, agree, disagree, strongly
disagree and not applicable) comprised 23 individual questions in four scales relating to
instructional support, technical support, the library forum as support and overall support.
These broad categories of questions were also developed from factors identified and discussed
in embedded librarian best practice, case studies and questionnaires in learner support
reported in the literature, particularly instructional support (Allen, 2017; Cassidy &
Hendrickson, 2013; Kesselman & Watstein, 2009), technical support (Bennett & Simning,
2010; Olivares, 2010), types of group support (Chisholm & Lamond, 2012; Edwards, Kumar
& Ochoa, 2010; Sharma, Kumar & Babbar, 2014) and overall support (Edwards & Black,
2012; Fields, 2014; Kumar & Ochoa, 2012). These Likert scale questions, as quantitative
questionnaire data, permitted analysis by individual classroom and in aggregated form. These
scales were identified from the literature, initial conversations with embedded librarians and
the researcher’s own experience in this field. Table 3.2 summarises the Likert-style questions
about embedded librarians that students were asked, each designed to elicit information which could answer parts of the research questions. The majority of questions were positively framed, but four of the 23 questions were negatively-framed to ensure participants considered all questions thoughtfully and to avoid leading responses (Chen, Rendina & Dedrick, 2007). Overall, the 23 questions were designed to quantify the aspect and degree of support students received from the embedded librarian in their courses.

Table 3.2

Relationship between the Likert-style questions and the research questions

<table>
<thead>
<tr>
<th>Theme of the scale</th>
<th>Description of the scale</th>
<th>Number of questions in the scale</th>
<th>Example of Likert-style question</th>
<th>Research question it addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional support</td>
<td>How to form search strategies, navigate databases and other information literacy skills</td>
<td>7</td>
<td>The embedded librarian in my class provided resources, links to resources or search strategies relevant to this course and its assessments.</td>
<td>RQ1: What is the practice of embedding librarians in online tertiary classrooms in the New Zealand context?</td>
</tr>
<tr>
<td>Technical support</td>
<td>How to locate full-text documents, download e-books, and other technical questions</td>
<td>4</td>
<td>I felt I could get technical support from the embedded librarian when I needed it.</td>
<td>RQ1: What is the practice of embedding librarians in online tertiary classrooms in the New Zealand context?</td>
</tr>
<tr>
<td>Library forum as support</td>
<td>Was support gained directly from the library forum, by the student’s own questions or questions from other students?</td>
<td>5</td>
<td>I felt the library forum helped me achieve the objectives in this course.</td>
<td>RQ1: What is the practice of embedding librarians in online tertiary classrooms in the New Zealand context?</td>
</tr>
</tbody>
</table>

There were many opportunities to interact with peers in the library forum.

RQ2: What makes this practice effective in providing support to online classroom participants?
Overall support: Was the support received tangible and effective? 7
I felt I could ask the embedded librarian any questions regarding resources to support the course.

RQ2: What makes this practice effective in providing support to online classroom participants?

The three open-ended questions at the end of the questionnaire sought to elicit more detailed information on how the embedded librarian could better support learning, overall impressions and any other comments on the embedded librarian service or the support they provided.

**Questionnaire pilot testing.**

After the questionnaire was drafted, two professional researchers teaching online at the tertiary level and not otherwise involved in these case studies reviewed the face and content validities of the questionnaire and provided feedback on the questions, response options and the usability of the online questionnaire. This resulted in minor clarification of four statements within the Likert-style questions. Pilot testing was then undertaken with a group of five online students in one of the researcher’s own classes, who were not participants of the case studies. These students completed the questionnaire and were also asked to give feedback on the design of the questions. This resulted in minor clarification of wording for one further statement within the Likert questions and in one open-ended question. A copy of the final version of the questions is found in Appendix A.

**Questionnaire participant recruitment.**

Students in the six case study classrooms were all approached for participation in the survey. At the beginning of the semester, an email message was sent to all students, via the faculty members, informing them about the study. About two-thirds of the way through the semester students were given an invitation to respond to the questionnaire. This was followed with three reminder notices at weekly intervals to both thank those students who had already participated in the questionnaire and to encourage others to contribute. Reminders were altered each time using dynamic design features (Sauermann & Roach, 2013) such as wording, timing and personalisation to encourage maximum engagement with the questionnaire.
**Questionnaire administration and data collection.**

The online questionnaire was administered to students in participating classes over a 4-week period at the end of the teaching semester, from 2 October 2014 to 5 November 2014. The questionnaire was accessible via a link provided in the invitation letter and reminder messages. Data from the completed questionnaires was collected on SurveyGizmo (http://www.surveygizmo.com). SurveyGizmo was chosen for its suitability, availability and ease of use; including its ability to easily manage all question and response types chosen for this questionnaire, its ability to present the questions in a user-friendly format to respondents and to fully record results in a variety of formats including files for transfer to other software for analysis. The multi-choice responses were transferred to SPSS (version 25) for analysis, and to Microsoft Word word-processing software for analysis of the open-ended questions. The number of respondents is summarised in Table 3.3.

Table 3.3

<table>
<thead>
<tr>
<th>Case study</th>
<th>No. of participants</th>
<th>Total no. of students in the class</th>
<th>% response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>16</td>
<td>66</td>
<td>24.2</td>
</tr>
<tr>
<td>A2</td>
<td>24</td>
<td>111</td>
<td>21.6</td>
</tr>
<tr>
<td>A3</td>
<td>17</td>
<td>49</td>
<td>34.7</td>
</tr>
<tr>
<td>Total at Institution A</td>
<td>57</td>
<td>226</td>
<td>25.2</td>
</tr>
<tr>
<td>B1</td>
<td>6</td>
<td>29</td>
<td>20.7</td>
</tr>
<tr>
<td>B2</td>
<td>0</td>
<td>12</td>
<td>0.0</td>
</tr>
<tr>
<td>B3</td>
<td>4</td>
<td>62</td>
<td>6.5</td>
</tr>
<tr>
<td>Total at Institution B</td>
<td>10</td>
<td>103</td>
<td>9.7</td>
</tr>
</tbody>
</table>

**Questionnaire data preparation.**

Preparation of the questionnaire data prior to analysis was undertaken. Demographic information was coded for each respondent. Each demographic response was recorded as a discrete answer apart from ethnicities where multiple ethnicities were able to be recorded. In
data preparation, as there were small numbers of responses to some of the ethnicity options, these were collapsed into three categories for more meaningful analysis: New Zealand European, Maori/Pasifika (combining Maori, Samoan, Cook Islands Maori, Tongan and Niuean), and All Other Ethnicities (combining Chinese, Indian and Other Ethnicities).

Invalid responses were removed prior to the data being transferred to SPSS. Most invalid responses appeared to be from one respondent having difficulty with the questionnaire software resulting in several consecutive responses containing a portion of demographic data but no responses to the Likert-style or open-ended questions, and a few others provided demographic information only with no Likert-style or open-ended questions answered. Valid responses were coded for both the demographic and Likert-style sections. Likert-style answers were coded one to five for answers of Strongly agree, Somewhat agree, Somewhat disagree, Strongly disagree and Not applicable. There was a small amount of missing data (less than 5 non-responses in any one question) with no pattern emerging.

Four individual questions within the Likert-style sections were framed as negative statements, and the responses to them were reversed to provide a consistency to the overall measurement of the questionnaire. These questions comprised the second individual question in Section 11 Instructional Support, the third individual question in Section 12 Peer Support, and the first and fourth individual questions in Section 13 Technical Support (see Appendix A).

**Questionnaire data analysis.**

The questionnaire had four sets of questions focusing on instructional support (n = 7 question), technical support (n = 4 questions), peer support/library forum as support (n = 5 questions) and overall support (n = 7 questions). A factor analysis which would analyse the correlations between the data scores in these sets of questions was planned to confirm this grouping, but the low response rate meant that it was not possible to conduct. Questions were, however, regrouped across the four scales to better reflect aspects of embedded librarian support, particularly the original grouping of ‘peer support’ which was reconsidered as ‘library forum as support’ as this better described the support provided by the embedded librarians. One question (‘I had difficulties or problems with searching the library catalogue, other information resources or databases during this course’) was removed from the Instructional Support scale as it was the only question focussing primarily on the student and not on the assistance and support received from the embedded librarian. A Cronbach’s alpha test was used to assess the internal consistency of the questions in this scale and confirmed a
low correlation between this question and the other question in Instructional Support, leading to the removal of this question and leaving only one question in this scale. Three questions in other scales were either ambiguous or not relevant to one or both institutions, so were also removed at the analysis stage. The resulting groups on which analysis was conducted became instructional support (n = 1 question), technical support (n = 2 questions), library forum as support (n = 8 questions) and overall support (n = 7 questions). Identification of the questions when reporting results is made numerically in the order in which questions were asked (see Appendix A).

As the response rates from classrooms in one institution were low and there was a good deal of similarity between these classrooms in terms of how they were structured and delivered within each institution, analyses were conducted across institutions instead of across classrooms. Analysis of demographic factors was conducted across all institutions combined as a single group.

Responses to open-ended questions were subjected to thematic analysis which is a method for identifying, analysing and reporting patterns of themes within qualitative data (Braun & Clarke, 2006). Where individual questionnaire responses are reported in Chapters Four and Five, they are listed with the designation ‘QS’ indicating ‘Questionnaire Student”, a number showing which response line is theirs in the questionnaire data on SPSS, and a case study classroom number. For example, a designation of QS57, B1, shows they were the 57th line of data from a questionnaire student, and were in class B1.

**Third Dataset Procedure**

The third dataset comprised data generated from interviews conducted with students, faculty, and embedded librarians from the case study classrooms. The purpose of this was to provide more detailed information about how the service operates, forms of learner support, and roles and relationships between the various participants, from the viewpoints of all participant groups in the classrooms.

**Interview design.**

The semi-structured individual interviews were conducted by telephone at the end of semester with faculty, embedded librarians and a sample of students from each of the online classrooms in the case studies. Separate sets of interview questions were used for these three groups of online classroom participants. All interviews included lead questions and prompts for further discussion, intended to draw out more detailed information about individual
experience of learner support and interaction with an embedded librarian during the teaching semester. These questions were purposely developed to relate clearly to the main research questions and to complement the questionnaire information. The interview process also allowed the opportunity for participants to give further detail, explanation and context to their experiences, through questions with follow-up prompts which permitted the researcher to guide the conversation depending on how it was developing. While each followed a similar line of questioning, they varied to cater for differences in viewpoint and position of each group. Table 3.4 lists the themes for the interview questions and compares the questions asked for these themes across all three participant groups. Copies of the semi-structured interview questions and follow-up questions for faculty, librarians, and students are found in Appendix B.

Table 3.4

Comparisons of interview questions for all participants identified by theme

<table>
<thead>
<tr>
<th>Question theme</th>
<th>Faculty</th>
<th>Embedded Librarian</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation before the class started.</td>
<td>What did you do to prepare for this course before it started?</td>
<td>What did you do to prepare for this course before it started?</td>
<td>Were you already a regular library user or information seeker before you started this course?</td>
</tr>
<tr>
<td>Identification of skills before the start of the class.</td>
<td>Was there any identification of skills or assistance likely to be needed by students before the start of the course?</td>
<td>Was there any identification of skills or assistance likely to be needed by students before the start of the course?</td>
<td>Were there any research or information skills you knew you needed before the start of the course?</td>
</tr>
<tr>
<td>Being aware of the embedded librarian in the class.</td>
<td>How were the students made aware of the presence of the embedded librarian in the class and what the librarian could do for them?</td>
<td>How were the students made aware of your presence in the class and what you could do for them?</td>
<td>How were you made aware of the presence of the embedded librarian in the class and what the librarian could do for you?</td>
</tr>
<tr>
<td>What the embedded librarian did during the course.</td>
<td>Describe what the embedded librarian did during the running of the course to support students.</td>
<td>Describe what you did during the running of the course to support students.</td>
<td>Describe what the embedded librarian did during the running of the course to support students.</td>
</tr>
<tr>
<td>Interactions made with the embedded librarian during the course.</td>
<td>Did the embedded librarian do anything to support you during the running of the course?</td>
<td>Describe your interactions with students during the course.</td>
<td>Describe your interactions with the embedded librarian during the course.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Other interactions during the course.</td>
<td>Describe your interactions with the embedded librarian during the course.</td>
<td>Describe your interactions with the faculty member during the course.</td>
<td>Did you read the discussions in the library forum?</td>
</tr>
<tr>
<td>Level of support provided by the embedded librarian.</td>
<td>Did you feel the students were supported by the embedded librarian?</td>
<td>Did you feel you were successful in supporting the students?</td>
<td>Did you feel supported by the embedded librarian?</td>
</tr>
<tr>
<td>Any other information about the embedded librarian.</td>
<td>Is there anything else you would like to add?</td>
<td>Is there anything else you would like to add?</td>
<td>Is there anything else you would like to add?</td>
</tr>
</tbody>
</table>

**Interview pilot testing.**

Pilot testing consisted of phone interviews with one embedded librarian and one faculty member, neither of whom was involved with the case study classes. Questions were checked for clarity, logical progression of subjects and coverage. This also provided an opportunity to practice interviewing with prompt questions to follow up on points raised during the interviews and testing the recording apparatus. No major changes were made to the interview questions as a result of the pilot testing, but this process did provide useful guidance on the placing of prompt questions and in following leads from the interviewees’ responses during the actual interview process.

**Interview participant recruitment.**

As the six case studies were chosen with faculty and embedded librarians from each class agreeing to be part of this study, they were all interview participants. The selection of students to be interviewed was made during the course. Messages were sent to all students, giving them a link to indicate if they were willing to be contacted for a short phone interview after the course had finished. There were 18 students across the classrooms who self-identified as being willing to participate in this phase of the study. When interviews were conducted, one student was unavailable, and the other 17 students were interviewed.
Interview data collection.

Interviews were conducted over a four-week period after the end of the course in 2014. A time for conducting each interview was arranged to suit both the interviewee and interviewer. All interviews except one were conducted by phone and recorded digitally. The remaining interview was conducted by email at the interviewee’s request, as she had moved to a location with limited phone and broadband access. There were 29 interviews in total, conducted with faculty (n = 6), librarians (n = 6) and students (n = 17). The number of students interviewed varied across case studies and is summarised in Table 3.5.

Interviews lasted approximately half an hour each. Recordings of the interviews were transcribed into Microsoft Word by an assistant and checked by the researcher for accuracy and completeness. Interviewees were also invited to view and check the transcripts of their own interviews.

Table 3.5

<table>
<thead>
<tr>
<th>Case study</th>
<th>No. of students interviewed</th>
<th>No. of faculty interviewed</th>
<th>No. of embedded librarians interviewed</th>
<th>Total interview participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>A2</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>A3</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>B1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>B2</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>B3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

Interview data preparation and analysis.

Qualitative data was analysed using thematic analysis. This method of data analysis moves the researcher through three phases of enquiry: recognising pertinent data, encoding it and then interpreting it (Boyatzis, 1998). Interview transcripts were analysed using thematic coding, conducted with both deductive and inductive approaches. The deductive approach was the first sweep of the analysis. Interview data were coded using theory-driven codes.
identified from the literature (Fereday & Muir-Cochrane, 2006). To complement this, an inductive approach followed as a second sweep through the data using data-driven codes (Fereday & Muir-Cochrane, 2006).

In both the deductive and inductive approaches, the interview transcripts were read, re-read and coded by the researcher. Responses were highlighted using different computer fonts and then grouped into themes using tables. This iterative and multi-faceted process of analysing the qualitative data was used to assist with the overall rigour of the data analysis, increasing the credibility and trustworthiness of the research. The aim was to identify commonly appearing themes and ideas across the interviews, which would provide data relating to all of the research questions, and to identify any new ideas and concepts that had not been previously considered. Comments provided in the questionnaires were similarly prepared. These were copied into Microsoft Word with their questionnaire response number and which class they were from. These responses were then analysed using the same coding method as the interviews.

The findings of the analyses of both the interviews and the open-ended answers in the questionnaire are presented in the within-case analyses in Chapter Four and the deductive and inductive codes and further analyses are presented in the cross-case analyses in Chapter Five. Where individual questionnaire responses are reported in Chapter Four, they are listed within the relevant individual case study with the designation ‘IS’ indicating ‘Interview with Student’, ‘IL’ indicating ‘Interview with Embedded Librarian’, ‘IF’ indicating ‘Interview with Faculty’, and a number indicating which interview it was within the type of classroom participant, for example ‘IS11’. In Chapter Five, the cross-case analyses, an indication of the classroom was also added, for example ‘IS11, A3’.

**Deductive codes and descriptions.** The design of both the interviews and the open-ended questions in the questionnaire was to enable the drawing out of information to answer the research questions. A set of deductive codes for the thematic analysis of this data was determined a priori from the literature covering the themes of how the embedded librarian works in the online classroom, forms of learner support, roles and relationships and other functions and support. Sub-themes identified elements within each of these broader themes. The cross-case analyses addressing the first research question focused on themes identified from this deductive thematic analysis. These theory-driven deductive codes (Fereday & Muir-Cochrane, 2006) are presented in Chapter Five.
**Inductive codes and descriptions.** In the subsequent phase of thematic analysis, emerging themes were identified a posteriori as a set of inductive codes through an iterative process deriving from the analysis of the data itself. These inductive codes were redefined and relabelled as subsequent data shed more light on the nature of the emerging ideas and concepts. The resulting codes were then grouped into broad categories and expressed as themes. These covered the broad themes of roles and relationships, presence, interactivity and benefits. The iterative process identified further sub-themes and clarified the main themes from the data. The cross-case analyses addressing the second research question focused on themes identified from this inductive thematic analysis. These data-driven inductive codes (Fereday & Muir-Cochrane, 2006) are presented in Chapter Five.

**Fourth Dataset Procedure**

The fourth dataset comprised data gathered from a wide variety of sources during the conduct of the case studies, including postings in the discussion forums, notes from interactions with case study participants, field notes, observations, usage statistics generated from classroom activity and other such data. This data builds a base of supporting information which sits alongside the other datasets. This allowed the opportunity to gather information from unexpected sources including observations and sources not previously identified for collection. The purpose of this was to provide supporting information which could potentially clarify or confirm the information gathered across the other three datasets.

The notes from interactions with case study participants, field notes and observations were all recorded by the researcher contemporaneously with other data gathering phases. This ensured information was recorded accurately and related well with the other data collection. The forum postings and usage statistics from classes at Institution A were gathered at the end of the teaching trimester. These provided records of the interactions during the teaching period and the overall number of student views or interactions in the library forums. The number of student views and interactions was compared with the number of students in each class to consider the extent of access to learner support through students’ questions and responses for both the students initiating the questions and other students in the class. Where discussion forum postings are reported in Chapter Four, they are listed within the relevant entry order into the forum with the designation ‘FS’ indicating ‘Forum posting by Student’, and a number indicating the position of the student in order of entry to the discussion forum, for example ‘FS8’. In Chapter Five, the cross-case analyses, an indication of the classroom was also added, for example ‘FS8, A2’. There was no comparable data from Institution B.
Summary of Dataset Procedures

These four datasets together presented the full range of data for this research and represented the second of Yin’s (2014) principles of data collection for multiple case studies. By using a variety of sources these four datasets also contributed to the chain of evidence for these case studies, which fulfils the third of Yin’s principles of data collection for multiple case studies. The fourth of Yin’s principles, exercising care when using data from electronic sources, was fulfilled by the researcher during the data collection, analysis and reporting stages.

Within-Case Analyses

The second and third phases of Yin’s (2014) multiple-case study procedure (illustrated in Figure 3.1) involves the analysis and conclusions resulting from a multiple case study. The end of the second phase ‘Prepare, Collect, and Analyse’ involved writing individual case study reports, also referred to as within-case analyses (Yin, 1981). All four datasets were used to provide a clear and rounded picture of each individual classroom as standalone case reports. Each case report considered the same broad elements, with these elements emerging from the case reports themselves. This used an iterative process to write each case report as an individual entity, but in a way that would facilitate comparisons in the cross-case analysis phase. Within-case analyses are presented in Chapter Four.

Cross-Case Analyses

The third phase of Yin’s (2014) multiple-case study procedure (illustrated in Figure 3.1) ‘Analyse and Conclude’ included a cross-case analysis resulting in the drawing of cross-case conclusions. The broad elements of the individual case study reports were used to compare like data across all six case studies. This enabled the cross-case analysis to more clearly highlight similarities and differences in the delivery of learner support in the chosen online classrooms. In addition, aggregated data is presented to give an overall picture of the embedded librarian practice. These two tiers of cross-case analysis are presented in Chapter Five.

Building Theory

Finally, following the within-case and cross-case analyses and conclusions, a further development of learner support theory or refinement of the embedded librarian model was
explored, following Eisenhardt’s (1989) method of building theories from case study research. Eisenhardt (1989) explains one of the strengths of building theory from case studies is that the resultant theory is likely to be empirically valid. The likelihood of valid theory is high because the theory-building process is so intimately tied with evidence that it is very likely that the resultant theory will be consistent with empirical observation. (p. 547)

A summary of the findings and implications resulting from the case studies, and the building and discussion of new theory from the results of this research, are presented in Chapter Six.

Validity, Reliability and Trustworthiness

Assurance of the quality of a study is dependent on the choice and use of research methods to conduct the research. This can be measured in a variety of ways: in quantitative methods validity and reliability are critical to the merit of the research findings, and within qualitative methods trustworthiness is a critical factor. In this multiple case study both quantitative and qualitative methods have been employed, permitting triangulation between the methods to be used as a further measure of the assurance of quality. Also, to minimise possible bias within this study, particularly response bias where students’ responses may be affected by the knowledge that the research was being conducted by their current faculty, none of the online classrooms selected as case studies were ones where the researcher had any personal involvement, teaching or otherwise.

Validity

Validity in quantitative methods refers to the extent to which the whole research process and, more specifically the extent to which a specific measure, accurately represents the concept it claims to measure (Punch, 1998). Joppe (2000, cited in Golafshani, 2003), described validity as determining “whether the research truly measures that which it was intended to measure or how truthful the research results are” (p. 599). The research instrument used in this study which is subject to validity testing is the questionnaire administered to students. Three forms of validity were considered: construct, content and face validity.

Construct validity has been defined as “the validity of the inferences made about a construct based on the measures, treatment, subjects, and settings used in an experimental study” (Ary, Cheser Jacobs, Sorenson Irvine, & Walker, 2018, p. 238).
concept, idea or notion being researched, was carefully defined and compared with the literature in the field to ensure that the initial construct was sound. The review of the literature also identified previous studies which were drawn upon when forming the questions used in the questionnaire, which also contributed to construct validity. In addition, two researchers teaching online at the tertiary level reviewed the draft questionnaire questions to provide further feedback, and one embedded librarian and one faculty member not involved with the case study classes reviewed the draft interview questions to provide further feedback.

Content and face validity, which determine if the questions make sense in themselves and if the students completing the questionnaire understand the questions, were addressed. Two researchers reviewed a draft of the questionnaire and provided feedback on the sense of question individually, with others in the scales, and in relation to the literature in the field, which addressed the issue of content validity. A pilot questionnaire was administered to a small class not involved in this study and resulting answers were checked for inconsistencies and unexpected answers. Double-checking with a small number of participants ensured that the questions were worded in a way that students could understand, which contributed to the face validity.

Reliability

Reliability “relates to the consistency of a measure” (Heale & Twycross, 2015, p. 66) and internal consistency is “the extent to which all the items on a scale measure one construct” (Heale & Twycross, 2015, p. 67). In this study, Cronbach’s Alpha was used to assess the internal consistency of the scales of questions in the questionnaire, to provide confirmation that the questions related to the same construct or theme within a scale. This confirmed the reliability of most of the scales without alteration. In the scale relating to Instructional Support, Cronbach’s Alpha indicated the internal consistency of questions in the scale was not sufficiently high (below .70); a question in the scale was reconsidered and removed which restored the internal consistency of the scale to an acceptable level.

Trustworthiness

Trustworthiness in this context refers to issues in qualitative research methods determining the quality of the research. Golafshani (2003) explained that “Although reliability and validity are treated separately in quantitative studies, these terms are not viewed separately in qualitative research. Instead, terminology that encompasses both, such as credibility, transferability, and trustworthiness is used” (p. 600).
The research instruments used in this study which were subject to trustworthiness consideration were the interview questions for the students, faculty and embedded librarians. As with the questionnaire, a pilot was run for the interview questions, with one faculty member and one embedded librarian not otherwise involved in the research as participants. This permitted the sense and order of questions to be tested, and the follow-up questions to be administered in a live setting prior to the actual interviews for the research being conducted. This resulted in the refining of the wording of one question for clarity. More generally, semi-structured interviews provide the opportunity to check the meaning of the data being collected at the time it is being collected, and with the original source, through follow-up questions and exploratory conversation (Galletta, 2013) which increases the trustworthiness of the interpretation of the interview data.

In addition, triangulation was used to negate possible issues in the overall design of the research. Patton (2002) argued that “triangulation strengthens a study by combining methods. This can mean using several kinds of methods or data, including using both quantitative and qualitative approaches” (p. 247). The multiple case study method, and the range of research instruments employed, including a questionnaire, interviews, a literature review and other sources of information, ensured that triangulation of data was possible. The overall datasets were analysed individually and also read as a whole to ensure consistency and trustworthiness of results across the entire study.

**Ethical Considerations**

Ethical issues surrounding the research participants, the researcher and the data collection were addressed in this research in relation to the choice to participate in the research, the treatment of the research participants, data security and storage, anonymity and confidentiality. Ethical approval for this research project was obtained from the University of Otago prior to proceeding with data collection, with informed consent from faculty and embedded librarians sought before the semester started, and informed consent from students at the start of the semester itself. Separate information sheets and consent forms were provided to all interview participants prior to conducting the interviews, and all participants had the right to withdraw their consent up until the end of the data collection phase. Similarly, consent forms were built into the start of the questionnaire and participants were able to withdraw from the questionnaire by simply closing the online questionnaire form. The only ethical concern identified by the researcher is in the possible identification of participating
institutions in this study, as descriptions provided in Chapter Four are necessarily detailed to provide full context for the case studies but come from a limited pool of possible institutions given the relatively small number of tertiary institutions in New Zealand. Descriptions have been kept to a minimum to mitigate this as far as possible. No ethical concerns were identified by the participants. Copies of the Information Sheets for Participants and Consent Forms for Interviewees are found in Appendices C and D respectively.

Summary

This chapter has discussed the conceptualisation and conduct of this research into how embedded librarians work in practice and how the effectiveness of the support they provide can be maximised in online tertiary classrooms in New Zealand. The theoretical perspective of constructivism has been identified for this research. The choice of a multiple case study method for the data collection has been introduced, and reasons given as to why this was the best choice of method for this particular research. The four datasets which comprise the data collected for this research have been identified, and the methods for collecting and analysing the data have been outlined. Issues for upholding the validity, reliability and trustworthiness of the research results are outlined, and ethical considerations are explained.

Chapters Four and Five present the findings resulting from this methodology, with Chapter Four detailing the within-case analyses and Chapter Five presenting the cross-case analyses and aggregated data which together present an overall picture of embedded librarian practice. Following this, Chapter Six presents the discussion and implications of the findings and the development of new theory resulting from this research.
Chapter 4: Results – Within-Case Analyses

Introduction

This chapter presents the findings of the six case studies. These are the individual case reports, or within-case analyses, in the first line of analysis in Yin’s (2014) multiple-case study procedure as illustrated in Figure 3.1. This chapter begins with a brief description of the two institutions from which these case studies were drawn, to provide the context in which these classrooms operated. The six case studies are then presented and described in terms of how the class was structured and run, the activities that were undertaken by the embedded librarian within the classroom and the support the embedded librarian provided for students and for faculty. Findings reported in this chapter illustrate how the practice of embedding librarians in online tertiary classrooms worked in these case study classrooms. This chapter addresses the first research question: What is the practice of embedding librarians in online tertiary classrooms in the New Zealand context?

The Institutions

The six case study classrooms were drawn from two New Zealand tertiary institutions. Descriptions of these institutions were synthesised from several sources including official publications, websites, and personal communications with faculty and embedded librarians in the case study classrooms.

Institution A was a longstanding New Zealand tertiary education provider and offered teaching programmes up to the Bachelor’s degree level (Levels 1-7 on the New Zealand Qualifications Framework) in 2014 when data collection began. It offered over 100 different qualifications to around 30,000 students. All courses were delivered at a distance and there was an increasing focus on online delivery. A number of librarians had already been embedded into a selection of online classes to support students’ learning and faculty’s teaching. These embedded librarians were each assigned to a range of online classes in an academic discipline and also worked part-time in the institution’s library. Also available for students at Institution A were learning support facilities, support for students with disabilities and support for Māori and Pasifika students through the institution’s library and learning centre. Three case study classes came from Institution A, and are referred to as classes A1, A2 and A3.
Institution B was another longstanding New Zealand tertiary education provider and offered teaching programmes up to the Doctoral level (Levels 3-10 on the New Zealand Qualifications Framework) at the time data collection began. It offered more than 200 different qualifications to over 35,000 students. This institution also had a long history of delivering distance education. In addition, this institution had on-campus students in several campuses around the country using face-to-face learning. Other courses were delivered in a blended mode incorporating aspects of both contact and online delivery, and there was also an increasing focus towards online delivery for non-contact courses and course components. A number of librarians at this institution were also embedded into a range of online classes within discreet academic disciplines to support students’ learning and faculty’s teaching and worked their remaining hours in the institution’s library. Also available at Institution B was support for students with disabilities, for international students, for Māori and Pasifika students and a variety of pastoral support facilities including chaplains, childcare and counselling services. Three case study classes came from Institution B, and are referred to as classes B1, B2 and B3.

The Case Study Classes

As with the descriptions of the institutions, descriptions of the case studies classes were synthesized from a variety of sources, including interview data, survey data, personal communications from faculty and embedded librarians working at each institution, notes from interactions with case study participants, observations, field notes, official publications, websites, course descriptors, course outlines and assessment questions. Interviews formed a particularly rich source for the within-case analyses, providing detailed qualitative data representing viewpoints of all classroom participants and complementing other data sources already identified. Illustrative quotations from interviews with students (IS1-IS17), faculty (IF1-IF6) and embedded librarians (IL1-IL6) are included.

A distinctive name or trait has been chosen for each class which identifies a key trait or overall feature specific to that class. These traits do not merely distinguish classes from one another but identify a feature or characteristic which expresses part of the nature or context of each class and are explained further in the individual case study analyses. Table 4.1 summarises the key features of the six case study classes.
Table 4.1

*Key descriptions of the six case study classes*

<table>
<thead>
<tr>
<th>Class</th>
<th>No. of students</th>
<th>Year of tertiary study*</th>
<th>Delivery mode</th>
<th>Academic Discipline</th>
<th>Identifying name or trait</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>66</td>
<td>1</td>
<td>Fully online</td>
<td>Social Sciences</td>
<td>The First Class</td>
</tr>
<tr>
<td>A2</td>
<td>111</td>
<td>1</td>
<td>Online with a face-to-face workshop</td>
<td>Business</td>
<td>The Big Class</td>
</tr>
<tr>
<td>A3</td>
<td>49</td>
<td>2</td>
<td>Fully online</td>
<td>Social Sciences</td>
<td>The Trainees</td>
</tr>
<tr>
<td>B1</td>
<td>29</td>
<td>4</td>
<td>Online with a residential week</td>
<td>Social Sciences</td>
<td>The Professionals</td>
</tr>
<tr>
<td>B2</td>
<td>12</td>
<td>4</td>
<td>Fully online</td>
<td>Education</td>
<td>The Teachers</td>
</tr>
<tr>
<td>B3</td>
<td>62</td>
<td>2</td>
<td>Fully online</td>
<td>Health</td>
<td>The Transitional Class</td>
</tr>
</tbody>
</table>

*1 and 2 are undergraduate, 4 is postgraduate

**Institution A**

**Case Study A1 “The First Class”**

This class was at the first-year Bachelor’s degree level (NZQA Level 5) at Institution A. It is referred to here as “The First Class” as it was a common first course choice for students embarking on a wide range of qualifications in different disciplines, including humanities, communication, psychology, and information studies. The course content provided information skills and taught literacies which could be broadly applied across this wide range of subject areas. The participants in this online classroom were two faculty members, one embedded librarian and 66 students. The embedded librarian worked in several online classes in social sciences and also worked in the library on campus. Figure 4.1 illustrates the composition of this online class from the students’ point of view, showing the focus of the single online classroom being observed, a library that is external to the classroom but internal to the educational institute and the location of all classroom participants. In Class A1 the embedded librarian is working predominantly in the online classroom, with a connection to and a smaller presence in the library.
Class A1 was delivered in an online-only asynchronous format through a Moodle platform over a single semester. Assessments included choosing and defining a research topic, information search strategies, evaluating information sources and writing an article.

Students studied remotely by engaging with the course materials online, supported with weekly messages from the course lecturers, discussions and questions with the lecturers and other students. A number of asynchronous discussion forums were run in this classroom, mostly facilitated by the lecturers for the open discussion of course content and assessment preparation. A discussion forum was conducted by the embedded librarian for the open discussion of information resources, information search strategies, referencing, and other library or information-related topics. This ran parallel to the content discussion forums run by the faculty and ran for the duration of the course. As no synchronous classes or tutorials were held, the asynchronous discussion forums were the main avenue for student participation during the course itself. Students were prompted to engage with the discussion forums through formative activities strategically placed within the course content. They were also able to initiate or contribute to a range of other discussion forums as and when they wished, to ask questions relating to assessment or other work and to seek support from faculty or the embedded librarian. A record was kept of library discussion forum transactions for this case study, but there was no record of the number or content of contacts students made directly with the library or with the embedded librarian personally in the duration this course.
Embedded librarian activity.

Preparation of the course prior to the start of the class included input from the embedded librarian in several ways. The embedded librarian provided input into the learning objects (packaged tutorials on information searching) and explained “we did create the multi-media videos … that involves identifying what skills or assistance [students] would need before creating the videos and writing the scripts” (IL1). This provided instructional support for information skills and came within the expertise of the embedded librarian, who not only understood the subject of information searching but also the learning characteristics of the students and their particular information needs in this class.

Closer to the start of the running of this particular class, the embedded librarian emailed the reading list for the course to one of the faculty members for any alterations and offered to update readings when needed. In addition, he described spending time “looking at previous postings that I made the previous trimesters for the first posting and adjusting it as needed and looking back to see if there were any particulars areas that I could predict that would come up” (IL1). This enabled him to create ready answers for the current class and information on regularly asked topics such as referencing, which could be sent out at appropriate points in the semester before students started requesting that information.

The embedded librarian worked predominantly in the online classroom, with a connection to and smaller presence in the library. Throughout the semester, the embedded librarian answered questions from students about library and information skills and referencing and communicated directly with students who chose to contact him outside of the discussion forum. By the end of the semester, 57 posts were contributed to the library discussion forum; with 35 posts from 11 different students (17% of students) and 22 posts from the embedded librarian. Posts included some question and answer combinations and some interactive exchanges with discussion and clarification between students and the embedded librarian. The 57 posts were viewed a total of 730 times by the participants, with an average each post being read 13 times. Despite this, with 66 students in the class, this indicates that possibly not all posts were widely or actively read. However, the discussion forum had a ‘subscribe’ function which permitted students to forward all forum posts to their email addresses. Students using this function would be able to read all forum messages without being tracked. Also, follow-up contacts with the embedded librarian by phone or email for further discussion were not recorded. This means an accurate measure of the actual usage and potential effectiveness of the forum was unable to be fully determined.
The library discussion forum began with a welcome from the embedded librarian, outlining his role, the range of areas in which he could provide assistance, and links to key resources available in the library and learning centre. Following this, students asked questions and made comments. To begin with, the embedded librarian answered each question directly, but by the mid-point of the course students began to build on each other’s posts, either to add supplementary questions of their own, or make comments or share information with the class. While a few extended conversations took place, the majority of communications in the library discussion forum were in the form of questions and answers, with 23 specific questions asked by 10 different students. Other posts included additional comments from other students and the embedded librarian and one student who thanked the embedded librarian for information received directly from him via the library.

**Embedded librarian support for students.**

Both passive and active support was provided by the embedded librarian to students in Class A1. Passive support was in the form of placing RLOs into the course prior to the start of the teaching semester and in pre-preparing forum posts based on questions asked in previous semesters. Active support was provided to students through the library discussion forum during the running of the course and also to students making direct contact with the embedded librarian by email or phone.

The library discussion forum provided the main active support to students from the embedded librarian and was responsive in nature. Students asked questions on topics such as searching strategies, locating full-text journal articles, successfully downloading eBooks and referencing. Where short explanations or direct links to external material would provide the required information, for example, to resources on referencing, these were provided by the embedded librarian. But where students needed guidance rather than answers, guidance was given, such as the embedded librarian guiding a student back to the relevant part of the course materials to complete formative activities which enable the student to answer their own questions, and providing links for the next step in the process for that student so they could continue on from that point towards an assessed piece of work. One student explained “I think it’s quite a valuable tool to have for newer students” (IS3).

The embedded librarian supported students in the library discussion forum by addressing three in-depth questions on creating search strategies for locating specific subject resources, nine specific referencing questions, and six questions on technical or IT-related issues such as downloading eBooks. The majority of these were more than question and
answer responses and several included multiple responses between student and librarian in a conversational style. In some discussion threads, students joined in the conversation by contributing a further question, an idea, or a comment. Examples of in-depth questions included asking for advice on how to identify search terms for a given topic and apply them in searching different resources, referencing questions included how to identify and include DOI’s in a reference, and how to cite an eBook. As the embedded librarian was familiar with the content, assessment and learning objectives of this particular course, his instructions and advice were relevant to the course context, thus meeting the needs of the students. Although accessing support from the embedded librarian in this way rather than directly contacting the library may have been just a convenience for some students, it also provided a user-friendly and accessible avenue for other students in this first-year class to seek assistance they may not have otherwise sought.

An additional aspect of support created through the library discussion forum was that students were able to learn from the posts of other students. Evidence of this was seen in students contributing ideas, comments or additional questions in response to the questions of other students. Other evidence was in the large number of forum views which seemed to indicate that students were deliberately reading questions asked by other students and the responses they received. One example of students learning indirectly from the embedded librarian through questions posed by other students in the library discussion forum came from the interviews, with a student explaining:

I read a few discussions regarding APA referencing. At the time it was very in depth (to me!) and detailed, however when I actually came to do my own referencing, I used those discussions as part of my research into writing a correct reference list. Very useful. (IS2)

This indicates that a question and answer interaction between a student and the embedded librarian may have more lasting value than for the one student who asked the question. This introduces the idea of scalability as an added feature of the embedded librarian support for students, with a single interaction providing support beyond that one transaction. This extended form of interaction with the library forum also may have contributed to a sense of community in the online class and a sense of parity between students, as they were able to see what others were thinking and asking and could contribute to or make their own use of the information it contained. The library discussion forum, with its placement inside the online classroom and visibility to the entire class, allowed the embedded librarian to make these contributions to class A1.
Embedded librarian support for faculty.

The role of the embedded librarian as support to faculty was evident in this class in several ways, including support in course preparation, teaching and personal research. As already mentioned, prior to the start of the course the embedded librarian assisted the faculty member with some input into the course revision providing tailored details on information skills that could be usefully integrated with or delivered alongside course content. The embedded librarian also checked over reading lists for the course and “suggest[ed] reading materials in the area” (IF1) to help the faculty member maintain the currency of the course readings. These actions provided support to faculty with targeted and tailored library and information advice and expertise which could help the faculty member add value to the course.

In terms of supporting faculty in active teaching, the embedded librarian worked collaboratively with faculty in answering information questions directly and liaising with faculty on other enquiries. The embedded librarian explained that most student queries in the library discussion forum were straightforward, but if library-related questions appeared in other faculty-led forums: “I would jump in if I had talked to the [faculty member] first but most of the time it would be via email and then via a post to the forum or posted direct to the student” (IL1). The faculty member confirmed that sharing student queries worked both ways: “sometimes students will bring a question up about referencing and if there are also other questions that other students need help with then those relating to referencing will be forwarded to the librarian to deal with” (IF1). The support given by the embedded librarian not only reduced the workload of the faculty, but also contributed expertise in information seeking and referencing, allowing the faculty members to concentrate on teaching the content of the course.

A small amount of personal assistance was also provided by the embedded librarian to one faculty member, by identifying relevant information sources and materials for the faculty member’s own professional development and research. Although this was beyond the boundaries of the course itself, the embedded librarian was ideally placed to provide this support, as there was an existing understanding of the faculty member’s discipline area and an existing relationship which made this extension of the library service direct to the faculty member a logical step. This represented an added value support service to the faculty member, and built on knowledge and relationships already developed, making the personal research support easier and more effective.
In summary, in Class A1 the embedded librarian contributed to course preparation, course delivery and support for faculty research, by working with the faculty member and students to deliver a supportive service bringing information skills and a connection to library services directly into the online classroom. This helped create a moderately interactive class and offer students the opportunity to develop and use information skills within the context of their own learning. A number of students in class A1 were taking this as their very first class, and so the learning of information skills in seeking, using and referencing information was particularly relevant, and this increased the value of the embedded librarian’s contribution in learner support in this class.

Case Study A2: “The Big Class”

This class was at the first-year Bachelor’s degree level (NZQA Level 5) at Institution A. It was a common course for students seeking introductory communication and presentation skills and was included as a compulsory or elective course in a wide range of qualifications in different disciplines such as business, communication and information studies. The participants in this online classroom were three faculty members, one embedded librarian and 111 students. This class is referred to here as “The Big Class” because of the large number of students, which is typical for this particular course. The embedded librarian worked in several other online classes in business and also in the library on campus.

The structure of this class was similar to case study A1, delivered in online asynchronous format through a Moodle platform over a single semester, but with the addition of a short regional contact workshop held in three different locations nationally during the semester, attended by faculty members, students from each region, and for one of these workshops, held close to campus, the embedded librarian. Figure 4.2 illustrates the composition of this online classroom from the students’ point of view, showing in the diagram on the left the embedded librarian working predominantly in the online classroom, with a connection to and smaller presence in the library, and showing in the diagram on the right the embedded librarian presence during the one day workshop with the librarian physically present at the workshop to provide support and create awareness of services there.
Assessments included online learning activities, collaborative tasks, and an oral presentation. The majority of students were likely to be near the beginning of their qualifications so would still have been relatively new to study at this level. Students largely studied remotely by engaging with the course materials online, supported with weekly messages from one of the faculty members. A number of asynchronous discussion forums were run in this classroom, in a similar fashion to case study A1, mostly facilitated by the faculty members for the open discussion of course content and assessment preparation. Students were encouraged to participate in the discussion forums through formative activities and collaborative tasks within the course content and assessment.

The library discussion forum in this course was run by the embedded librarian for the discussion of information resources and search strategies, referencing and other library or information-related topics. The library forum operated for the entire length of the teaching semester and provided students with an avenue to ask questions and seek information-related support within the context of their own classroom. A record was kept of the transactions in the library discussion forum, but there was no record of the number or content of contacts students made directly with the library or with the embedded librarian personally during this course.

**Embedded librarian activity.**

Preparation of this course prior to its delivery included some input from the embedded librarian. She checked the course content to look for any changes and re-familiarise herself.
with the content so that she could properly advise students when the course was running. She explained in her interview that the course materials were not revised before running this particular class, but if they had been, she would have been involved with that revision. She did contact one of the three lecturers to see if there were any changes to the supplementary readings for the course, so they could be identified in the library’s catalogue for easy access by students.

Immediately prior to course commencement, the embedded librarian prepared the introductory post for the library forum. This was posted on the first day of the course, where she introduced herself, gave a brief outline of the services she could provide, and gave instructions and links for accessing useful information via the library webpage. This provided students with targeted information relevant to their own subject area at the start of their course, putting all students on an equal footing in terms of accessing subject-specific resources and guides to support their studies. It also invited students to contact the embedded librarian through the library discussion forum or directly by email or phone. The embedded librarian explained:

My Welcome Post is always there … I always invite them to make use of our free phone number then they can call me directly or they can email directly - I give my [institutional] email address - and I say also you are welcome to ask your questions right here on the forum. I give them the three options right at the beginning … as a result, I get emails from students directly and also phone calls. (IL2)

During the running of the class itself, each of these methods of contact with the embedded librarian was used by at least some students. The visible working of the embedded librarian was in the library discussion forum, which had 87 posts during the trimester: 52 from students, 33 from the embedded librarian, and 2 from the faculty members. The 52 student posts were contributed by 20 different students, which was 18% of the total number of students in the class. There were 1921 recorded forum views, indicating each post was viewed on average 22 times.

The library discussion forum in this class began with a welcome post from the embedded librarian, as previously described. The first student responses did not come until nearly three weeks into the semester, but once the first question had been asked, other students followed in quick succession with their own questions. The forum quickly became interactive and remained so until the last major piece of assessed work was due. Interactions in the library forum were predominantly in a question and answer format, although some questions received multiple replies with follow-up comments or questions. The 52 student
posts included 37 questions from 20 different students, each with replies or further comment or questions from other students. Questions from students in this forum were relatively narrowly focused, and were mainly in the areas of using quotations, APA referencing and plagiarism.

What was notable in this library discussion forum was the interplay between embedded librarians and the faculty members. Two additional embedded librarians from other courses stepped in to answer students’ questions when the assigned embedded librarian for this course was on leave, and two of the faculty members from this course stepped in to answer one question each. The first of these interventions meant students’ questions did not go unanswered at any stage during the course, and the second meant that faculty members answered a question and at the same time refocused students’ attention on the learning outcomes for the course rather than on a side issue of lesser importance. These additional postings added value to the library discussion forum by ensuring advice and assistance was continuous and fully relevant to students in this class.

Contact was made in person with students at one of the three contact workshops held near the end of the course. The embedded librarian attended one workshop close to campus in person but not the other two workshops, which were geographically remote from campus. In the interview the embedded librarian described arranging a display of recommended resources and additional readings identified to further support students’ study. The embedded librarian was available for any questions from students during breaks in the workshop. Contact both prior to and during the running of the course was maintained directly between the embedded librarian and the faculty with phone calls, emails and in person on campus.

**Embedded librarian support for students.**

This class showed was a focus on instructional support to assist students finding the best information for their studies and in APA referencing to correctly acknowledge their sources of information. Instructional support for referencing included the embedded librarian developing an RLO which was placed at appropriate points in the online classroom. The faculty member explained:

several times she [the embedded librarian] put out a template ‘what is referencing’ with you know a little mini essay explaining it and the purpose of it in conjunction with me you know trying to remove a bit of the mystique and fear that can be associated with referencing. (IF2)
Another example of instructional support shows how support was adapted for the needs of individual students and their particular circumstances within the same class. A student recounted “I did notice that [the embedded librarian] had given someone an actual link to a library book in the library” (IS8) and provided a second example of tailored individual support saying “One of the girls in [a remote overseas country] who couldn’t hire books needed e-online help and [the embedded librarian] had referenced like linked up where she could go” (IS8). This demonstrates the individual nature of students’ needs even when studying the same course. Students were able to access support tailored to their individual needs and circumstances within the context of their particular course, as the embedded librarian understood their needs and constraints.

Students mentioned receiving support without the need to ask a question, simply by reading the questions of other students and the subsequent answers to those questions. A student explained that when she got to the forums and read what was there before posting her own question, she discovered “Some of the questions they’d [other students] ask were questions I was on there to ask so I got my answer without even having to ask” (IS8). Although there may be a convenience factor to this, it also demonstrates a many-to-many learning situation where students can benefit from the questions already asked by others. Based on the comments of the students, it seemed that in this instance, the questions asked by students were highly likely to be relevant to other students in the same classroom, making this form of second-hand support valuable in this context of the classroom.

Feelings of support from the embedded librarian were expressed by students in this class, with comments made during the interviews indicating student gratitude for their embedded librarian. One student elaborated on the value she gained from the just-in-time provision of learner support:

it just feels like you’ve got more people who are on hand and supportive and I think it’s also like a little instant thing you know like you know you can ask and within 24 hours you’ll get an answer you don’t sit around waiting for 3 days. It feels kind of actually going down to the library I guess except that I can do it at home. (IS8)

Faculty agreed with students’ assessments of the support they were receiving, saying “Their questions were answered punctiliously, they were very full answers and for particularly anxious students who sent follow up questions - [the embedded librarian] always responded” (IF2). Another student added, “She would actually give me rock solid answers that I needed” (IS8). A reservation with the embedded librarian service was noted in this case study, with one student admitting “there are so many people in those courses that people keep
posting so much stuff I tend to just tune out” (IS9). The sheer volume of transactions in a large class does provide a deterrent to quality shared support as it may be difficult for some students to pinpoint the information that is of value to them.

**Embedded librarian support for faculty.**

Support from the embedded librarian for faculty was evident in this class in a number of ways, but the central focus was firmly on supporting faculty to provide student support. The embedded librarian contacted the faculty teaching this course to check on the currency of the reading list and other materials prior to the start of the course. The embedded librarian confirmed she also contacted faculty during the running of the course if she required any clarification on anything for the course. In terms of supporting faculty’s workload, the embedded librarian explains that her role:

> can take … some of the workload from the [faculty members] … because we have it so well separated you know this is my area and I shall I say referencing on the library areas of finding information and really teaching the user education kind of thing is my responsibility so even if a tutor should get questions about it they can just refer the student to me or to the library forum and I am sure that is a labour saving devise for the tutors so I think yeah it works really well. (IL2)

This division of labour left the faculty to concentrate on teaching the course content without having to also teach the supporting skills needed to work with the course information at the level at which it is being taught.

The relationship between the embedded librarian and the faculty was described as “professional” and “collegial” (IL2), indicating the embedded librarian was seen as a professional in their field, and their status and ability to make a meaningful contribution to the class was recognised by faulty. Faculty expressed feelings of support from the embedded librarian in this class, identifying that:

> The students are very happy … the other staff members [are] very happy and also it saves us a lot of work … it’s really pleasing that [the embedded librarian] communicates so timely and her feedback is … so sensitive to students’ needs” (IF2).

There was no mention of the embedded librarian providing other personal support for faculty in class A2, but as the main role is supporting students, this rightly formed the basis of the work done as an embedded librarian.

In summary, in this classroom the embedded librarian focussed on directly supporting students and created an interactive discussion forum which received moderate use in both
postings and views. There was a good deal of student–embedded librarian interaction in the library discussion forum, and the embedded librarian met some of the students in person at the contact workshop, building stronger links with those students through personal interaction as well as online contact. Initiative was taken in preparing an RLO to explain the basics of referencing to students who did not have background in this area, and the embedded librarian kept a close eye on the library discussion forum and answered questions daily. The embedded librarian worked closely with faculty to provide student support in separate and distinct areas of learning, particularly information literacy skills, and supported faculty by managing this part of the course workload. Students appreciated the support they were able to receive from the embedded librarian either directly or indirectly. The embedded librarian, through these many forms of interaction, provided active learner support to students in class A2.

**Case Study A3: “The Trainees”**

This class was at the second-year Bachelor’s degree level (NZQA Level 6) at Institution A. It was a compulsory course for students in one academic discipline, information studies, with two prerequisite courses providing a common understanding of the broader discipline area as a basis for building a more specialised knowledge. This course built on knowledge students gained in class A1. This class is referred to as “The Trainees” as students were studying in information studies and in addition to learning from the course and lecturers, could also learn from observing the embedded librarian deliver library support during the course as a live example of their future work in action. Students were preparing to work in the library or related sector and some were already employed. The participants in class A3 were one faculty member, one embedded librarian and 49 students. Although the faculty member had not previously been encountered by many of the students, they were likely to have studied alongside other students in their previous online classes and have encountered the embedded librarian in previous courses in this academic discipline. Figure 4.3 illustrates the composition of this online classroom from the students’ point of view, showing the embedded librarian working predominantly in the online classroom, with a connection to and smaller presence in the library.
Figure 4.3 Illustration of case study A3 from the students’ viewpoint.

Like the other courses taught at Institution A, this class was delivered online in an asynchronous format through a Moodle platform over a single semester. Assessments included a presentation on an information topic, analyses of information exchanges and programme planning. Students studied remotely by engaging with the course materials online, supported with weekly messages from the course lecturer. This class included a number of asynchronous discussion forums mostly facilitated by the lecturer for the open discussion of course content and assessment preparation. Students in this class were prompted to engage with the discussion forums through formative activities strategically placed in the course content and the sharing and discussion of information and ideas. A library discussion forum for this class ran for the whole semester, providing students with an avenue for asking questions and seeking information-related support from their embedded librarian. A record of the transactions from the library discussion forum was kept but there is no record of interactions students made directly with the library or with the embedded librarian personally during this course.

**Embedded librarian activity.**

The activity of the embedded librarian in this class was very similar to case study A1; both classes were in the same academic discipline and had the same embedded librarian. Prior to the start of this course the embedded librarian checked to see if the course itself had been revised and if there were any changes to the materials being referred to in the course. He also checked for any particular needs that arose in the previous running of this subject to see if
there was anything he could prepare in advance to support the incoming students. He read the assessment questions to understand what students may ask and prepare suitable responses to assist students’ learning in this particular course.

The embedded librarian’s first forum post welcomed students to the library forum on the first day of the trimester, outlined his function in the classroom and provided some links to the library page, catalogue and key resources which could be useful to that particular class. He was otherwise reliant on faculty to promote the library service and forum in their own posts to students. As with case study A2, there were no student questions until the third week of the course, but a steady rate then followed until the week the last assessment was due. Few extended conversations took place in this classroom, and most interactions were of the question and answer style.

A range of introductory information generic to this discipline area had already been developed and was available to students to access on the library website. The embedded librarian explains:

That’s really good if they can [go to the library website] because there is a lot of information … that they could use to help themselves … there is the FAQ’s, the library virtual tour which has a collection of sort of user education more like library orientation videos, how to read an e-book, how to renew a book, there’s about 10 videos on our library tour now so I direct them there and also to the library and information study and subject guide which is laying out the databases that are specific for that course and other useful websites. (IL3)

During the running of the class itself, the embedded librarian worked in a similar way to case study A1: the majority of student contact was in the library discussion forum where questions about referencing, search strategies and technical matters were asked and answered and other contact was with students who chose to contact him individually by phone or email. By the end of the semester, there had been 37 posts in the library discussion forum; 23 from students and 14 from the embedded librarian. The 23 posts comprised 15 questions and eight additional comments or replies from eight different students (16% of the class) and the embedded librarian also proactively posted detailed search techniques including subject headings and journal database navigation for a topic that students were studying. There were 741 views of posts in the library discussion forum recorded during the semester, indicating that on average each forum post was read 20 times. This gives a general indication that despite there being a slightly lower percentage of students posting questions than in classes A1 and A2, student readership of the forum was potentially larger in class A3 and may have
provided some additional benefit to students other than the ones who were actively contributing.

**Embedded librarian support for students.**

As this class was at the second-year level and students had already completed introductory papers in information studies, there was an expectation that students had retained some previous knowledge and experience in using library and information sources to support their learning. The types of support needed by the students and the support provided by the embedded librarian reflected this. In the library discussion forum students asked 10 instructional questions about choice of controlled vocabulary search terms and navigation within specific journal databases and specific referencing formats of material, and the embedded librarian answered informatively and succinctly with instructions, examples and pointers to fuller resources for further details. A student explained that the level of questions and answers was advanced as it built on previous knowledge: “... because I had completed the [case study A1] course and I knew how to search certainly the library’s catalogue … those skills are always ongoing and developing” (IS12). The focus of this library discussion forum, in contrast to the forum in class A1, was on more advanced and detailed information questions.

There were two technical/IT questions asked in the forum which the embedded librarian answered, although these could equally have been asked directly to the library with the same responses given. This indicated there may still be an element of convenience or ease of use by having the forum available within the classroom setting.

In addition to answering students’ question in the library discussion forum, the embedded librarian also made a proactive post at a strategic point in the course to assist students with learning they were undertaking. That post included links to YouTube clips, a direct link to the library’s catalogue, methods for identifying specific subject headings and screens shots to demonstrate how to navigate through a particular journal database. It was based on information students had sought in previous offerings of this course and sought to address a specific information need at the point that students were likely to begin encountering that need. This worked on the just-in-time principle, anticipating and providing targeted support to students at the point in their course when they need that support.

The faculty member in class A3 raised a further aspect of the embedded librarian’s support for students, acknowledging that in this information and library studies class “there is
that awareness of this person’s role and what they are meaning to provide and that benefits the student to use it because they are also working in similar roles” (IF3). While no students commented directly on this role in the interviews or survey free response questions, the embedded librarian remained as an example of how library service and interaction can be provided, and so there was potential for students to be supported further in their learning by observing an actively participating professional librarian in their class.

Support from the embedded librarian was also given indirectly, with answers to students being available to other students willing to read posts in the library discussion forum. There are indications that students felt supported by both participating in the library discussion forum and by simply reading it, as evidence by an interview comment about the library forum being “Quite useful because most of the stuff what I asked the librarian I got the information what I needed but I got more from other student’s questions” (IS13). The faculty member ventured “maybe sometimes [students] need just another person to affirm what they already know” (IL3). Other support was provided to students in this classroom individually by the embedded librarian, but it is not known how many individual contacts were made by email or phone, how many contacts were made directly to the library, or what the content of those contacts were.

**Embedded librarian support for faculty.**

In class A3 the role of the embedded librarian in supporting faculty was evident in both course preparation and teaching support. The involvement in course preparation has already been outlined, including checking for any course revisions and ensuring the supporting library resources are the correct versions and editions for the course. Teaching support was conducted by encouraging student questions about information seeking, referencing and technical questions to be sent to the library discussion forum and answering those question there with reference to the course content and assessment. This supported the faculty by ensuring the currency of the library resources used in the course and diverting questions about information searching and referencing style to allow faculty to focus on the teaching of the main course content. As this was a library and information studies course, careful navigation was required between the faculty member and the embedded librarian so that the roles of teaching and supporting using information resources were kept separate and distinct. The embedded librarian was clear on the particular distinctions needed in providing quality support in this class, as he had worked in this classroom in previous semesters and was active in other classes in this discipline area.
The faculty member referred students to the embedded librarian where practical, believing this to be an effective way to operate, saying “if [students] contacted me I would just ask for their questions but generally I would try and urge them to go to the librarian if it was a certain type of question rather than to come to me” (IF3). The faculty member also looked back at the end of the course and commented that the library forum “was more active than expected … [initially] I wasn’t even subscribed to the librarian forum … and I was surprised that there were actually like quite a few questions and quite a lot of discussion that was happening” (IF3). This was indicative of the amount of support students were receiving from the library discussion forum, and also of the support being given to the faculty member.

One other type of embedded librarian support for faculty did occur in this specific class, when the faculty member requested the embedded librarian to locate examples of real customer interactions which could be used to develop new scenarios for the teaching of a future iteration of this course. This was a natural extension of the support work undertaken by the embedded librarian in the context of class A3 and built on the embedded librarian’s part-time work in the library and experience dealing with customer interactions as part of his regular tasks.

In summary, case study A3 showed active involvement of the embedded librarian in supporting learners in multiple ways including answering questions and providing instruction on locating information or referencing material, through the library discussion forum and individual contact via the library or email. The embedded librarian and faculty worked collaboratively to ensure an appropriate division of student queries that suited the nature of this specific course, which supported both students and faculty. Support was also provided to faculty by ensuring course readings and materials were current for the delivery of the course.

Summary of Institution A Classes

All three case studies coming from Institution A share strong similarities. Case studies A1, A2 and A3 were all at the undergraduate level with students in the first two years of their tertiary studies. Courses were conducted mainly online in an asynchronous format through a Moodle platform over a single semester. Case study A2 differed in that it also had a contact workshop delivered near the end of the semester.

Participants in each classroom were one to three faculty members depending on class size, one embedded librarian, and between 49 and 111 students. The method of course delivery was very similar across all three case studies, with faculty providing weekly
messages to their specific classes on an Announcements forum, asynchronous discussion forums on a variety of course-related topics and a library discussion forum. These forums were the main platform for student participation and provided students the opportunity to contact and connect with the faculty, the embedded librarian and other students. Direct contact outside the confines of the online classroom was also possible, and some students made use of this opportunity although exact numbers of external or direct contacts with the embedded librarian are not known for any of these case studies.

Student engagement with the embedded librarian’s discussion forum involved a percentage of students in each class actively posting to the discussion forums: 17% in class A1, 18% in class A2, and 16% in class A3. Engagement by students with postings in the library discussion forums in class A1 totalled 730 views of postings, which was an average of 13 views per student. In class A2 there were 1921 library discussion forum views which was an average of 22 views per student and in class A3 library discussion forum posts were viewed 741 times which was an average of 20 times per student. While these statistics were relatively homogenous and gave an indication that these three case studies may have relatively similar levels of student engagement, the actual level is unable to be fully determined as the level of forum subscription resulting in the generation of forum post copies direct to participant’s email addresses is unknown.

The range of activities conducted by the embedded librarian were similar in each of these three case studies and included preparing for each course by reviewing and updating course readings and identifying likely student needs for information sources or services based on previous deliveries of the course. The running of these three courses typically saw the embedded librarian post a welcome message outlining their services and availability, followed by discussions with students largely in a question and answer format and a smaller amount of proactive posts and posts containing tutorial-style material. The embedded librarian in Class A2 met a proportion of students in person at a contact workshop run as part of the course, but there were no other meetings with the embedded librarian in person in the Institution A classes.

Each embedded librarian in the case studies at Institution A worked in all of the courses in their academic discipline. This meant that while students encountered a number of embedded librarians in their first year of study in multiple disciplines, they would be likely to encounter the same embedded librarian or librarians in future courses as they specialised in their own particular discipline. The continued relationship with an embedded librarian would
seem to bring familiarity and a sense of security to students, who would know how the embedded librarians can help students with their study and how to communicate to make the most out of the embedded librarian service.

In these three case studies, the embedded librarian supported students by offering more personalised and subject-specific support than was provided by the general library. Interactions in the library forum within the online classrooms occurred throughout the semester and provided specific support mainly in information searching strategies and referencing. The library forum postings were accessible to all students in each class, providing a one-to-many teaching situation where students could benefit from contributing or simply reading the posts in this forum.

Support from the embedded librarians for faculty members in these three classrooms was largely in the form of assisting with students queries about information seeking and referencing and updating course readings where applicable. In addition, in case study A1 the embedded librarian assisted the faculty member directly with finding suitable resources to support the faculty’s own personal research, and in case study A3 provided the faculty member with real-life examples of information transactions for the next revision of the course. Overall, the operation of the embedded librarian service showed strong similarities across all three case studies from Institution A.

Institution B

Case Study B1: “The Professionals”

This class was at the postgraduate level (NZQA Level 8) at Institution B. It was a course within social sciences exploring a specialised area of practical work in a particular profession. As all students would have completed an undergraduate qualification prior to entering this course, a reasonable level of experience in study and research techniques in the tertiary environment was assumed. These students were generally focussed and engaged as they had a clear background in both academic study and their chosen profession. For these reasons this class is referred to as “The Professionals”. The participants in this online classroom were one faculty member, one embedded librarian and 29 students. This class was delivered in an online format through a Moodle platform over a single semester with a residential week on campus at the beginning of the course.
Although students may not have known each other as some would be coming back to study after a period in practice, they did meet each other at the residential week at the beginning of the course. The arrangement with an embedded librarian in addition to the lecturer was new to many students. Figure 4.4 illustrates the composition of this online classroom from the students’ point of view, showing in the first diagram the online course with the embedded librarian working predominantly from the library, with support points strategically placed within the course content. In the second diagram the residential week is depicted, with the embedded librarian having a small presence in the physical classroom but drawing students to greater support with scheduled appointments with the embedded librarian in the physical library space.

![Diagram of online classroom and residential week composition from students' viewpoint.](image)

*Figure 4.4. Illustration of case study B1 from the students’ viewpoint.*

Assessments were a reading log and a literature review. During the residential week the students met with the faculty member and other students, were introduced to the subject and to all of the support facilities including the embedded librarian assigned to the class. These postgraduate students were offered individual research consultations with the embedded librarian in person during the residential week, as was common with postgraduate courses offered in this way at Institution B. The remainder of the course was conducted in an online-only format with students studying remotely by engaging with the course materials online, supported with weekly messages from the course lecturer, discussions and questions with the lecturer and other students, and the librarian who remained available for individual contact and assistance at any time via email, phone or Adobe Connect. Instead of a library discussion forum with an ongoing embedded librarian presence, pre-prepared RLOs were
placed strategically within the course content to provide learner support integrated into the
course structure, so support was primarily provided through pre-prepared instructional
materials. Students in this class were also able to contact the librarian or the library directly to
obtain further library support for their studies. Records were kept of direct contact made by
students to the embedded librarian in this class, but there is no record of direct contact
students had with the general library.

Embedded librarian activity.

There was a good deal of activity with the embedded librarian prior to the start of the
class. The embedded librarian explained “[the faculty member] contacted me asking for some
library content so … [we] discussed the paper and I showed her some examples of stuff we’ve
done before in other papers” (IL4). This resulted in the faculty member choosing a number of
options for this class including adding in a library block to the online class page, so students
had a direct link to the library or support. Another option chosen was the inclusion of pre-
prepared RLOs in the course for teaching specific aspects of information searching and
retrieval at the point students would need this information. This placement of targeted
information and instruction for students fulfilled information needs with specific tutorial-style
presentations delivered online, in context, and just-in-time.

During the residential week the embedded librarian was introduced to the students in
person and offered individual hour-long appointments to students to cater for their individual
information needs, including preparation and skills for the reading log and literature review
which formed the major assessment components of the course. Six students (21% of the class)
took advantage of these appointments to discuss their individual information requirements
and gain specific instruction for their particular needs in the early weeks of the semester.

In the remaining online-only portion of the course, the embedded librarian sent three
messages to students via the online course pages but there were no resulting interactions with
students on this platform. In addition, some students contacted the embedded librarian
individually during the course by phone or email, and, as noted previously, it is not known
how much contact students had directly with the library online or in person.

Embedded librarian support for students.

Students in this postgraduate course were experienced in studying at the tertiary level
so it was presumed they had some familiarity with using a range of information sources,
although the degree of familiarity may be variable as some students may have previously
studied at a different educational institution, and some may have taken a break from study between their undergraduate and postgraduate studies. The range of approaches for providing library support, specifically embedding instructional RLOs in the course content, having individual hour-long research appointments and being available by phone and email for the semester, catered for a variety of library support preferences and needs of students in this class.

The RLOs placed strategically in the course provided instructional support for students at the point where they needed to use these skills, but the level of use of these RLOs was not recorded, nor was it known how much of this was a refresher of past learning or was new learning for these particular students. When students were asked during interviews about the embedded librarian providing any resources to help prepare for the assessments, it was clear that students considered the RLO tutorials embedded in the course materials to be an inherent part of the course and not part of the library support for students.

During the residential week, students were introduced to the embedded librarian face to face and had the opportunity to gain individual time looking at research resources, and how to use them to find high quality information for their assessments. One student identified the option of individual assistance as being of a high value, saying “I think it didn’t always feel helpful to do it together, but I think that offering the individual appointments was pretty good” (IS14). Another explained the value of this service in providing more equal opportunities of on-campus and off-campus students, comparing this with her previous experiences of library support:

Yeah well, I imagine it to be useful for distance students that don’t actually attend the Uni[versity]. I mean I certainly wouldn’t have been very involved in the library process if I hadn’t been at Uni[versity] within those you know been physically been called out of the class and gone okay this is what we are doing, you know in a group do some of these examples and then you know. (IS16)

For the remainder of the course, fewer interactions were made with the embedded librarian, individually, although the embedded librarian indicated students were accessing library resources and services throughout their study.

The students also received instructional support either directly or indirectly from the embedded librarian through RLOs, in person for individual appointments, and by distance contact for the remainder of the course. No technical or IT support was mentioned in this class, so it was assumed students were accessing this through other channels or may not have required much of it at their level of experience in tertiary study. Feelings of general support
were evident with one student commenting “it’s always good to kind of know who the person is and where to go to really if you get stuck … it definitely built my confidence levels this time being able to like help me and access resources a lot quicker than I would normally have” (IS15).

**Embedded librarian support for faculty.**

Both formal and informal support for faculty was provided by the embedded librarian in class B1. The embedded librarian took an active part in supporting the faculty member in planning the course content, explaining:

… we decided that because it’s a graduate paper … it might be good to provide [tailored learning packages] because … they’ve probably got some skills, but they might be a bit variable and that people could sort of dip into it and use it if they wanted to much easier than the other tool probably (IL4).

The embedded librarian and faculty member discussed which RLOs were best suited to this course before they were inserted into the course prior to the course going live. Further support from the embedded librarian was provided to the faculty member by passing on personal knowledge of how support was provided in other online classrooms that could be used in this classroom to good effect. This provided information to the faculty member on how to best incorporate support in their classroom built on the experience of others.

During the running of the course the embedded librarian also provided teaching support for faculty. The embedded librarian explained in the interview “I noticed there was an assignment coming up and I just asked her if she thought … I should point out some of the library resources that might be helpful” (IL4). This indicates a collaborative side to the support, proactively providing resources for faculty to use for the students’ benefit. The embedded librarian explained that this constituted a multi-faceted approach:

… they often contact me about collection issues about books that they want to get or books that are set texts for a particular paper, they do ask various questions at times like how to find an article or sometimes I do face to face teaching for people as well so people usually tend to want content in stream or face to face teaching not usually both yeah those the kind of the things that I tend to do with the academics. (IL4)

In addition, some support was given to the faculty member for conducting the faculty member’s own research. This support was provided on a less formal basis, with the librarian indicating that “if we were talking about a research project, we just emailed each other” (IL4).
The embedded librarian also provided other support including the provision of “information about bibliometrics, what journal to publish [in] and that sort of thing” (IL4).

In summary, Class B1 demonstrates active involvement of the embedded librarian in a number of different aspects of the course, from preparation to delivery to planning for the next version of the course. Support was given in a variety of ways to both students and faculty, in person, by email and phone, and online. The pattern for working with postgraduate students was based on the idea that library support can build on the knowledge students may already have, but still provided options for learning for those students who had not yet acquired sufficient information-seeking skills. Support for faculty featured highly and extended beyond the confines of the online classroom to include direct support for the faculty’s own research work. The depth of the relationship between faculty and their embedded librarian could be seen in this case study through the range of interactions and variety of support both sought and provided.

Case study B2: “The Teachers”

Class B2 was at the postgraduate level (NZQA Level 8) at Institution B. It explored a specialist aspect within social science of particular interest to those in the field of education. Students in this class had already completed an undergraduate qualification, and as some had had experience in the profession before entering this course, this class is referred to as “The Teachers”. The students’ background in both study and practice also assumes some familiarity with study and research techniques needed in this course. Students were generally focussed and engaged as this course added a new dimension to an existing area of study and had practical value in their profession. Participants in this classroom were one faculty member, one embedded librarian and 12 students, making it the smallest class within this set of case studies. Students interacted with the faculty member and each other in online discussions which featured prominently in the course structure. This course was delivered as online-only, with no contact component. Figure 4.5 illustrates the composition of this online classroom from the students’ point of view, showing the embedded librarian working predominantly from the library with avenues of support placed strategically within the course content.
This class was delivered asynchronously in an online format through a Moodle platform over a single semester. Assessments included an individual project and a literature review. Students worked with pre-prepared course materials and interacted with others throughout the course as online discussion formed an integral part of the course. Students co-constructed knowledge by generating some of the course content through their shared interactions. There was no specific library forum, instead students were made aware of the embedded librarian through RLOs placed within the course content that directed them to contact either the embedded librarian or the library directly for further assistance. Students progressed through the online course with support from weekly messages from the faculty member, guided discussions and online collaborative tasks. Primary support provided by the librarian was through the pre-prepared RLO’s placed within the course, and students were also able to contact the embedded librarian directly at the library for further personal assistance, though in this instance no students did.

Embedded librarian activity.

The majority of activity the embedded librarian had with this course was in assisting setting up the course prior to delivery. It began with liaison with the faculty member for the class, looking at how the course had been delivered in the previous semester. In this instance a suite of RLOs on information, library and writing skills had been available previously and used to good effect. The decision was made to carry over the same suite of RLOs and make

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Figure 4.5. Illustration of case study B2 from the students’ viewpoint.
them available so that students could select which ones they individually needed to support their own learning in this course. These RLOs covered individual topics such as using EndNote and referencing, using databases for advanced research and advanced information literacy skills. The faculty member chose the particular RLOs for this course, and the embedded librarian chose where in the course these would be best placed for maximum relevance and uptake.

As there was no contact component in this course, students did not meet the librarian face to face. In addition, there was no library forum as such in this class, and the embedded librarian was reliant on the faculty member to introduce her and the services she could provide to the class. This information included a small introduction and guide to services prepared by the embedded librarian which the faculty member included in her communications with students. Students were encouraged to contact the library directly if they had any queries rather than approach the embedded librarian individually. The embedded librarian explained:

… that is how we triage some of our incoming queries for either distance or non-campus students - we encourage them to contact the library directly in the first instance and then if it has to be triaged to a particular staff member it can be. (IL5)

In this particular class, there were no contacts made during the semester by students to the embedded librarian either directly or by way of referral from the library. The faculty member was not surprised by this and offered some explanation:

… in some ways that doesn’t surprise me because by the time students get to this paper typically they’ve already done at least one or two previous papers at postgraduate level so they’re kind of familiar with the process of accessing information even though they might not be so familiar with the actual different databases that are available to them and where they could find the best quality research and literature. (IF5)

**Embedded librarian support for students.**

The majority of support provided by the embedded librarian to students was in ensuring the course had RLO’s covering relevant instruction in information and library skills to support students’ learning as they progressed through the course and its assessments. The embedded librarian was able to determine where in the course these were best placed but did not have any other involvement in the delivery of this instruction. She was available to students for individual queries, but there was no direct contact made. She explained that in this postgraduate class “it is difficult to know exactly why there was no specific contact, but it could be that they felt quite comfortable using the resources already” (IL5). The embedded
librarian looked at the access statistics generated by the learning management software at the end of the semester and found that 75% of the students had looked at the RLOs embedded within their course. She found this level of engagement ‘encouraging’ and explained the benefit of having these RLO’s strategically embedded in the course rather than being available solely on the library website, saying:

subjectively I think it’s a better opportunity for students to go ‘actually I don’t need to hunt for things I can just click and go’ so from our perspective it’s much better to be embedded in the [learning management software] and give them one place to start from. (IL5).

No other direct or indirect way interaction between students and the embedded librarian was noted in class B2.

**Embedded librarian support for faculty.**

Embedded librarian support for faculty was evident only in the course preparation part of this course. The embedded librarian explained that support came in the context of working together prior to course delivery to identify and place the RLOs for maximum effect, which supported the faculty by assisting teaching of skills needed to complete assessed work. The faculty member explained “library activities is one aspect … which I actually liaise with the library staff over. That is one thing that I don’t need to actually prepare for in detail which is really good from my point of view” (IF5). In effect, the embedded librarian facilitated some of the scaffolding for learning, making instruction in information, library and writing skills available and accessible for students in this class. The faculty member explained:

[students] absolutely do need to access high quality up to date relevant research in the particular area of their chosen interest and so it’s really important that I build in those building blocks, those research skills that they need, in order to be able to find that research and literature that they need (IF5).

No other specific instances of support for faculty were provided, although they were on offer. The faculty member explained that she was fully aware of the range of assistance that was offered and available, including accessing resources, managing copyright for course resources, and the like, and stated “a lot of that I do for myself, so again you know, those services are available and the library staff are very helpful, but often I don’t need to do it” (IF5).
In summary, case study B2 demonstrated an embedded library service where the main input and benefit were in the resources and teaching aids that were an integral part of the course structure. With postgraduate students experienced in studying and researching, little other involvement on the part of the embedded librarian seemed to be required for student support. Likewise, the embedded librarian support for faculty was available and was known but was neither required nor used in this instance. This may represent a level of maturity in working with library support inside the online classroom, where it has assumed a place as an integral part of the working of the course, or conversely may represent a lack of personal relationship resulting in reluctance for students to seek direct contact for learner support.

**Case Study B3: “The Transitional Class”**

Class B3 was at the second-year Bachelor’s degree level (NZQA Level 6) at Institution B. It was a general course introducing an aspect within the health science field and required at least two other courses in the field to have been completed prior to this one. The majority of students in this class were therefore likely to be experienced students having already completed a range of Level 5 courses and possibly some Level 6 courses. These students were generally focussed as they have chosen and are studying for work in a particular field, but many may be still relatively new to academic study. The participants in this online classroom were one faculty member, one embedded librarian and 62 students. Students were likely to have encountered some of the other students in their previous classes, but the online delivery method might have been new to some, as this course and others in this academic discipline were in the transition from blended to online delivery at the time this case study was examined. This class is referred to here as “the transitional class” as it was the first online occurrence of the course, having previously been taught in a blended fact-to-face and print mode. Case study B3 was a class delivered in an online-only format through a Moodle platform over a single semester. Figure 4.6 illustrates the composition of this online class from the students’ point of view, showing the embedded librarian available in the library, having placed specific library learner support at critical points in the course structure with the use of RLO’s.
Figure 4.6 Illustration of case study B3 from the students’ viewpoint.

The course could be accessed fully online although a print version of the core study resources was available on request. This course was delivered to students in this first online version of the course in staged sections throughout the semester rather than all content being available at the start of the teaching period. There were no contact or on-campus components to this course. Students studied remotely by engaging with the course materials online, supported with weekly messages from the course lecturer, discussions and questions with the lecturer and other students. Assessments included a test, two essays, and an examination.

The embedded librarian was available for students to contact individually, and online support was provided directly to all students in the class using tutorials and quizzes on library support and messages advising of online searching techniques and other support options. Records were kept of the direct contact students in this class made with the embedded librarian but there is no record of direct contacts students had with the general library.

**Embedded librarian activity.**

Prior to delivery of this course, the embedded librarian made contact with the faculty member to suggest “including some library content and the sorts of things that might be useful to have” (IL6). As this was the first time this course had been taught in a solely online format, existing course content was being redeveloped which provided opportunity to include RLOs to provide instructional support targeted at specific skills needed to complete the course.
and assessment work. The embedded librarian in this class not only selected appropriate RLOs, but also created an *Adobe Presenter* presentation which outlined what support was available with links to the RLOs. This customised the generic assistance available within the course structure, personalising it and adding further relevance for this particular class. The embedded librarian also developed a quiz for students, which included questions about information-seeking techniques, strategies and referencing. This enabled students to determine if they needed to build on any of their skills in preparation for their assessments in this class.

During the course, the embedded librarian made a single post to the class introducing the library and the services it could provide and inviting students to try the quiz. The faculty member also mentioned the library as a resource in a message welcoming everyone to the course. Following this, another post was made prior to the due date for the first assessment, with some suggestions for finding relevant articles and referring students to the librarian’s presentation in the course. Only a handful of potentially library-related questions were asked on the main discussion forum for this class during the trimester, such as how to locate past exam papers, which the faculty member answered. Students were encouraged to contact the library directly with their information questions, as already noted in case study B1 was the preferred arrangement at Institution B, and there were indications from the library that some did take this option.

**Embedded librarian support for students.**

The main areas of learner support provided by the embedded librarian was in the placing of an initial quiz and *Adobe Presenter* presentation in the course with links to relevant RLOs for students. Students were able to complete the quiz prepared by the embedded librarian to quickly determine if their level of proficiency in information skills was sufficient for this course. Students were directed from there by the embedded librarian’s presentation to the relevant RLOs. The embedded librarian recalled during the interview that there was “massive more engagement with the quiz than with the presenter thing” (IL5). Later in the interview the embedded librarian contemplated the reasons for this, explaining “I think possibly people think oh I will test myself because they get kind of used to you know seeing kind of quiz things in Facebook or whatever you know people like to do things so I think that possibly it was part of that” (IL5). This indicates students were engaged with at least some of the learner support offered and most followed initial support although many did not choose to pursue additional support. Reasons why students did not continue to the *Adobe Presenter*
presentation were not determined in this study, although may have included an identification from the quiz that skills for this course were already present and no further support was required.

Students in this class engaged with at least some of the learner support available, with higher levels of engagement with the embedded librarian’s quiz and lower levels with other avenues of support. It was noted that students’ contact with the embedded librarian was not direct, and this course was in transition to a fully online delivery, with modules being presented at regular intervals during the course rather than all material being available at the start of the course as was the practice in all other case studies at Institutions A and B. Students in class B3 needed to work with each portion of the course as it became available, leaving little additional time for voluntarily seeking additional learner support during the course. The faculty member noted “I wish the students had engaged more [with the learner support available] and I couldn’t tell for sure how much they were engaging but from what I could tell there wasn’t much” (IL5). Despite this, there was evidence that students were engaging with the online activities, particularly the quiz, as the faculty member confirmed:

I think [the embedded librarian] said there wasn’t a lot of direct contact but amongst her resources that she had put up on-line she said that there was a quiz there that was teaching about how to search for resources and she that a lot of the students had gone through, she’d gone and looked at the stats for that the access stats and said that quite a number of the students had gone through and done that particular course. (IF6)

**Embedded librarian support for faculty.**

The embedded librarian in class B3 provided support for the faculty member in a number of ways including helping to identify and place RLOs inside the course materials, creating a quiz for students and giving feedback on the contents of the course. The faculty member explained “I felt very supported just having another person that I knew looking at what was going on on-line. It was great, it was really good … she’s become one of my favourite people on campus” (IF5). The embedded librarian acknowledged this relationship, recalling “I have quite a close relationship with [the faculty member] … if you have a good rapport with people and they can understand what the library can provide I think it makes a huge difference” (IL5). But the embedded librarian also acknowledged that while a good rapport with the faculty member was essential, it did not necessarily translate into high levels of student engagement with the learner support that was provided in the class.

Beyond the confines of the online classroom, the embedded librarian also assisted this faculty member personally with a literature review for a grant application and assisted with
preparation for approaching a journal in which the faculty member wanted to publish. This was beyond the immediate role of a librarian embedded within an online course but does show the depth of support and relationship with the faculty member in providing additional information and library services of benefit. The relationship developed in working together, teaching this online class and this led naturally to working together in other roles.

In summary, case study B3 demonstrated a limited range of embedded librarian support for a class in its first presentation as a fully online course. The embedded librarian provided support to students through a quiz to test students’ own level of aptitude in information skills, and RLOs were available for those students who wanted to learn more in any particular information area which could benefit their performance in this class. In addition, support was provided for the faculty member’s work beyond the classroom, assisting with a literature review and preparation for publication. The relationship between the faculty member and the embedded librarian grew through these interactions and shared work in the online classroom, developing high levels of collegiality and trust. Direct contact with students was not a feature of this class and so assistance was more in the nature of embedded library service rather than service from an embedded librarian from the students’ point of view. This case study showed the provision of an embedded librarian service as an integral part of a new online-only delivery format for this course, and the demonstrated a way of navigating new services in a period of change.

**Summary of Institution B Classes.**

All three case studies from Institution B shared strong similarities. While classes B1 and B2 were both at the postgraduate level and case study B3 was at the second-year undergraduate level, all students had some prior experience studying by distance and accessing information resources to support their study, though the degree of experience would have varied. Courses were all conducted online in an asynchronous format, but only class B1 was supplemented with a residential week at the beginning of the course, enabling personal contact to be made with the embedded librarian during that time. Participants in each classroom were one faculty member, one embedded librarian and a number of students ranging from 12 to 62. Teaching was conducted by making available pre-prepared materials and supporting this with weekly messages, discussions and encouraging students to ask questions in the online classroom environment. Students from Institution B were encouraged to contact the library directly for any specific questions they may have about information and library topics such as information searching skills and techniques and referencing rather than
contact their embedded librarian directly. The library would refer students on to the embedded librarian for their course only if they were unable to fulfil the student’s query, in a triage system for managing student interactions within the institution’s library service.

The range of activities conducted by the embedded librarians contained areas of both similarity and difference in these three case studies. All three case studies at Institution B used the library’s suite of nine RLOs to select relevant instructional packages for their particular classrooms. These were then placed within the course at strategic points to allow students who needed these particular skills to acquire them at the point of need. Examples of the RLO topics included using EndNote, referencing, using databases for advanced research and advanced information literacy skills. In addition, case study B3 added a quiz that students were invited to take, to determine their level of familiarity and competence with these skills, before directing them to the relevant RLOs if needed. Embedded librarians in each of these three case studies contacted students as a group at the beginning of the semester: case study B1 was in person at the residential week, case study B2 through a message sent online via the faculty member and in case study B3 through messages the embedded librarian placed on the online forums for the class.

In terms of the direct contact the embedded librarian had with students in these classrooms, only case study B1 included a residential week where students were able to meet in person with the embedded librarian for an individual research appointment. These appointments were able to be made for the remainder of the semester as needed, and a number of the students living in the area where this particular course was physically based took advantage of this offer. Students in case studies B2 and B3 were encouraged to take their individual queries directly to the library for assistance, and if needed their queries would be passed on to their particular embedded librarian. No statistics were collected for the number of direct contacts students had with the library, and no students were referred back to the individual embedded librarians from the main library. In contrast with case studies at Institution A, the way the embedded librarian support was delivered in case studies at Institution B meant that students were able to have individual assistance on request, but there was no group teaching or avenue such as a shared question and answer forum where students could learn directly from the embedded librarian or from the interactions other students were having with the embedded librarian. This is the key difference in how learner support was delivered to and received by students at the two institutions.
Support for faculty members was available in all cases but not all faculty used this service. Case studies B1 and B3 saw the embedded librarian assist faculty by identifying suitable journals for submission for the faculty member’s articles. Faculty in case study B3 also identified support from the embedded librarian in helping to write a literature review for a grant application. This form of support was also available in case study B2, and the faculty member there indicated she was aware of the service but had little need for it as she already had those skills herself.

Case studies within Institution B demonstrated a number of shared similarities and characteristics in the way they were organised and run. Case studies within Institution A also showed a number of shared similarities and characteristics, but there were some fundamental differences such as classes at institution A having active interaction between the embedded librarian and the students in the library discussion forums that ran for the duration of the teaching period. Case studies can be broadly grouped by institution as the similarities within each institution provide a common underlying form of embedded librarian or embedded library service.

**Summary**

This chapter presented the six case studies of embedded librarian practice in online tertiary classrooms. These within-case analyses describe the participants in each classroom and how they interact, and consider embedded librarian activity, embedded librarian support for students and embedded librarian support for faculty.

In the following chapter, the findings from the cross-case analysis are presented by aggregating the data from the combined case studies, highlighting the key similarities and differences across the individual case studies and institutions, and drawing cross-case conclusions.
Chapter 5: Results – Cross-Case Analyses

Introduction

Chapter Four described how the embedded librarian practice was implemented in six online classes across two tertiary education institutions. In this chapter, the findings from the cross-case analyses are presented by aggregating data from the combined case studies and highlighting key similarities and differences across the individual case studies. These cross-case analyses are the second level of analysis following Yin’s (2014) multiple-case study procedure as illustrated in Fig. 3.1. Discussion of the overall findings from both chapters is given in Chapter Six.

The cross-case analyses in this chapter seek to further address the research questions for this study:

*RQ1: What is the practice of embedding librarians in online tertiary classrooms in the New Zealand context?*

*RQ2: What makes this practice effective in providing support to online classroom participants?*

In the cross-case analyses, qualitative data is compared across individual classrooms, using the rich data collected from the third and fourth datasets (interviews with students, faculty and embedded librarians, notes from interactions with case study participants, observations, and field notes). In addition, the quantitative data from the second dataset (the questionnaire) is compared in aggregated form between Institution A and Institution B, given the similarities between the embedded librarian service provided within each institution and the low number of questionnaire responses from some of the classrooms. This combination of individual and aggregated data presents the findings of the cross-case analyses in a robust form which highlights the key aspects of the embedded librarian practice across all case studies. The cross-case analyses relating to RQ1 are addressed first, before attention is turned to the cross-case analyses addressing RQ2.
RQ1: What is the Practice of Embedding Librarians in Online Tertiary Classrooms in the New Zealand Context?

The cross-case analyses addressing the first research question focused on themes identified a priori from the literature. These covered the broad themes of how the embedded librarian works in the online classroom, forms of learner support, roles and relationships and other functions and support. Each broad theme contained three sub-themes to identify instances of the theme in the case study classrooms, to explore how these instances supported the learning process, and in the latter two themes to identify ideas from classroom participants of other types of support they would like to see in the context of their classroom. Theory-driven codes (Fereday & Muir-Cochrane, 2006) were used to identify each theme and sub-theme, and these were applied to the open-ended answers in the questionnaire in the second dataset and the interviews from the third dataset. Table 5.1 Deductive codes identifies the themes and sub-themes used and provides example responses to illustrate each sub-theme.

Table 5.1

<table>
<thead>
<tr>
<th>Deductive codes</th>
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<tbody>
<tr>
<td><strong>Theme</strong></td>
</tr>
<tr>
<td>How the embedded librarian works in the online classroom</td>
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<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Forms of learner support</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Roles and relationships</td>
</tr>
<tr>
<td>------------------------</td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Roles and relationships</th>
<th>How do these roles and relationships contribute to learner support?</th>
<th>3b</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>... when you are actually in another country and dependent on online assistance it is very reassuring to have a librarian there to assist. I also love that there are faces to names and it is a person responding to you, not a helpdesk system. (IS2, A1).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Roles and relationships</th>
<th>Was there another role or relationship that could have been useful that was not provided?</th>
<th>3c</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>... is not’s compulsory for things like learning support services and library content to be in the learning management site for each course but I know that discussions have been had for us to make at least the default library block that can just be plonked in … (IL6, B2).</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Other functions and support</th>
<th>What other functions or support was provided by the embedded librarian in the online classroom?</th>
<th>4a</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[The embedded librarian] had given someone an actual link to a library book in the library ... One of the girls in [another country] who couldn’t hire books needed e-online help and [the embedded librarian] had referenced like linked up where she could go. (IS8, A2).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other functions and support</th>
<th>How do these other functions or support effectively support the learning process?</th>
<th>4b</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[Re documenting a search process] ... the way the course forced you into doing it, there was no sort of like shortcut around it because you had to outline every step of the way. It has made me sort of realise the value of doing it, because probably normally I would you know have short cut it and I probably would have actually missed quite a lot of valu[able] resources by shortcutting that way .... (IS3, A1).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other functions and support</th>
<th>Was there another function or type of support that could have been useful that was not provided?</th>
<th>4c</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>... in the way in which we measure things it is difficult because of the way which we bring those nine modules together we can’t then easily pull out the numbers to see who has clicked through and used those particular modules by class. (IL6, B2).</td>
<td></td>
</tr>
</tbody>
</table>

The cross-case analyses addressing the first research question were supplemented with quantitative data from the questionnaire in the second dataset, providing indicative
measurements from students at each educational institution of their agreement with statements about various forms of learner support. Results relating to the first theme “How the embedded librarian works in the online classroom” were presented in Chapter 4. The remaining results of the cross-case analyses relating to RQ1 are presented in this chapter under the second theme of “Forms of learner support” and the third theme of “Roles and relationships” which has been separated into strands of support for students and support for faculty. The final theme of “Other functions and support” was designed to find records of anything not previously anticipated, and results from this section are included with the third theme where appropriate.

Forms of Learner Support

The Association of College and Research Libraries’ (2013) Standards for Libraries in Higher Education defined the educational role of libraries as playing a key role in learner support, stating “Libraries partner in the educational mission of the institution to develop and support information-literate learners who can discover, access, and use information effectively for academic success, research, and lifelong learning” (p. 6). This definition has a focus on ‘partnering’ between libraries and learners to directly contribute to their learning. With this in mind, the forms of learner support in this section considers several different aspects of partnering, starting with an identification of students’ learning needs before exploring how these needs are met by providing general support, instructional support, and technical support. These aspects are explored in turn across the six case study classrooms using information from the second, third and fourth datasets.

Students’ learning needs.

Before the forms of learner support can be outlined in detail, it is important to understand students’ learning needs. These needs may differ from class to class and from student to student but should form the basis of the provision and content of learner support. The cross-case analyses showed that students’ assessment of their learning needs varied. Students in classroom A1 indicated in their interviews that they came from a range of educational backgrounds including some completely new to tertiary study and some who had already completed university degrees elsewhere. The range of responses to the first two interview questions on students’ library use, information seeking and information skills prior to starting the course brought mixed responses from responding students across all classes. Most participants believed that they needed more information literacy skills in this area, with such comments as “I was quite confident I could get the information that I wanted or needed.
I was not necessarily sure whether it was the most efficient way” (IS1, A1), and “I could find basic information easily [but] I had no real idea of how to verify websites/information or how to use advanced search option” (IS2, A1). Class A2 was at a similar academic level near the beginning of an undergraduate degree and drew similar comments from students. One student explained the realisation during the running of the course that she would need assistance, saying:

I didn’t think I would need any at all … [it changed] When I realised that I needed to reference things and actually find solid information and do a bit of my research myself and that it wasn’t all going to be provided in … a learning booklet … (IS8, A2)

This was echoed in Class A3 with students contributing similar comments such as “… I realised I was only barely rippling the surface, now that I have done the course … Now I can go a lot deeper than I ever did before …” (IS12, A3). In contrast, students at Institution B had prior experience in tertiary studies as their classes were at postgraduate level (B1, B2) and second year level (B3). Accordingly, feedback from students at Institution B generally indicated a higher level of library and information literacy skills were present. Students were aware there was support available. A student confirmed “over the last couple of years there’s been a lot more information …[and] more interactive tutorials on-line” (IS17, B3), indicating support was available for those wanting to make use of it.

A few students across both institutions were confident in their own ability in information seeking and usage, or believed their skills were already adequate for the current course, but there was still some recognition from within this group that more could be learned. Comments included “I used only the on-line stuff from home, I never went to the actual library before… I guess I didn’t know what I didn’t know but now that I do know I realise I had very good knowledge …” (IS14, B1) and “… I haven’t taken any of the library tutorials or anything like that … but I seem to find what I want and I feel really competent doing that I guess” (IS17, B3). Others may have assessed their skills at a higher level than they actually were but recognised at some point during the course that they needed these skills for their studies, such as the student who commented:

I was [happy with the level of own library and information skills] however I should say that that has changed. I was satisfied with it because I probably didn’t realise the amount of things that you actually could do so I was satisfied just purely through ignorance I suppose. (IS4, A1).

Faculty members were asked in their second interview question if there was any identification of skills or assistance students were going to need coming into their class. The
response from the faculty member in class A1 was indicative of the others, noting the level of use of library support “maybe depends on how the other courses involve libraries” (IF1, A1). This response recognised that students in this and other classrooms often had a variety of pathways into the course and so entered with a wide range of library and information skills. Identifying and understanding the type and level of information needs is needed so that learner support content and delivery can plan to meet those needs.

**General support.**

The focus of this section is on the general or overall feelings of support expressed by students for the work of and interactions with the embedded librarian. Interview responses about overall support came from all six case study classrooms. At Institution A, students indicated strong feelings of being supported by the embedded librarian. Some of the comments from students related to the availability and approachability of the embedded librarian, such as “I think the idea of having that person available is really, really good” (IS9, A2) and “it was good because I knew that if I need the help I knew where it was and how to access it” (IS3, A1). Another student offered an explanation as to why the embedded librarian provided a useful avenue for support, saying:

Maybe it’s just that I feel supported by the course leaders as well but, I don’t know there is just a different kind of feeling from [the embedded librarian] in that I guess he’s not ultimately assessing you. He’s purely there to help you out so I don’t know whether that sort of affects my feeling, but I just feel like he is sometimes easier to ask a question of. (IS11, A3)

There was also an indication that the discussion forums increased confidence in students approaching the embedded librarian, as one student explained “after seeing others ask questions in the forums I felt confident of this resource” (IS2, A1). Feelings of immediacy were also noted, expressed as “you’ve got more people who are on hand and supportive … It feels kind of [like] actually going down to the library I guess except that I can do it at home” (IS8, A2). These feelings of support and the range of reasons behind them have the effect of increasing interaction with the embedded librarian and therefore creating more opportunities for support to be provided. The value of this interaction and provision of support was expressed by one student who simply stated “I think [the embedded librarian] has been the only librarian I had contact with” (IS11, A3). This indicates that tailored, personal support in the online classroom may be meeting some of the previously unmet need of students studying online.
Interview responses from Institution B also indicated feelings of being supported, although there is an element of remoteness included, with one student commenting:

“It’s always good to kind of know who the person [embedded librarian] is and where to go to really if you get stuck … it definitely built my confidence levels this time being able to like help me and access resources a lot quicker than I would normally have.”

(IS15, B1)

No responses were received from students in classroom B2. In classroom B3 where learner support uptake appeared to be minimal, one student noted “I really love the concept of having … [an] embedded librarian … [because] for some students it’s a bit intimidating to try and find your way around the website and the library website … (IS17, B3). The student continued, “we get the librarian thing which is great but wasn’t relevant for this one” (IS17, B3), referring to the course which already contained RLOs to provide targeted support relevant to the course and its assessment. It is not clear if the student was aware the RLOs were placed in the course content as part of the embedded librarian’s support in this class.

Questionnaire free response answers supported the findings from the interview data. These free response answers from students at Institution A included “The added support of both an embedded librarian and forum support is invaluable when distance learning online” (QS5, A1) and “I have found the embedded librarian and the library forum to be a useful and important means of support” (QS16, A1). These sentiments were echoed by comments from students at Institution B such as “it is very helpful, and it is always reassuring to know I have that assistance/service available and also easily accessible” (QS2, B1). This indicated a general agreement across institutions for overall levels of support given by the embedded librarians.

The qualitative data was supported by quantitative data from the questionnaire. In the questionnaire there were three scales relating to the forms of learner support, specifically relating to general support, instructional support and technical support. This section considers the scale relating to general support; consideration of the other two scales appears in subsequent sections. A scale consisting of seven items was used to measure the feeling of the participants towards the general or overall support provided by the embedded librarian and the results are presented in Table 5.2. The focus was on factors such as accessibility, ease of use, helpfulness of information provided and encouragement given by the embedded librarian, and the purpose was to determine the levels of agreement about the general support given by embedded librarian in the case study classrooms. Cronbach’s alpha was used to test the internal consistency of these items, and it was found that α=.892 indicating the scale is
reliable and has a good level of internal consistency. Two-tailed independent t-tests were conducted on the percentages of students who strongly agreed and somewhat agreed with statements to determine any significant differences between Institution A and Institution B in relation to any question in the scale (see Table 5.2).

Table 5.2

<table>
<thead>
<tr>
<th>Qu. No.</th>
<th>Question</th>
<th>Total Responses</th>
<th>Institution A</th>
<th>Institution B</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>It was easy to find the embedded librarian to ask for support.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Strongly Agree and Somewhat Agree (%)</td>
<td>90.4 (n=52)</td>
<td>97.7** (n=43)</td>
<td>55.6** (n=9)</td>
</tr>
<tr>
<td>4</td>
<td>I felt I could ask the embedded librarian any questions regarding resources to support the course.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Strongly Agree and Somewhat Agree (%)</td>
<td>87.0 (n=54)</td>
<td>91.5* (n=47)</td>
<td>57.1* (n=7)</td>
</tr>
<tr>
<td>5</td>
<td>The replies, feedback or answers from the embedded librarian were helpful to me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Strongly Agree and Somewhat Agree (%)</td>
<td>89.1 (n=46)</td>
<td>89.7 (n=39)</td>
<td>85.7 (n=7)</td>
</tr>
<tr>
<td>6</td>
<td>The embedded librarian encouraged me to be successful in this course.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Strongly Agree and Somewhat Agree (%)</td>
<td>91.7 (n=36)</td>
<td>93.8 (n=32)</td>
<td>75.0 (n=4)</td>
</tr>
<tr>
<td>7</td>
<td>The embedded librarian responded to questions in a timely manner.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Strongly Agree and Somewhat Agree (%)</td>
<td>90.2 (n=41)</td>
<td>91.7 (n=36)</td>
<td>80.0 (n=5)</td>
</tr>
<tr>
<td>17</td>
<td>I felt the embedded librarian was easily accessible.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Strongly Agree and Somewhat Agree (%)</td>
<td>93.3 (n=60)</td>
<td>92.5 (n=53)</td>
<td>100.0 (n=7)</td>
</tr>
<tr>
<td>23</td>
<td>I would like to have an embedded librarian in my future classes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Strongly Agree and Somewhat Agree (%)</td>
<td>98.1 (n=53)</td>
<td>97.8 (n=45)</td>
<td>100.0 (n=8)</td>
</tr>
</tbody>
</table>

*p<.05, **p<.01

As can be seen from Table 5.2, the number of students agreeing and strongly agreeing with the statements about the overall support provided by the embedded librarian ranged from 55.6% to 100.0%, with an overall level of 91.5%, indicating a majority of students agreed that the embedded librarians provided a good level of support overall. There was a highly significant difference in the number of students who agreed with the Question 3 statement “It was easy to find the embedded librarian to ask for support” between 97.7% of students at
Institution A and 55.6% of students at Institution B; \( t(48) = 3.77, p < .01 \). There was also a significant difference in the number of students who agreed with the Question 4 statement “I felt I could ask the embedded librarian any questions regarding resource to support the course” between 91.5% of students at Institution A and 57.1% of students at Institution B; \( t(52) = 2.53, p < .05 \). These results suggested that students at Institution B did not feel equally able as students at Institution A to find or ask questions of their embedded librarian when needed. However, responses to other questions in this scale indicated the numbers of students agreeing with other aspects of general support from the embedded librarian were not significantly different between institutions, despite the different styles of providing embedded librarian support between institutions as outlined in Chapter Four.

**Instructional support.**

Instructional support, including reference services and user instruction (Rezaei Sharifabadi, 2006), is one of the main forms of support provided by librarians to students in tertiary education (Golian-Lui & Westenkirchner, 2011) and in e-learning in particular (Johnson, Trabelsi, & Tin, 2004). Reference services are defined as services provided:

- to meet the information needs of patrons (in person, by telephone, or electronically), including but not limited to answering substantive questions, instructing users in the selection and use of appropriate tools and techniques for finding information, conducting searches on behalf of the patron, directing users to the location of library resources, assisting in the evaluation of information, referring patrons to resources outside the library when appropriate (Reitz, 2014b).

User instruction, also referred to as user education, is the means of delivering reference services, encompassing:

- All the activities involved in teaching users how to make the best possible use of library resources, services, and facilities, including formal and informal instruction delivered by a librarian or other staff member one-on-one or in a group. Also includes online tutorials, audiovisual materials, and printed guides and pathfinders. (Reitz, 2014c).

Instructional support was provided in the library forums in the online classes at Institution A when students asking for assistance in finding information for their studies. For example, a student in classroom A3 posted, “I'm still struggling to find information in relation to a [topic 1] and [topic 2]. I'm searching on emerald and EBSCO host databases. Are you able to offer any advice or help?” (FS2, A3). Students also asked the embedded librarian for instructional support for referencing techniques, for example, a student in classroom A2, asked, “If I want to cite and reference something that has been cited a reading from another...
source, but that comes with enough info to cite it independently, do I have to attribute it to where I found it ... as in "cited in ..."?" (FS8, A2)

The open-ended responses from the questionnaire showed that instructional support was provided by the embedded librarians in both institutions, with students from Institution A indicating that the embedded librarian was “really helpful [and] provided full answers to any questions that was relevant” (QS16, A2) and “went over and above to make sure I understood my reference questions” (QS51, A2) and from Institution B reporting, “I got in touch with [the embedded librarian] and had a one on one tutorial for finding information for my next assignment (literature review) and it increase[d] my skill base in this area” (QS57, B1).

Data from the interviews shed more light on the nature and value of instructional support given by the embedded librarians from both institutions in this study. From Institution A, one faculty member outlined the type of instructional support given, including aspects of APA referencing, catalogue searches, and database and internet sources and “how to search appropriately for the materials from there” (IF1, A1). Students at Institution A indicated these forms of learner support were helpful, and that learning was taking place, such as a student who recalled the embedded librarian “would actually give me rock solid answers … sometimes she gave me a reference on where to look on the internet” and “also helped me with how to use the library because I’ve never used it before” (IS8, A2). Another student identified various ways instructional support was given, including “screen shots of how things would look if we had got our search correct. So that was really helpful” (IS7, A1), and “when I couldn’t find a particular thing then I would email the librarian ask him I need some information on this topic can you help me find the resource” (IS13, A3).

Several participants at Institution B gave similar responses to those at Institution A, though some differences between institutions were also noted. Students in classroom B1 explained the embedded librarian “did provide a link… to some stuff with our assignments, research proposals and … the other one … so she’d provide help for me that way” (IS15, B1) and “She did provide me with a resource that I did find useful…you put in the search terms that you were looking at and it…prompted you to think of other words that meant similar things” (IS14, B1). These student interview responses indicated that the instructional support in Institution B generally focussed on online support using prepared tutorials and RLOs, and the interview with the embedded librarian in class B1 indicated supplementary support “by email and phone … or face to face or … on-line consultation” (IL4, B1) was provided through individual interactions between students and the embedded librarian. One faculty member
explained how the different forms of delivering embedded library support meant “there wasn’t a lot of direct contact but amongst her resources … was a quiz … that [access statistics showed] quite a number of the students had gone through and done” (IF6, B2), indicating that the support was being well used by students, even if it required an extra step for faculty to determine the level of engagement students were receiving.

Quantitative data from the questionnaire complemented these qualitative findings. In the questionnaire, students were asked to respond to the statement ‘The embedded librarian in my class provided resources, links to resources or search strategies relevant to this course and its assessments’. The overall responses were summarised in Table 5.3.

Table 5.3

<table>
<thead>
<tr>
<th>Qu. No.</th>
<th>Question</th>
<th>Total Responses</th>
<th>Institution A</th>
<th>Institution B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The embedded librarian in my class provided resources, links to resources or search strategies relevant to this course and its assessments.</td>
<td>89.1 (n=55)</td>
<td>91.3 (n=46)</td>
<td>77.7 (n=9)</td>
</tr>
</tbody>
</table>

Table 5.3 showed that 89.1% of all questionnaire respondents strongly agreed or somewhat agreed with the statement, indicating a high level of awareness that relevant assistance was being provided in the form of instructional support. Two-tailed independent t-tests were conducted to determine any significant differences in percentage responses between Institution A and Institution B in relation to either question in the scale. No statistically significant differences were noted ($p > .05$).

Technical support.

Technical support provided by the embedded librarians differs from instructional support in that it covers technical, software and access issues rather than information literacy or digital literacy skills needed for successful study. It is similar to support provided by an IT helpdesk but focusses on technical issues students may have with access to information or
library resources, such as downloading eBooks, working with broken links, passwords for various resources, gaining full-text access to selected items and converting formats where necessary to gain resources relevant to the course and its assessments. Thong, Hong, and Tam (2004) explained, “Technical support may also be provided to help users who face problems in accessing the digital libraries … [and] these efforts can assist users to access the digital library more easily” (p. 82).

Technical support was provided in the library forums in online classes at Institution A alongside previously mentioned instructional support. Support requested included advice on connecting with and viewing eBooks, journal databases and library websites. For example, a student in the library discussion forum in classroom A1 posted a request for technical support, “I am having trouble accessing ebooks … I have followed the steps to access ebooks … After a while it then freezes … it never actually loads” (FS11, A1). In replying to this request, the embedded librarian explained the process and asked the student to confirm she was able to access the material she wanted. This particular exchange consisted of eight forum postings posted by the student, the embedded librarian and another student who participated in the conversation as he was experiencing similar difficulties. Most exchanges consisted of fewer postings, but when needed, they did extend beyond a simple question and answer format.

The open-ended questions from the questionnaire elicited little information about the provision of technical support, although one comment from a student stated, “I would have liked more information in how to access ebooks and journals - I found it quite frustrating that I didn't know I'd have to download new software to read them as epubs” (QS14, A2). Although this comment did not indicate if an answer was provided by the embedded librarian, it did demonstrate the need for technical support to be available to students, particularly those studying online.

Interview responses on the topic of technical support or assistance were not specifically sought, but were forthcoming from a few students in Institution A, but not mentioned by any students at institution B. Examples from Institution A included practical instances where technical assistance was required, as shown by the following comment:

it said in the catalogue that it was a full article, but I couldn’t get it to open and I was getting real snotty with it and it was a weekend and I was trying and trying but it wouldn’t open … I sent a thing through saying that I couldn’t find it and what was happening, and he sent one back on the Monday saying that the link was broken but he was going to fix it. … It feels good to know that if something was not working … [There’s someone there to fix it for you] … (IS5, A1)
Other students in classrooms A1 and A2 also noted technical assistance provided by the embedded librarian, one recounting “I had trouble downloading e-books from the [educational institution’s] library. [The embedded librarian] provided assistance with that, made suggestions of other ways to try. His answers were prompt and provided easy to follow instructions” (IS2, A1) and another that “One of the girls [living in another country] who couldn’t hire books needed e-online help and [the embedded librarian] had referenced like linked up where she could go. I think she actually emailed to her in the end” (IS8, A2). Although these two quotes both mention support provided to overseas students, the technical issues mentioned were typical of all students commenting on this topic.

In the questionnaire, a scale consisting of two items was used to measure how the participants felt about technical support provided by the embedded librarian. This group of questions sought to identify aspects of technical support provided by the embedded librarian in the online classrooms. This included the provision of the technical support as well as how easy it was to engage with that support. The responses are summarised in Table 5.4. Cronbach alpha was used to test the internal consistency of these items, and it was found that \( \alpha = .794 \), indicating the scale was reliable and had an acceptable level of internal consistency. Two-tailed independent t-tests were conducted on the percentage responses to determine any significant differences between Institution A and Institution B in relation to either question in the scale.

Table 5.4

*How did the participants feel about the technical support provided by the embedded librarian?*

<table>
<thead>
<tr>
<th>Qu. No.</th>
<th>Question</th>
<th>Total Responses</th>
<th>Institution A</th>
<th>Institution B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Question</strong></td>
<td><strong>Strongly</strong></td>
<td><strong>Strongly</strong></td>
<td><strong>Strongly</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Agree and</strong></td>
<td><strong>Agree and</strong></td>
<td><strong>Agree and</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Somewhat</strong></td>
<td><strong>Somewhat</strong></td>
<td><strong>Somewhat</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Agree (%)</strong></td>
<td><strong>Agree (%)</strong></td>
<td><strong>Agree (%)</strong></td>
</tr>
<tr>
<td>14</td>
<td>I knew where to ask for help when I had any technical issue with library resources.</td>
<td>94.5 (n=55)</td>
<td>95.7 (n=46)</td>
<td>88.9 (n=9)</td>
</tr>
<tr>
<td>15</td>
<td>I felt I could get technical support from the embedded librarian when I needed it.</td>
<td>90.4 (n=52)</td>
<td>95.6* (n=45)</td>
<td>57.1* (n=7)</td>
</tr>
</tbody>
</table>

*p<.05*
As can be seen from Table 5.4, there was a high level of agreement from both institutions combined that students knew where to ask for technical support and felt they could receive it from the embedded librarian when needed. There was a significant difference in the percentage of students who agreed with the Question 15 statement “I felt I could get technical support from the embedded librarian when I needed it” between 95.6% of students at Institution A and 57.1% of students at Institution B; \( t(52) = 2.53, p < .05 \). These results are consistent with those of Questions 3 and 4 reported in Table 5.2.

**Summary of forms of learner support.**

The cross-case analyses on aspects of forms of learner support have considered students’ learning needs, general support, instructional support, and technical support. Points raised in the analyses began with a consideration of students’ learning needs across the range of classrooms, identifying that a wide range of learning needs existed although information literacy skills appeared to be more developed in Institution B’s second-year and postgraduate students than in Institution A’s first- and second-year students. The provision of the different types of support was considered in this light. The majority of students from both institutions agreed that general support was provided, helpful and timely. A difference between Institutions was noted in being able to initially find the embedded librarian although there was agreement with regards the support being provided. Instructional support was provided through individual and group contact with the embedded librarian and through the use of RLOs embedded in the course structure. The majority of students agreed in both the questionnaire and interviews that this support was of value. Technical support to enable full access to the tools and resources needed for their learning was only required by a few students but they appeared appreciative of being able to access this support from the embedded librarian. Next the roles the embedded librarians took to provide these learner supports are considered.

**Roles for Supporting Students’ Learning**

A range of contributions made by the embedded librarians to support students’ learning was identified in the six case studies. These contributions presented themselves in three main embedded librarian roles: as a personal tutor for students on an individual level, as a class tutor for students at a group level, and modelling to students who learn from observing how the embedded librarian provides support or information services. The last of these was noted only in those classes with strong service-oriented or information-oriented subjects. These three roles were evident across many of the case study classes through information
gathered in the second, third and fourth datasets. The roles provided the context in which the contributions to learning were made, as did the relationships which developed with each role. Table 5.5 identifies which roles and relationships were present in each of the six case study classes.

Table 5.5

<table>
<thead>
<tr>
<th>Roles and relationships of the embedded librarian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roles and relationships</td>
</tr>
<tr>
<td>Personal tutor for students</td>
</tr>
<tr>
<td>Class tutor for students</td>
</tr>
<tr>
<td>Modelling to students</td>
</tr>
</tbody>
</table>

The roles of personal tutor and class tutor were consistently present through all the case studies at Institution A, as the embedded librarians had a presence in the online classes throughout the teaching period in the form of a library discussion forum. This extended interaction between the embedded librarian and students enabled relationships to develop. In two of the three classes at Institution A, the modelling role was also identified. These roles were not as clearly presented in the classrooms at Institution B. Classroom B1 had an embedded librarian present at the week-long residential week at the start of the teaching period, and classrooms B2 and B3 were taught entirely online. Embedded librarians at Institution B did not have structured interactions with students in their classes during the online portion of the teaching period in the same way as classes at Institution A. Instead, the embedded librarian in Class B1 was available to students in person during the residential week but in Classes B2 and B3 students were encouraged to contact the library directly rather than their embedded librarian in the first instance, though the embedded librarian was there if students required particular assistance. This difference in the structure of the embedded librarian’s work between Institutions A and B may account for the lesser number of roles identified as being present in classes at Institution B. These three roles are considered in more detail in the following sections.

**Personal tutor for students.**

The role of personal tutor for students within online classes is a natural translation of the library support usually available at an enquiry desk in the physical library. In addition to students directly contacting the library for support, the role of personal tutor was also
available from the librarian embedded in all case study classes at Institution A, and in Class B1 at Institution B, albeit in different ways. Embedded librarians in classrooms A1, A2 and A3 ran library discussion forums throughout the teaching period and students were able to individually ask their questions to the embedded librarian on the library forum or by direct email. In Class B1 the embedded librarian was available in person during the residential week for individual appointments with students, in Class B2 students were encouraged to contact the library directly in the first instance and otherwise contact the embedded librarian by phone or email or contact the library with any questions, and in class B3 the embedded librarian was available online, by phone and by email for individual student questions, though no student took advantage of this service in this last class. This meant that the personal tutor role was available and used in all classes but not so readily accessible in Classes B2 and B3, so much so that the offer was not taken up by students in Class B3.

Responses from students about the embedded librarian providing individual support came from the second, third and fourth datasets across all the case study classrooms apart from Classroom B2, where this service was available but not used by students during the observed semester. For example, from the open-ended answers in the questionnaire, a student in explained:

Personally, I have found the embedded librarian and the library forum to be a useful and important means of support. During my studies on this course I have had several questions and encountered some issues - I found the librarian to be very helpful and supportive. (QS19, A1)

Another student at Institution A explained, “when you are actually in another country and dependant on online assistance it is very reassuring to have a librarian there to assist” (IS2, A1). As there was a single embedded librarian assigned to each of the classrooms at Institution A, relationships were able to develop which may not have happened when dealing with a number of library staff at a centralised library. Examples showing the development of relationships included “I also love that there are faces to names and it is a person responding to you, not a helpdesk system” (IS2, A1) and “he didn’t make me feel like a nuisance … I was a bit embarrassed and he was saying look we have all been there and please don’t hesitate … get in touch and together we can nut it out” (IS6, A1). Similar appreciation for access to individual support from the embedded librarian came Class B1 where individual appointments with the embedded librarian were encouraged during the residential week at the start of the course. For example, a student in this class indicated a preference for having the embedded librarian as a personal tutor given what she described as “the more competitive nature” of this postgraduate course, saying “I think with a lot of the students they preferred to
have one on one with her” (IS15, B1). These responses indicate the role of the embedded librarian as personal tutor provided a welcomed opportunity for students to ask questions and receive support directly, separate from other avenues for support provided by the embedded librarian within the course and by direct contact with the library.

**Class tutor for students.**

Embedded librarians also took on the role of class tutor in the Institution A case study classrooms. Students at Institution A were able to make use of library discussion forums set within their online classrooms, where the embedded librarian provided an interactive forum for students to ask questions, receive answers, participate in information-sharing and discussions and learn from proactive posts from the embedded librarian and from questions posted by other students. Students at Institution B did not have the embedded librarian working in this class tutor role. Students in Classroom B1 described a preference for the embedded librarian as a personal tutor rather than a class tutor, explaining: “I think it didn’t always feel helpful to do it together, but I think that offering the individual appointments [during the residential week] was pretty good” (IS14, B1), and “I think with a lot of the students they preferred to have one on one with [the embedded librarian] … it probably was a reflection of how competitive people were in accessing resources and things like that” (IS15, B1). No comments came from students in Classes B2 or B3 about the class tutor role of the embedded librarian, which is unsurprising given this role was neither expected nor delivered in these classrooms.

Students in Institution A were generally very positive about the use of a shared platform for library support. Comments about the library forum from students in classroom A1 included “I thought it would be beneficial for others to see in case they were experiencing something similar” (IS2, A1) and having “somebody that you can say hey I need some help - I think it’s huge especially … studying by distance” (IS6, A1). Students’ comments in the questionnaire free response answers highlighted their appreciation for the library forum as a learning support platform regardless of how much or how little they personally contributed to it. One student explained “I was comfortable using the library facilities on my own and did not feel the need to interact with librarian. However, I felt I could approach them should I need assistance” (QS18, A2) and another took advantage of the service, indicating “I like the fact that there is a forum for people to ask the librarian questions, instead of having to ring the librarian up” (QS44, A3). There was an indication, however, that the library forum was not always the preferred delivery method for library support with one student explaining “I'm not
very tech savvy and can’t navigate the site very well. So, I can’t say I used the library forum much at all” (QS10, A2).

In classroom A1, the embedded librarian was able to leverage off some of the student queries to provide further benefit to others in the class in a scalable and sustainable way by repackaging replies in a way that is anonymous but provides others with the same useful information for their particular studies. The embedded librarian explained:

a student … contacted me [directly] several times about APA but also in the forums so we would have a discussion … [so I] anonymize it … and just say [in the forums] students have been asking me about this topic. (IL1, A1)

The embedded librarian in class A3 explained a similar process, saying “if we are getting particular questions repeatedly over the phone or via email we will do a post to the forum on that topic” (IL3, A3) as a way of reaching many students with a single interaction. In this same class, a student explained how students began working together to answer each other’s questions, saying “if they asked a question again actually the students were pretty good at jumping on and saying you know the question was answered here (IS11, A3). This demonstrated an added value in learner support by using the questions of some students to provide proactive support to other students, which fulfils a perceived or identified need for the whole class.

An added feature of the class tutor role was that students were also able to learn from the interactions of other students with the embedded librarian. This was evident in the interview responses as students reported finding useful information in the questions asked by other students and in the subsequent replies from the embedded librarian or sometimes from other students in the class. This is an example of one-to-many and many-to-many learning situations where potentially many students could benefit from the questions and answers of others. Examples included a student in classroom A2 who reported “Some of the questions they’d ask were questions I was on there to ask so I got my answer without even having to ask” (IS8, A2), and another in classroom A3 who explained the forum postings were “Quite useful because most of the stuff what I asked the librarian I got the information what I needed but I got more from other student’s questions” (IS13, A3). Questionnaire free response questions complemented this with students volunteering “I did not directly use the librarian, but I benefitted from others’ questions” (QS41, A2) and “I can gain and compare others ideas” (QS4, A1). Conversely, a reservation was expressed by a student to these forums being available for other students in the class to view, saying:
I found it hard to ask questions where everyone can see and respond, however as the course has gone on it is something I would make more use of a lot earlier. I think it is obvious from the start of the course who has used these facilities before but rather than make it daunting for newbies it actually makes you realise that it is a natural place to turn when you need advice. (QS5, A1)

In the questionnaire there was a scale consisting of eight items used to measure the feeling of the participants towards the library forum as a learning support platform provided by the embedded librarian. This included questions about the student interacting with the embedded librarian in the forum, as well as students interacting with other students as it is a shared platform for the class. This group of questions sought to identify aspects of student interaction with the embedded librarian in the library discussion forums within the online classrooms, and student interactions with other students in this medium as well as how easy it was to engage with that support. The responses are summarised in Table 5.6; responses are only from Institution A as there was no comparable activity in the Institution B classes.

Table 5.6

How did participants feel about the library forum as a support platform provided by the embedded librarian?

<table>
<thead>
<tr>
<th>Qu. No.</th>
<th>Question</th>
<th>Institution A Strongly Agree and Somewhat Agree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>I enjoyed the library forum questions and discussions.</td>
<td>77.1 (n=48)</td>
</tr>
<tr>
<td>9</td>
<td>There were many opportunities to interact with peers in the library forum.</td>
<td>80.9 (n=47)</td>
</tr>
<tr>
<td>12</td>
<td>Students in this course were willing to reply and join in conversations in the library forum.</td>
<td>82.2 (n=45)</td>
</tr>
<tr>
<td>18</td>
<td>The library forum contributed to my interest in this subject.</td>
<td>65.0 (n=40)</td>
</tr>
<tr>
<td>19</td>
<td>I felt the library forum helped me achieve the objectives in this course.</td>
<td>83.8 (n=38)</td>
</tr>
<tr>
<td>20</td>
<td>I liked the library forum format.</td>
<td>87.5 (n=40)</td>
</tr>
<tr>
<td>21</td>
<td>I felt comfortable with the library forum being part of the course.</td>
<td>95.7 (n=46)</td>
</tr>
<tr>
<td>22</td>
<td>I would recommend the library forum facility to others.</td>
<td>92.1 (n=38)</td>
</tr>
</tbody>
</table>

The table shows varying levels of agreement with these statements, ranging from the moderate 65.0% for contributing interest in the subject to a high 95.7% being comfortable.
with having the forum inside the online classroom. The majority of students strongly agreed or somewhat agreed with these questions, indicating positivity from students at Institution A towards the library forums in their online classes. Cronbach’s alpha was used to test the internal consistency of these items, and it was found that $\alpha = .851$, indicating the scale was reliable and had a good level of internal consistency.

**Modelling to students.**

An added benefit, in addition to the embedded librarians’ roles of personal tutor and class tutor, was identified in classrooms A1 and A3 was the role of modelling. Modelling in this context refers to the embedded librarian being used as a model or working example of how to provide either learner support or information services. This was identified as a role by students in classes A1 and A3 which included students learning about information literacy and studying in the information sciences. A student in classroom A1, who was herself working in a library as well as studying, explained how she read the library forum postings, not to gather information from the questions, but “to see how [the embedded librarian] answered them” (IS7, A1). In this way the embedded librarian was used in the role of peer or model, even though the role may not have been deliberately sought or provided. The faculty member in classroom A3, however, did seek out the embedded librarian to fulfil the role of modelling to students as that course included content which drew students likely to move into information management and library roles themselves. This faculty member explained “there is that awareness of this person’s role and what they are meaning to provide and that benefits the student to use it because they are also working in similar roles” (IF3, A3). While the embedded librarian and the library forum served primarily as a learning support mechanism for students in this classroom, it was also an example of the type of support and interactions that they themselves may be providing to others in future careers. Although this role as model was not one the embedded librarians overtly sought to provide, it appeared to be an important and influential one for those students who chose to perceive it as such.

**Summary of roles in supporting students’ learning.**

The roles of embedded librarians in supporting students’ learning were demonstrated in the areas of personal tutor, class tutor and modelling to students. The role of personal tutor was available in all classrooms in this study. Students, particularly those in their earlier years of tertiary study, were appreciative of this role providing support that could address their information needs discreetly and effectively, regardless of their level of ability or knowledge. For more advanced students, being able to directly target the needs of individuals in the
context of their course was also appreciated as it meant support was tailored directly to their immediate information needs. The role of class tutor enabled students to collectively learn from the questions asked initially by individual students and to revisit questions, answers, discussions and advice given during the course. An additional role of embedded librarian as model was demonstrated in classrooms A1 and A3. This role was useful for those students interested in work as a librarian, teacher or service provider, as the delivery of support itself became the focus of attention.

Roles for Supporting Faculty’s Teaching

One of the common features noted among all classrooms was the importance of good relationships between embedded librarians and faculty. This was agreed by the embedded librarians and faculty in every interview, with terms such as “collegial” and “professional” frequently appearing to describe this relationship. One faculty member indicated the relationship was “very professional, very collegial and [the embedded librarian] goes out of her way to make things easier for staff and also … for students, so she’s brilliant” (IF2, A2). Another faculty member said the relationship was “Just a very collegial kind of knowledge sharing relationship that I think is quite open, so he would I hope feel that he can contact me with anything and I feel the same way” (IF3, A3). Embedded librarians reciprocated these comments, describing their relationships with faculty as “Pretty collegial - It’s good to be invited to any discussions on the course” (IL1, A1) and “it’s really free and collegial and I feel confident to ask anything at any time so I would say [it’s] a good working relationship” (IL2, A2). There was also agreement that the nature of the relationship was a fundamental factor in the success of the support provided by the embedded librarian and the uptake of it by faculty and by students.

Contributions made by the embedded librarian to support faculty included both teaching support and course development support. These roles contributed to the courses both in the preparation for delivery and actual delivery of the courses. Also noted, but only in two classes, was the embedded librarian’s role in assisting faculty with research support beyond the immediate scope of the course being taught. These are all examples of faculty-librarian collaboration. Table 5.7 identifies the occurrence of support given by the embedded librarians to faculty in the six case study classrooms, based on data from the interviews in the third dataset. The following sections look in more depth at each of these forms of embedded librarian support for faculty.
Table 5.7

*Embedded librarian support for faculty*

<table>
<thead>
<tr>
<th>Support for faculty</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching support</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Course development support</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>Research support</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
</tr>
</tbody>
</table>

**Teaching support for faculty.**

One way embedded librarian support for faculty was shown was in providing support for teaching. The most common way this support was provided was in picking up specific lines of questions from students and dealing with these from within the library forum or contact sessions during the residential week or workshop that were part of some classes. An example of this came from classroom A1, with the faculty member explaining:

"sometimes students will bring a question up about referencing and if there also other questions that other students need help with then those relating to referencing will be forwarded to the librarian to deal with so that they will be ample time to deal with other issues relating to questions that are not about referencing." (IF1, A1)

As well as the answering of questions as they were asked, in some classes the teaching support was proactively provided, such as classroom A2, where the faculty member described:

"several times she's put out a template ‘What is referencing’ with you know a little mini essay explaining it and the purpose of it in conjunction with me you know trying to remove a bit of the mystique and fear that can be associated with referencing." (IF2, A2)

The examples in this section on teaching support for faculty demonstrated how the faculty member could be supported by the embedded librarian taking on some of the generic teaching support which allowed the teaching focus of the faculty to remain on subject-specific content.

**Course development support for faculty.**

An added benefit of the role of embedded librarians’ support for faculty was their involvement in assisting with course development in some of the case study classrooms. In classroom A1 the faculty member explained the embedded librarian “suggests reading materials especially [for] the course … he suggests reading materials in the area and also for just for my own knowledge when he finds useful … he will let me know” (IF1, A1).
Classrooms A1 and A3 also noted direct involvement in course planning and revision with the embedded librarian on the course development team. In classroom A1 the faculty member outlined the embedded librarian’s involvement in the course revision process:

When I was discussing with the educational designer for the other revision I had to call [the embedded librarian] in to that meeting so that he would understand what was being discussed. So, between myself, [the embedded librarian] and the educational designer that I am working with, we all agree that this is what [the embedded librarian] will do, this is what I will do, this is what the educational designer should expect of us and all this so that everybody is on the same page. (IF1, A1)

In addition to answering student questions during the running of the course, some classes (A1, A3, B3) had a feedback loop at the end of the teaching period between the faculty member and the embedded librarian to improve the next iteration of the course. For example, in classroom A1, the faculty member used information from the previous running of a course to improve the delivery of it in the next teaching period, explaining:

the librarian is an integral part of the delivery of this course so after each trimester we will discuss what went on, the issues he found with answers to these questions then we discuss them so that in the next delivery we can produce the best answer to help students’ questions. (IF1, A1)

The embedded librarian in the same classroom also detailed the process of updating past reading lists for a new iteration of the course, explaining: “I emailed the faculty the reading list and advised how many [currently available items] were on it and if there were any changes needed” (IL1, A1). In classroom A3, the faculty member also described involvement in the course revision process: “I asked if [the embedded librarian] wanted to help me with finding some new reading when we actually do go through the revision process and he was keen to help out with that” (IF3, A3). In addition, the embedded librarian in Class A3 was also called upon to identify suitable case studies or examples to be included in the next revision of the course, showing a wider range of tasks the embedded librarian could be involved in within the course development process. Similar support in course development was also noted in Classes B1 B2 and B3.

**Research support for faculty.**

Examples of faculty-librarian collaboration in some of the case study classrooms displayed support from the embedded librarians extending beyond the confines of course development and course teaching. These fell broadly into the area of active research support for the faculty member. Types of support mentioned included assisting with the faculty member’s own research and locating of information resources, conducting literature reviews
and assisting with a grant application. The faculty member and embedded librarian in Classroom A3, who noted strong feelings of mutual support and a close relationship, described frequent contact with each other outside of the online classroom context as contributing to their relationship as well as to the support received. The faculty member explained:

>I didn’t actually have much communication with him on the forum … but … I’d hassle him all the time, probably emailed about once or twice a week not specifically related to the course always, like I wanted to get some e-books and get some help for research stuff and [the embedded librarian] is kind of like the person I always go to just because we worked together on courses so much that now we have a really good relationship. (IF3, A3).

Faculty-librarian collaboration also featured in classroom B3 with the embedded librarian providing personal research support for the faculty member, describing the embedded librarian as:

>very helpful and approachable and helped me with things like I say beyond the call of a college librarian she’s done literature searches to help me with the grant application she’s helped me target a journal for publishing an article (IF5, B3).

This provided extra value for faculty by using available expertise through a closer relationship with their embedded librarian. As indicated in Table 5.7, faculty-librarian collaboration beyond course development and course teaching was not mentioned in any of the other case study classrooms.

**Summary of roles in supporting teaching.**

Three main roles were identified in the provision of support by embedded librarians to faculty, in the areas of teaching support, course development support and research support. The first two of these related directly to supporting faculty’s teaching, while the third was an added-value service beyond teaching which was observed in only two of the case study classrooms. This added-value service was in supporting research and other work faculty were conducting and appeared to evolve out of the faculty-librarian collaboration into these new areas. In all three roles in providing support to faculty, the relationships and the faculty-librarian collaboration featured as an integral part of the successful partnership inside the classroom and, in some instances, beyond the classroom.
Summary of the Practice of Embedded Librarians

This first set of the cross-case analyses have focussed on addressing the first research question, restated here:

*RQ1: What is the practice of embedding librarians in online tertiary classrooms in the New Zealand context?*

The cross-case analyses drew on the rich data from the second, third and fourth datasets (questionnaire data, interviews, and notes, observations and other data) which provided a detailed description of the embedded librarian practice and allowed for corroboration of the resulting findings. The analyses began with an identification of the learning needs of students in the case study classrooms, as this provided the context of the provision of support to meet those needs. It was found that students in their early years of tertiary study at Institution A (years one and two of tertiary study) felt they had lesser information literacy and library skills than was reported by the more experienced students at Institution B (years two and four of tertiary study). Instructional support was well received and there was strong agreement that this support was useful, although in line with learning needs the rate of agreement was higher at Institution A where students were in first- or second-year classes. Questions regarding technical support received a similar response although the difference between the rates of agreement were greater, with fewer students at Institution B feeling confident that their questions could be answered at the time they required assistance.

Roles in which the embedded librarian was identified as contributing to learner support were as a personal tutor, class tutor and model. These roles were most noted in classes at Institution A where the embedded librarian was in direct contact with students and least noted in classes at Institution B where the embedded librarian presence was more remote from students. Contributions to teaching from the embedded librarians included teaching support in the way of answering questions and providing access to resources at Institution A and in creating and embedding RLOs at relevant points in the online course content at Institution B. Also noted was course development support at both institutions and research support for some but not all faculty members. Overall, the practice of the embedded librarians in these classes displayed a good deal of homogeneity in classes within each institution, but less similarity between institutions.
RQ 2: What Makes this Practice Effective in Providing Support to the Online Classroom Participants?

The cross-case analyses addressing the second research question focused on themes identified a posteriori from the data in this study. These covered the broad themes of roles and relationships, presence, interaction and benefits. Data-driven codes (Fereday & Muir-Cochrane, 2006) were used to identify sub-themes within each of these themes, derived from the open-ended answers from the questionnaire in the second dataset and from the interviews in the 3rd dataset. During the iterative process of identifying sub-themes from the data it became clear that the main themes in making the embedded librarian practice effective in providing support to online classroom participants were in the areas of relationality, immediacy, relevancy and interactivity. Also, creating parity between students and providing support beyond the classroom for faculty emerged as additional sub-themes. Table 5.8

*Inductive codes* presents the themes and sub-themes identified in relation to the second research question and provides example responses to illustrate each sub-theme. The themes and subthemes are looked at in more detail in subsequent sections, considering effectiveness of support for students and for faculty respectively. The sub-themes form the sections in the discussion below.

Table 5.8

*Inductive codes*

<table>
<thead>
<tr>
<th>Theme</th>
<th>Sub-themes</th>
<th>Example responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roles and relationships</td>
<td>Relationality with students</td>
<td>I’ve seen that he actually answered some things on the forum even on the weekend, it was like he must have been checking and when you are waiting for an answer not having to explain it to another person when you have already talked to one and then possibly having to explain it again to somebody else on a different day knowing that [the embedded librarian] had sort of been the first one you’d talked to and he’d explained something and then you clarify something you’re talking to the same person again if you know what I mean, so yeah I actually this and I guess it made it that little bit more personal. (IS6, A1).</td>
</tr>
<tr>
<td>Relationality with faculty</td>
<td>Yes just very helpful and approachable and helped me with things like I say beyond the call of a college librarian she’s done literature searches to help me with the grant application she’s helped me target a journal for publishing an article, she’s just very helpful and just talking with each other over this and your research has been really good, she’s become one of my favourite people on campus. (IF5, B3).</td>
<td></td>
</tr>
</tbody>
</table>
Presence for students

[The embedded librarian] sometimes started ... threads on the forum if he had noticed people asking a lot of similar questions. He also was aware of what was happening on the other forums and would sometimes jump in on those too and answer questions and when I asked a question he answered really promptly. I really appreciated that. (IS11, A3).

Relevancy for students

[The embedded librarian] linked to an APA website for citations and referencing. That was really helpful. And I think I don’t think it was my question, but I did notice that she had given someone an actual link to a library book in the library that someone had asked about. (IS8, A2).

Interaction for students

I went through the whole degree at university and never ever contacted [the library] for help so [the library discussion forum] was actually a real good way of like making you feel like you could ... quickly write them something [rather than] ringing or emailing and interrupting someone. Whereas in the forum if you need an answer other people can help. It’s obvious it doesn’t have to be a lecturer. (IS5, A1).

Benefits for students

It was only when I was just flicking through [the library discussion forum] ... that I was reading other people’s questions and other people’s answers that I realised what a really useful forum it was. (IS12, A3).

Support beyond the classroom for faculty

[The embedded librarian] ... helped me with things ... beyond the call of a college librarian - she’s done literature searches to help me with the grant application she’s helped me target a journal for publishing an article. (IF5, B3).

Effectiveness of Support for Students

The effectiveness of embedded librarians’ support for students was identified as being in the areas of relationality, immediacy, relevancy, and interactivity, and an added benefit of parity was noted as outlined in Table 5.8. Each of these areas form part of student-librarian collaboration, with both parties working together for the betterment of student learning and success.

Relationality.

Relational is defined as “characterized or constituted by relations” (Relational [Def. 2], 2019) which in this sense means having dealings or intercourse. Relationality is the quality or state of being relational. In the case study classes in this research, the embedded librarians
in classes at Institution A, and to a lesser extent at Institution B, had the opportunity to build relationships with their students through repeated direct and indirect contact. The interactions of the embedded librarians in providing learner support in the discussion forums at Institution A and in providing individual support with students at both institutions created an avenue for the embedded librarians to develop a social presence and relationships with students. The sense of relationship may have encouraged students to more freely seek support and include contact with information resources and support in their regular study habits. An example of this occurrence comes from class A1 where a student reported a rapport with the embedded librarian and the benefit of having one person to connect with, saying:

When you are waiting for an answer not having to explain it to another person when you have already talked to one and then possibly having to explain it again to somebody else on a different day knowing that [the embedded librarian] had sort of been the first one you’d talked to and he’d explained something and then you clarify something you’re talking to the same person again if you know what I mean, so yeah I actually this and I guess it made it that little bit more personal. (IS7, A1)

Familiarity with specific embedded librarians at Institution A occurred not only within a class as the embedded librarian was assigned to all classes in a particular subject area, resulting in students working with the same embedded librarian several times over a range of classes. As such, students in class A3 had encountered their particular embedded librarian in a previous running of class A1. For students taking a range of subjects, the embedded librarian format and placement was the same across all courses even if the particular librarian was different in different courses. This permitted relationships to develop more quickly as the context and setting was already known to students. In contrast, at Institution B the embedded librarian was much less visible with less direct contact and so had a lesser social presence.

The library discussion forums used in classes at Institution A formed an open and accessible way for relationships to develop between the embedded librarian and the students in each class. The postings in the forums noted in classes A1, A2 and A3 showed not only the interaction in these classes, but also hinted at the development of relationships, with students coming back to ask subsequent questions, or replying to conversations already in play between other students and the embedded librarian. This demonstrates the working of social constructivist theory as students are constructing meaning through collaborative inquiry, both with the embedded librarian and with each other in the classroom setting. The building of relationships and collaborative working also showed the development of a class community. A comment from a student in Class A3 has already been shown in regards to general support is presented again here as it also summed up their understanding of the relationship afforded
by the embedded librarian in their class and the effect it had on their ability to seek and gain support:

There is just a different kind of feeling from [the embedded librarian] in that I guess he’s not ultimately assessing you. He’s purely there to help you out so I don’t know whether that sort of affects my feeling, but I just feel like he is sometimes easier to ask a question of. (IS11, A3)

Multiple relationships were identified across the six case studies, including relationships based on the roles of personal tutor, class tutor and model. As outlined in Table 5.5, student support was offered in the role of personal tutor in all classrooms but as class tutor only at Institution A. At Institution B support was largely embedded at the course design level and no personal assistance was provided to the students as such. The degree of provision of these roles differed among the classrooms, as a number of other factors differed in each class including the nature of the classrooms, the subject matter of the course, and the experience of the students, the individual faculty and embedded librarians involved and the nature of the institutions. The amount of use students made of these services also differed, as the support was provided but it required students to make use of that support. These relationships of personal tutor, class tutor and model contributed to student success by providing different avenues for support to be given, so that students who did not actively seek or use one form of support might encounter it in another.

Immediacy.

Immediacy is defined as “the quality or state of being immediate” (Immediacy [Def. 1], 2019), which is “existing without intervening space or substance” (Immediate [Def. 2], 2019). The placement of the embedded librarian within each online classroom served to provide some immediacy of service, although it was noted that embedded library support differed across the range of case studies in this research. Classes A1, A2 and A3 at Institution A had the embedded librarian present in the library discussion forums in the classes, readily available for students to ask questions and provide information and answers, during the full teaching period of each course. In contrast, there was far less immediacy for students at Institution B where the main provision of support was in the RLOs placed within the course content and a short period of contact at the residential week in classroom B1 only. As noted previously, almost all (97.7%) Institution A students either strongly agreed or agreed that ‘It was easy to find the embedded librarian to ask for support’ while only 55.6% of students at Institution B gave the same responses (Table 5.2, Questions 3 and 17). This difference in agreement may be the result of the difference between having an active and accessible
embedded librarian presence in the class, as seen in the discussion forums at Institution A, and not having such a presence, as seen at Institution B, where there were no discussion forums and interactions tended to be one step more removed, or transactionally distant, from students.

Immediacy of support was noted in all classrooms at Institution A in comments made by students about how the delivery of support within the online classroom was more personal, directly applicable to the course being studied, and how they could learn quickly and efficiently from the questions of others in the discussion forum rather than each student interacting individually with the library. Several students indicated they had learned specifically from their embedded librarian in their online classrooms but may not have learned in the same way or at the same level if they had to approach the library directly during their studies, and some may not have approached the library at all. From Class A1, a student explains how the discussions on the library forum provided a learning platform that would not otherwise have been available:

I read a few discussions regarding APA referencing. At the time it was very in depth (to me!) and detailed however when I actually came to do my own referencing, I used those discussions as part of my research into writing a correct reference list. Very useful and very up-to-date! (IS2, A1)

This was echoed by other students, for example, one student explaining the embedded librarian “gave me a very good outline of why I couldn’t find [the right information] and the steps to look at it … that’s a tutorial in itself which was a really nice touch as it was personal” (IS4, A1). Student comments indicated that support had immediacy as it was able to be sought, delivered and used by students in a way and a time that suited the students and their learning needs.

In classes A2 and B1 the embedded librarian had a small amount of contact time with students though a workshop and a residential week, respectively. The embedded librarians were able to meet all their students in person in class B1 but only those who attended one of three workshops in class A2. At these meetings the embedded librarians were able to interact and provide support or make arrangements for supporting individual students. Another form of support provided by the embedded librarians was placing RLOs within the courseware in classes A2, B1, B2 and B3. This placement of library tutorials designed as discrete learning packages meant that instructional support could be integrated into the online courses so that they could be used by students when they were needed, within their particular online courses. This packaging and placement of support greatly increased the likelihood of students
encountering the support when they needed it, and it provided a scaffold for those students who needed it. An example of the success of placing this support where the students were actively learning came from class B3, where the faculty member explained that amongst the resources the embedded librarian had placed within the course “… was a quiz … that [access statistics showed] quite a number of the students had gone through and done” (IF6, B2). This particular quiz allowed students to check if they had particular information literacy skills needed for an assessment, and it directed students to the location of targeted tutorials for those who did not score well in the quiz itself. Part of the value of the support to these students is in the timing of the quiz within the course, the immediacy of the feedback, and the immediacy of direction to further resources for targeted support.

Relevancy.

Relevance is defined as “practical and especially social applicability” (Relevance [Def. 1b], 2019) and relevancy is the quality or state of relevant. Students in all classrooms noted some form of relevance in the support provided by the embedded librarian, with comments such as “together we were able to nut stuff out which I was very grateful for … [and the embedded librarian in the library forum] answered any questions that anybody had which we would all sort of check out” (IS7, A1) and “[information from the embedded librarian] has helped me a lot” (IS3, A1). These examples of relevancy and relevant assistance to individual and class learning were added to by the faculty member in Classroom A1 who explained:

… when I am discussing with [students] I will refer some of them to the librarian. After going to the librarian most of them will come to me … [so I can hear] first-hand the help they have received from the librarian. [This, and the questions on the library forum] gave me an indication that they are actually receiving the help from the librarian (IF1, A1).

In many cases, students in the case study classrooms commented that as the services provided by the embedded librarian were integrated into their own classrooms and relevant to their study, they felt that contacting the embedded librarian was both easier and more useful than approaching the library staff. This was further confirmed by instances students recalled of having specifically learned from the embedded librarian during their courses. In addition, the use of library discussion forums in some classrooms meant some students were able to see what others were asking, learn from their answers and have a more supported learning experience overall.
In classes at Institution B, embedded librarian support predominantly took the form of RLOs carefully selected and placed at appropriate points in the courses themselves, tailored strategically to be highly relevant to the needs of the learners. It was then up to students to engage with this support to enable success in their classes. As the RLOs were presented as an integral part of the course itself, students were encouraged to see this as part of their course rather than as an added-on or optional source of instruction.

The availability of the embedded librarian in person at the workshop in Class A2 and residential week in Class B1 were further examples of micro-level embedding which permitted further tailoring of learner support to meet the needs of individual students by providing opportunities for them to request relevant support. This was of particular value to the postgraduate students in Class B1 who were required to conduct a review of the literature on a subject of their own choice. Students were offered individual assistance by their embedded librarian in person during their residential week to gain insights into conducting database search specifically for the topic they had chosen for their assessed work. This linking of skills for understanding and undertaking assessed work makes the embedded librarian support directly relevant to the learning needs of students.

As noted in Table 5.3 Question 1, 91.3% of students responding from institution A and 77.7% of students responding from Institution B indicated their agreement that the embedded librarian provided resources, links to resources or search strategies that were relevant to their course and its assessments. A closer response of 89.7% from Institution A and 85.7% from Institution B agreed (in Table 5.2, Question 5) that the overall support including replies, feedback and answers from the embedded librarian were helpful. The responses of Question 1 may indicate that support was more relevant to students at Institution A while the responses of Question 5 may indicate that regardless of the reasons students had for needing support, the embedded librarians at both institutions had found a way to connect with their particular students at a level that their students needed.

**Interactivity.**

Interactive is defined as “mutually or reciprocally active” (Interactive [Def. 1], 2019) and interactivity is the quality or state of being interactive. An aspect of value noted in five of the six case study classrooms was the interactivity and range of interaction options providing multiple access points for students to receive assistance from their embedded librarian or library service. Examples of the different interaction options included a discussion forum within the classroom, individual contact with the embedded librarian outside of the classroom.
remotely or in person and individual contact with the library remotely or in person. Table 5.9 Interaction Options shows the availability of the various interaction options across the six case study classrooms.

Table 5.9

*Interaction Options*

<table>
<thead>
<tr>
<th>Classroom</th>
<th>Discussion Forum</th>
<th>RLOs</th>
<th>Embedded Librarian remotely</th>
<th>Embedded librarian in person</th>
<th>Library remotely</th>
<th>Library in person</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>A2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>A3</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>B1</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>B2</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>B3</td>
<td>x</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Within the classroom, discussion forums were the predominant source of interaction at Institution A while RLOs were the predominant source at Institution B. RLOs were also available to a lesser extent in some classes at Institution A. These two interaction options provided at least one way for every individual within the six case study classes to interact and engage with library support within their online classroom context. At Institution A, however, the interaction options within the classroom were increased as not only could students interact with the embedded librarian, but also with other students. The embedded librarian in classroom A2 used this opportunity for increased interactivity by wording answers to students’ questions in ways that other students could seek and apply those answers more widely. In addition, the embedded librarians in classrooms A1 and A3 also made proactive posts to the discussion forums to achieve this same result. A student in Classroom A3 described this proactive post process, commenting that the embedded librarian would create [new] threads on the forum if he had noticed people asking a lot of similar questions. He also was aware of what was happening on the other forums and would sometimes jump in on those too and answer questions … I really appreciated that (IS11, A3).

There were no comments from students about interactivity within classrooms at Institution B.

Students’ interactions with embedded librarians outside of the classroom were all on an individual basis. Students in most classes were encouraged to contact their embedded
librarian directly, outside of the classroom by phone, email or other method. In Classes B2 and B3, students were encouraged to approach the library directly for support instead. Contact in all remaining five classrooms was encouraged via phone and email and, in the case of B1, also by Adobe Connect. In a different form of interaction, in classroom B1 the residential week created the opportunity for the embedded librarians to provide face to face sessions one on one with students on request. These sessions were popular with students, indicating that this option of direct interaction was also welcomed. The workshop in classroom A2 only provided some students with an opportunity to ask questions of the embedded librarian in person as the librarian attended only a locally-held workshop but not others held in more geographically-distant locations.

All students also had the option to interact with the library directly, beyond the classroom setting. Remote options for interaction with the library included by phone, email and via the website. In addition, students in classroom B1 had the option for library visits during their residential week on campus, although the option to meet with the embedded librarian in person in the library may have been the preferred option. Students in classrooms B2 and B3 also had the option of visiting the library in person, but only if they were physically based on campus themselves. This option was not open to students at Institution A as students were not on campus at any stage during the courses. Overall, this range of options provided the ability for students to choose their preference for the form of interaction and if one option was not suitable for any reason, there were others to choose from.

Parity.

Parity is defined as “the quality or state of being equal or equivalent” (Parity [Def. 1], 2019). The cross-case analysis of the six case studies showed there was not always a simple match of course level to experience of students in working with information resources, indicating that there was not always parity of skills across all students undertaking study. One student commented on the variety of questions and students’ skills evident in her class, saying “It was quite a spread of students coming in with different backgrounds” (IS1, A1). In Classroom A3 the embedded librarian noted an option to help create parity between students and also between online classrooms by adding in a library block in the online course structure of the online classes, bringing direct links to the library and its learning resources to the place where the students could encounter them whenever visiting their online classroom. Embedded librarian support such as the use of RLO’s at Institution B also helped create parity among students, as it allowed students to catch up on underdeveloped or non-existent skills and other
students to by-pass those RLOs if they already felt confident with the skills being covered, without any interruption to the flow of the course in the process. These forms of self-identification of need placed in the pathway of students allowed those with a skill-gap to be able to self-identify and fill that gap at the point of need. Students in Classes A2 and B1 indicated the embedded librarian support provided parity for students by helping them gain skills and locate material needed in their courses of study. In classroom A3 a student noted that questions and discussions in the library forum may have helped some students but that many students had already mastered those information skills being discussed. This indicated the embedded librarian was working to bring all students up to the minimum skill level needed for handling information so that their learning could be more effective.

Effectiveness of Support for Faculty

As identified in Table 5.8, the effectiveness of embedded librarians’ support for faculty was identified as being mainly in the area of relationality and had an added benefit of extracurricular support in some of the classrooms. These two areas form part of faculty-librarian collaboration, with the embedded librarians and faculty working in partnership to enhance faculty’s work and role in teaching, learning and conducting research.

Faculty-librarian collaboration.

The main element in faculty-librarian collaboration was relationality. This is needed for any successful partnership or collaboration. The relational nature of the collaboration was evident in the constant working together of the faculty member and the embedded librarian in each classroom to build suitable support for their classroom’s students. An example of relationality comes from classroom B2 where the embedded librarian describes the relationship between them and the faculty member:

… initially [I started] that conversation … introducing myself and who I am and what I can do to support her as an academic colleague, but also what we can do as library within the organization to support her students and her teaching and learning as well. So yeah the relationship with the academic is vital both for us to approach that kind of building of a relationship very positively and taking the queues from the academic … in [the faculty member’s] case I mean she was very supportive, very encouraging and I’ve worked with her prior in a different course so it was a very positive interaction … when it’s a closer working relationship with an academic and there is some very specific needs for a course we’ve already got something really good that we can base it on (IL6, B2)
This relationship brings with it the basis for working together during the preparation for and delivery of the course to students, and in other support provided to faculty beyond the confines of the course delivery itself.

In addition, immediacy was partially possible because of the relationality that existed between faculty and their embedded librarians. The immediacy of the connection between faculty and embedded librarian allowed support to be provided with a unified voice, so that both parties supported each other to support the students. It also permitted new situations to be discussed and a plan for dealing with them to be worked out quickly, as demonstrated in this example from classroom A3 where the faculty member explained:

There was kind of some discussion back and forth between me and [the embedded librarian] about [a new type of material in the course] and then I think I actually, I don’t know if you remember but I did send an email to the whole team saying how do we handle [these cases] generally … (IF3, A3).

This was echoed in classroom B2 with the faculty member commenting that the embedded librarians “typically are quite open to new ideas [and] willing to try different things, there to provide the support as and when I need it, quite responsive and if only everybody else could be that way it would be great” (IF6, B2). This shows the immediacy and flexibility of the support that the embedded librarian could provide.

Interactivity between the embedded librarian and faculty member seemed to bring a closer relationship and more effective communication, resulting in a better support operation for students. An example demonstrating this comes from classroom A1 where the faculty member recounts:

“Initially [discussion forum activity] was slow … I suspect that [students] thought the course librarian was fictitious … but after explaining to them that the librarian … is always there, trained to help, so feel free to send these questions if you don’t understand. Some student came to me, thanking … they have been speaking with [the embedded librarian] on the phone and he has been very helpful” (IF1, A1).

An added aspect is the effectiveness of support for some faculty which came in the form of support beyond the classroom setting. In this extra-curricular support, research support appeared to develop outside of the online classroom and was not strictly part of teaching or course delivery. It was leveraged from the relationship built between the embedded librarian and the faculty member and formed a natural extension of library services as the embedded librarian was working closely with the faculty member and might become aware of their research interests and information requirements as part of the work as an embedded librarian. This has created an additional benefit to faculty, and further reinforced
the relational nature of the embedded librarian service. An example comes from classroom B3 where the appreciative faculty member explained the embedded librarian was:

“just very helpful and approachable and helped me with things like … beyond the call of a college librarian. She’s done literature searches to help me with the grant applications, she’s helped me target a journal for publishing an article, she’s just very helpful and just talking with each other over this … has been really good, she’s become one of my favourite people on campus.” (IF5, B3).

The embedded librarian in this classroom reciprocated this and also explained that the relationship had extended beyond the confines of the this case study, saying: “I had worked closely with [the faculty member] on a couple of other things where I had kind of done things for her that might be a little beyond what we normally do … [it’s] quite a close relationship” (IL5, B3). This type of support helped to cement the relationship between faculty and embedded librarians as it provided useful, practical and personal support. While this did not directly support students, the support provided to faculty for their other work strengthened bonds between the embedded librarian and faculty.

**Summary of the Effectiveness of the Practice of Embedded Librarians**

This discussion has focussed on answering the second research question, restated here:

*RQ2: What makes this practice effective in providing support to the online classroom participants?*

The aspects of effectiveness of embedded librarian support identified in this study were relationality, immediacy, relevancy, interactivity and the benefit of parity of information literacy skills which combined to support students’ learning. Overall, the effectiveness of the embedded librarian practice can be realised in many forms, and adds value by supporting students, faculty and the wider educational institution.

Not all aspects of effectiveness were necessarily present in all classrooms, but it is difficult to view these aspects in isolation from each other as there is some interdependence between them. For example, relationality may lead to immediacy as the relationship brings the classroom participants together so that immediacy is possible. Relationality and interactivity make relevancy possible as the close ties between classroom participants assisted in identifying content that was relevant and interactivity may help to deliver that content in an appropriate way to ensure relevant support is delivered.
The skills of embedded librarians were also useful to faculty for purposes other than teaching, and part of developing a strong faculty-librarian collaboration and relationship is that support need not only be provided for the original purpose for which it was first sought. Direct and tailored support from the embedded librarian to the faculty member may form part of the complete service that is provided by the embedded librarian in their overall work. It also provides other opportunities for the embedded librarian and faculty to understand each other’s roles and work better to develop other ideas which may ultimately benefit all participants in the online classroom, including students.

Chapter Five has presented the cross-case analyses and aggregated data which show an overall picture of embedded librarian practice. Following this, Chapter Six presents the discussion and implications of the findings and the development of a new model resulting from this research.
Chapter 6: Discussion and Conclusion

Introduction

This research has investigated the emerging practice of embedding librarians in online tertiary classrooms as a form of learner support. The focus has been on this practice within the New Zealand context, at the tertiary level, with six classrooms constituting a multiple case study. It sought to identify how embedded librarians worked in practice in this context and what made this practice effective in providing meaningful learner support to students. This research contributes to the scarce literature on embedded librarian practice in New Zealand and to the wider field of embedded librarian practice globally. In addition, this study sought to develop a model from the case studies (following Eisenhardt, 1989) which may provide some guidance on the future development of this emerging form of learner support. It is important to identify the elements of practice that make this form of learner support effective so that pathways can be made towards maximising its effectiveness.

This multiple case study has addressed the following research questions:

RQ1: What is the practice of embedding librarians in online tertiary classrooms in the New Zealand context?

RQ2: What makes this practice effective in providing support to online classroom participants?

In this final chapter the major findings are summarised and discussed with reference to the literature. Then, based on the findings, an embedded learner support model is presented. Following this, the contributions and limitations of the study are discussed. The chapter, and the thesis, concludes with recommendations for future research and a final word on the value of embedded librarian support in tertiary education.

Discussion of Findings

This section considers the key findings identified in this research by summarising and discussing the embedded librarian practice and how it relates to the literature in the field and complements or adds to this body of work. Forms of support that made the embedded librarian practice effective across all case study classrooms are considered under the two identified roles of embedded librarians: learner support and faculty-librarian collaboration.
The Practice of Embedded Librarians

This research used a multiple case study of six online classrooms from two tertiary education institutions in New Zealand to investigate the emerging practice of embedding librarians in online classrooms as a form of learner support. The data from the case studies indicated strong similarities of embedded librarian practices among classes at Institution A where the embedded librarian used an online discussion forum as an integral part of the course throughout the teaching semester to answer questions and provide resources relevant to each class. Strong similarities were also apparent among the classes at Institution B where the embedded librarians provided RLOs at relevant teaching points in the course so that students could access specific guidance and resources tailored to their needs and access these at the point they were needed.

Forms of learner support.

A variety of embedded librarian practices were observed both because and in spite of the differences in institutional approach to providing this form of learner support. All classes from both educational institutions contained similar elements of embedding library instruction in the course structure in the form of RLOs but the embedded librarians had different methods of contact with students. At Institution A there were online librarian-led discussions throughout the teaching semester and at Institution B there were either individual consultations or no direct contact with embedded librarians, with more emphasis on the use of RLOs. The literature on embedded librarian practice revealed there was no single definition or practice for embedded librarians, and that manifestations of embedded librarian practice differed in different educational contexts (Andrews, 2014; Schulte, 2012; Shumaker et al., 2009). The findings of this study highlight that although the existing practice of embedding learner support in online classrooms is not uniform or standardised, similarities tend to exist within institutions though not so much between them. The findings also suggest that different forms of provision of support are not only possible but expected; that there is no single way that this learner support needs to be provided for it to be effective.

This multiple case study found the practice of embedding librarians at Institution A, which served undergraduate classes, met students’ learning support needs by delivering support in a personal, immediate and interactive way. The practice at Institution B, which served both undergraduate and postgraduate students, differed by delivering support in a more remote manner through targeted interventions with pre-prepared materials. This broad division of more relational and immediate support for undergraduate students and slightly
more remote and optional support for more experienced students at the undergraduate and postgraduate levels is supported in the literature. Embedded librarian practice in undergraduate classes in the literature showed a range of more interactive practices at this level of study (Andrews, 2014; Guillot et al., 2010; Kumar et al., 2010; Tury, Robinson, & Bawden, 2015). In contrast, more targeted but optional support at the postgraduate level was noted in some studies as the preferred option at this level (Chisholm & Lamond, 2012). However, in this study we did not find any significant link between any individual demographic factor (including levels of study) and the learner support experience.

**Roles for supporting students’ learning.**

Ways in which embedded librarians contributed to students’ learning were noted in this study relating to roles and relationships as personal tutor, class tutor and model to students across a range of the online classrooms. These roles were noted in various combinations in all case study classes at Institution A and in classes B1 and B2 at Institution B, and all appear in the existing literature in this field.

The role of personal tutor was available to all students in all online classrooms, although individual contact needed to be made via a discussion forum or outside of the online classroom setting by direct contact with the embedded librarian. Interview responses from students indicated appreciation for this individual support although not all students took advantage of this opportunity. The embedded librarian serving as a personal tutor in online classes is a common feature of embedded librarian support as reported in the literature (Pospelova, Tsurtsumia, & Tsibulnikova, 2018; Willey, 2014).

The role of embedded librarian as class tutor occurred in the online classrooms at Institution A in the library discussion forums, but was not present in libraries at Institution B. The library discussion forums provided an in-class platform for the embedded librarians to work with students in a shared space to provide tailored information to directly answer questions relating to the course. Students at Institution A generally felt that the library discussion forum has provided them a much-needed support; however, not all students chose to utilise this support. Again, as has been reported in the literature, providing group support is a common feature of embedded librarian service (Becker, 2010; Burns, Cunningham, & Foran-Mulcahy, 2014).

Some embedded librarians in this study also served as role models to the students. This was noted in Classrooms A2 and A3 where students who were themselves working in
the information services field or were studying on the provision of information services. In these classes, the embedded librarian demonstrated how information services should be provided, in addition to delivering content or support for the class. This enabled students to learn from the content as well as how content could be delivered. The literature confirms this as an identified role for embedded librarians (Heider, 2010; Reale, 2015).

Roles for supporting faculty’s teaching.

Ways in which embedded librarians contributed to faculty’s teaching were also noted in this study, relating to roles and relationships as an assistant teacher, course developer and researcher. Table 5.7 outlined the occurrence of roles in providing teaching support, course development support and research support, with roles appearing in some but not all classrooms for each role, with no apparent relationship between classroom ad occurrence of role.

Provision of teaching support was observed in classrooms at Institution A where the embedded librarians interacted directly with students through the discussion forums and to a lesser extent, through individual interactions with students outside the confines of the classroom. Faculty indicated through interview responses that assistance in this role was helpful to both them and the students. These findings show the important role of teaching support of the embedded librarians, as reported in the literature (Brown & Tucker, 2013; Nitecki, 2011).

The embedded librarian in this study also supported the lecturers in course development as noted in those classes where the embedded librarians had content expertise (e.g., information science). The interview findings showed that the embedded librarians helped update course texts and readings, suggested new reading materials, and selected and placed appropriate RLOs to provide targeted support for students. Faculty appreciated and recognised their expertise as complementary to their own work. This both confirms and adds to the literature identifying course development as a role of embedded librarian contribution (Boom, 2017; Shepley, 2009).

The final role of embedded librarians was identified as supporting faculty’s research. This was evident in case study classes A3 and B3, while this role bore no relation to the running of the class. This is relevant because research informs teaching. The embedded librarians supported the faculty to be more informed about their teaching. This role, beyond the confines of the classroom itself, included such work as identifying literature and assisting
with completing grant applications. The literature includes examples of this role beyond traditional embedded librarian service, often framing it as an added-value service (Pike & Hinrichs, 2017; Schutte, Stillwell, & Kleinveldt, 2016).

**Learner Support**

Learner support was provided in different ways by the embedded librarians at Institution A than it was at Institution B. While significant differences were found between the institutions in terms of how easy it was to find the embedded librarian and how easy to was to ask the embedded librarian questions, there were no other significant differences in the students’ questionnaire responses regarding the actual support students felt they had received. This is consistent with the literature which showed a variety of ways library support can be provided to students inside online classrooms (Edwards et al., 2010; Hoffman, 2011; Hoffman & Ramin, 2010; Schutte et al., 2016; Sullo et al., 2012; York & Vance, 2009). The identification of students' learning needs is crucial to providing support in a way that meets those needs, however this study as well as others (e.g., Wu, Betts, Jacob, Nollan, & Norris, 2013) show that there is no uniform level of information skills or multiple literacies amongst any group of students. One way to provide the needed services is to make the support visible but optional, such as at Institution A the library forums was used where participation was voluntary and at Institution B where RLOs could be viewed in their entirety if students felt they needed to gain that particular information before continuing with their coursework.

Overall support, as outlined in Table 5.2, was noted across all classes in this study with questionnaire responses indicating students felt there was a good level of support overall from the embedded librarian practice. The literature on library support in tertiary education identifies contribution to students’ learning as being within the areas of academic skills and literacies needed for successful completion of their studies (Hagel et al., 2012; Wilson, 2017). The current study did not measure student achievement but the questionnaire (as noted in Table 5.6) findings showed that students at both Institution A and B felt that the embedded librarian had encouraged them to be successful in their studies.

Both instructional support and technical support were available to students in the case study classrooms, but not all students made use of this opportunity. Some felt, either rightly or wrongly, that they were already proficient in certain skills and simply decided to move on. What was noticeable from the findings was the high levels of awareness of the support available without the corresponding high levels of use of that support. This seems to indicate that more support was provided than was needed for the students, which gives credence to the
idea of creating parity between students by scaffolding the necessary information and skills for all students to succeed in their studies. This was seen in action in all the case study classes and is confirmed by other studies in the literature (e.g., Edwards & Black, 2012).

Findings from the student questionnaire and interviews with faculty, embedded librarians and students indicated moderate to high level of satisfaction with the support provided by the embedded librarians, although the level of satisfaction appeared to be slightly higher at Institution A than the level at Institution B. This finding indicated that the embedded librarian practice was suitable for all classroom participants regardless of their individual background and no group was disadvantaged in the provision of embedded librarian support. The only indication of there being something worth investigating further, even though it did not meet the threshold of significance in this study, was the relationship between ethnicity and peer support (in this context, this is students learning from the interactions of other students), with the possibility that peer support is more effective with NZ European students. It is also noted that the New Zealand context is bicultural and it is important that cultural considerations are made and seen to be made equally to honour the principles of the Treaty of Waitangi. Students may come from a wide variety of ethnicities and need to be supported appropriately.

In terms of why the embedded librarian practice was effective in providing learner support, this study has identified five key factors contributing to its success: relationality, immediacy, relevancy, interactivity and parity. These factors were present in all case study classrooms, despite the differences in the way learner support was provided across the six case study classrooms. The Embedded librarians in this study, particularly at Institution A, have provided support within the students’ own learning space of the online classroom, where there was opportunity for regular contact which created a sense of relationality. Immediacy was provided as the embedded librarian support was an integral part of the students’ study and was present in active (forums) or passive (RLOs) form in each classroom, and it was interactive in nature. Support provided by the embedded librarians was also found to be relevant as it was tailored to each class and provided some parity as it gave students needing the support the opportunity to take it while others were able to self-assess their own skills and move on with the course.

Relationality.

Relationship building between the embedded librarian and the students was pertinent to the success of the embedded librarian model in this study. In all six classes the embedded
librarian built a strong relationship with the students by providing continuing and repeated support to them. Relationality was more pronounced in classes at Institution A where a library discussion forum operated in each class, than in classes at Institution B, with the more remote provision of support, largely through embedded RLOs, although some direct contact was still present. This supported the findings of Sharma, Kumar, and Babbar (2014) who explained, “As compared to traditional librarianship which is based on transaction, embedded librarianship is based on relationship with the faculty, or user community” (p. 455). Others agree that embedded librarian support is relational (Ibrahim & Omar, 2015) and that embedding librarians in classes builds relationships (Helms & Whitesell, 2013). The embedded librarian is further described by Helms and Whitesell (2013) as becoming a partner in the classroom setting, with their relationship with students being one of partnership rather than remote consultant, and the embedded librarian practice found in the case study classes supported this observation. The current study also expands on the literature by documenting the value of having an embedded librarian responsible for a number of courses in a single discipline, providing both continuity of presence and of relationship with the students.

Immediacy.

The concept of transactional distance usually considers the separation of teachers from their learners, based on the idea that in distance education the degree of separation between teacher and learner is not simply geographic, but also pedagogical, and psychological (Moore, 2013). Transactional distance can also be applied to learner support which is provided online. The practice of embedding librarians in online classrooms seen in the six case studies had the effect of reducing the transactional distance between learners and learner support from the library, by placing the support inside their online classes rather than in another online location such as via the library site. The simple act of placing support in the active learning space of the students makes support more immediate and available to students and reduces the transactional distance. This reduces geographical distance by placing the support in the classroom here students are already active and not several mouse-clicks away in a library site and reduces the pedagogical distance by providing carefully tailored support at the place and time in the course it is needed to relate directly to the course content. The linking of the theory of transactional distance with embedded librarian service has only appeared in the literature in the last few years (Burns et al., 2014: Edwards & Black, 2012; Heathcock, 2013).
Relevancy.

In this multiple case study, all students in classes at Institutions A and B had generic library learner support available via the library websites and tailored learner support provided in their online classrooms. In classes at Institution A, the embedded librarian provided highly relevant support via the library discussion forums by directly addressing the learning needs and questions of the students at the point in the course where the questions arose. Cassidy and Hendrickson (2013) referred to this as micro-level embedding, which “provides students with a greater opportunity for personal interaction and assistance” (p. 460) as it encourages individual questions asked directly to the embedded librarian. In classes at Institution B, highly relevant support inside the classroom predominantly took the form of selected RLOs embedded in the course content, also placed for students to encounter and use at the point of need during the course. The practice of creating and embedding RLOs is referred to as macro-level embedding, where “librarians create general tutorials, guides, and activities which can be easily added as modules across many online courses, are that it requires a smaller time commitment from individual librarians and offers greater scalability” (Cassidy & Hendrickson, 2013, p. 460). Maximum relevancy of support can be gained by pairing micro-level individual support with macro-level pre-prepared support, with the micro-level helping to tailor the macro-level support to the needs of individual students in a class (Allen, 2017; Hoffman et al., 2017).

Interactivity.

The case studies in this research confirmed interactivity as a hallmark of the embedded librarian practice, evidenced in activities such as the embedded librarian corresponding directly with students on the discussion forums, and selecting and developing learning support materials such as RLOs. Interaction is an important attribute of embedded librarian support, as “Embedding requires more direct and purposeful interaction than acting in parallel with another person, group, or activity” (Dewey, 2004, p. 6). Olivares (2010) agrees that the fundamental features that make embedded librarians different from regular librarians are interaction and relationships.

The findings from the current study also indicated students valued the range of interaction options that were available to them. Interaction options with the embedded librarians across the case study classrooms included contact options the library forum in classes at Institution A and RLOs at Institution B as already noted, plus direct contact by email or phone or contact to the library in general via the website. This provided interaction
options to students to meet a variety of interaction preferences and learning styles. This finding is supported by a separate single case study that found embedded librarians needed to be mindful of meeting various learning styles in order to be effective and that adaptation in interaction methods worked to achieve this (Hemmig and Montet, 2010). Similarly, Courtney and Wilhoite-Mathews (2015) looked specifically at the use of RLOs placed within online courses, in the same way as seen in case studies at Institution B in this research and acknowledged that part of the value of RLOs is the flexibility of using them for individual interaction to meet different learning styles.

**Parity.**

Many distance students are adult students lacking academic and information literacy skills which are needed for successfully completing the course (Simpson, 2012). This leads to the parity issue, the lack of a level playing field as described by Ismail (2011), and the embedded librarian can help narrow this parity gap. Some students in the current case study noted that the embedded librarians have scaffolded their learning by providing a range of learning opportunities for them to acquire pre-requisite skills and knowledge required by the course. The embedded librarians were able to provide a degree of parity among students by providing opportunities for students to gain information literacy skills they may have missed learning previously and thus give students a second chance to gain information skills needed to successfully complete their current studies. This is similar to Ismail’s (2011) report on a university programme where adult learners re-entering study after an extended break had available to them a “personal librarian service through a Course Management System” (p. 244). The service described by Ismail (2011) enabled students who were lacking information skills to gain the information literacy skills needed to succeed in their learning, creating parity between their skills and those of other students already familiar with seeking information in the study context. The findings of the current case study showed instances of deliberate targeting of this aspect of support, such as the use of RLOs in the course content allowing students to pick up essential skills at the point of need or bypass these resources if they felt their skills were already adequate. Scaffolding parity of skills was a support provided by the embedded librarians in this study and reported in the literature (Hartsell-Gundy & Tumbleson, 2012), to assist students to gain the necessary skills for success regardless of the level of information skills they had when entering the classroom.
Encouraging students to learn from other students.

Embedded librarians in classrooms at Institution A used the library discussion forum as a one-to-many learning platform to answer students’ questions and the answers are used as a resource for other students to read, use and learn from. In addition, the discussion forums also facilitated conversations to take place with ongoing communications between the embedded librarian and students. The forums also encouraged students to learn from other students’ interactions. Students used the discussion forums to interact with each other, show agreement, raise similar questions, or suggest possible answers. Results from this research showed that students were positive about the discussion forums and they used them to learn from and support each other. There is little noting of this aspect of embedded librarian encouragement of students learning from other students in the literature, with only scattered references made to this practice (Chisholm & Lamond, 2012). This combination of one-to-many instruction and students being able to learn from the interactions of other students indicates a potentially new contribution to the literature on embedded librarian practice and a possible area for further exploration. Student support for other students facilitated by the embedded librarian practice was not observed in the online classrooms at Institution B.

Faculty-Librarian Collaboration

Three forms of faculty support were noted in this study: teaching support, course development support and research support, although not all forms of support were identified across all classes. In some of the case study cases the close collaboration between the embedded librarians and the faculty meant that the embedded librarians had a good understanding of what content was included, how the pedagogical strategies were used and when support was required. These forms of support have been described in the literature as “overt purposefulness … [which] makes embedding an appropriate definition of the most comprehensive collaborations for librarians in the higher education community” (Dewey, 2004, p. 6). The close collaboration between faculty and embedded librarians is, at its core, ‘overt purposefulness’ and is what makes this form of support work, as the support is to both students and faculty at the place where teaching and learning occurs. Collaboration was not only seen to work in the current study’s classrooms, but according to the literature (Cassidy & Hendrickson, 2013; Massis, 2012) is an inherent part of the successful and effective delivery of this form of learner support.

Teaching support included teaching students either directly or indirectly to develop their information and literacy skills so that they could gain a better understanding of the
course content and present their work appropriately with academic writing and referencing skills. Support from embedded librarians was noted in the form of teaching support in actively answering information-related questions during the semester. Support from embedded librarians was noted in the form of course development support in assisting with preparation of online teaching materials prior to commencement of the course. This included the choice and development of RLOs to support students’ learning in the context of their particular class.

Embedded librarians in some of the case studies provided research support for individual faculty, evidenced by identifying resources for faculty research, conducting literature reviews or assisting with grant applications, and identifying journals for the submission of research articles. This support extends beyond the confines of the online classroom to use the expertise of the embedded librarian to assist faculty in their other work. This occurred in one classroom at each of the Institutions but not in the other classrooms, indicating that the style of support provided to learners may not be an influencing factor on the ability of embedded librarians to provide extracurricular support as part of the faculty-librarian collaboration. Although this particular support was for primarily the benefit of the faculty, it served to strengthen the relationship between faculty and embedded librarians, and “demonstrate[s] their value to the institution” (Schilt, 2007, p. 197). The demonstrates the benefits of embedded library support is not limited solely to support for learners but can be used to benefit other classroom participants in ways not necessarily limited to just the online classroom setting.

Faculty reinforced to students the idea of the librarian providing relevant support and encouraged the building of this relationship in all classes at Institution A, similar to the case study reported by Helms and Whitesell (2013) who saw faculty’s endorsement of embedded librarians accentuating their presence and value. The support from faculty for the embedded librarians confirmed that this collaboration is of benefit to both sides, forming a partnership which benefits all participants in the online classroom. Collaboration between faculty and embedded librarians to deliver targeted learner support was central to the success of providing learner support and is part of Shumaker et al’s (2009) description of embedded librarians and faculty as partners in the classroom. They described the move from service provided remotely in the institution’s library to being embedded in online classrooms as “shifting the model from transactional to high trust collaboration, and shared responsibility for outcomes” (Shumaker et al., 2009, p. 9).
Summary

This discussion has shown that the practice of embedding librarians in online classrooms can be provided in different ways, and that there is no single way that the service needs to be provided for it to be effective. Embedded librarian support for both students and faculty was shown in this research to be multi-faceted, and there was opportunity for students and faculty to engage with this support to the level they wished to, to meet their particular needs. The literature supports these broad findings with other case studies and discussions confirming this practice and the results from it are similar to others. As discussed previously, this research also found that a set of factors present in all case studies in this research contributed toward the effectiveness of this form of learner support, namely, relationality, immediacy, relevancy, interactivity and parity for learner support and faculty-librarian collaboration for faculty support. The identification of a set of factors contributing to the effectiveness of support, however, is not readily found in the literature, making the findings of this research a new contribution to this area of the literature for embedded librarian learner support.

The Embedded Librarian Support Model

The preceding discussion has highlighted key factors from the findings of this research to show how learners were supported through embedded librarian practices in online tertiary classrooms in the New Zealand context. Although the embedded librarian practices found in this study indicated there was no one standard way to provide this learner support, six factors were common to all the case study classrooms, transcending delivery preferences and ways of organising learner support in the six case study classrooms across two institutions in this study. These factors were relationality, immediacy, relevancy, interactivity, and parity for students, and faculty-librarian collaboration.

Relationality was found to be an important factor in engagement with learner support, since it made support more accessible and brought repeated patronage of the provided services. It also helped build a sense of community and of trust which helped lessen transactional distance in online learning. Immediacy of support was closely related to accessibility and provided an added-value support to students inside their online classrooms. Relevancy of support was vital: support that was easily accessible and relevant was more likely to be used, resulting in better supported students. Interactivity was a measure of student
participation with the support provided, and it was through this interaction that students actively learned, whether through individual engagement with learning materials or in a more social context like the library discussion forums at Institution A. Interaction with the support provided also helped bring parity of learning as it could scaffold learning skills needed in a class so that all students had the same ability to engage with the content and perform required tasks in assessment. Faculty-librarian collaboration was another practical way that embedded librarians could add value to the classroom environment, by supporting both the faculty and the students in a range of teaching, course development and research roles.

The use of the multiple case study, the resulting broad understanding of the practice of embedding librarians in online tertiary classrooms in the New Zealand context, and the identification of the factors that made this practice effective provides the groundwork for the building of theory, which is addressed in this section. This research has explored how the practice of embedding librarians in online tertiary classrooms worked, and why this practice was effective. It has facilitated the identification of the constituent parts of the practice and provided an overall understanding of this emerging form of learner support. The findings of this research enabled the development of a model of embedded support for students in online tertiary learning based on the practice of embedded librarians. This model may also provide direction and understanding for wider learner support contributing toward student success in online classrooms. The development of this practice model from the current multiple case study follows the process outlined by Eisenhardt (1989) for building theories from case study research. The Embedded Librarian Support (ELS) Model developed from the current study contributes to the development of the field of embedded library support that is still, at the time of writing, light on theory to support this emerging practice.

The ELS Model is an exploratory model which draws on the findings of this research to theorise effective practice in embedded librarian support in the online tertiary classroom. This model identifies three actors, namely, students, embedded librarian, and faculty, in an online classroom and how they relate to each other in this setting. Figure 6.1 presents this model, showing the online classroom participants of learners, faculty and embedded librarian and how they work together. The focus of this model is the support provided by the embedded librarian within the classroom setting. The arrows indicate support, with the solid arrows showing the embedded librarian’s learner support for students which contains five named factors, and the factor of embedded librarian’s support for faculty in the form of collaboration. Faculty’s support for learners is acknowledged but not elaborated on as it is outside the scope of this study.
The discussion of the five factors of support for learners and the one factor of support for faculty have already been made and these take their place in this model as essential factors in providing an effective embedded librarian service. It is important to note, however, that there is no set quantity for these factors in relation to each other for the optimum provision of embedded librarian support, and the levels of provision may vary depending on a number of factors. These factors may include the amount of support students need, and the way that the support is provided. Considering firstly the amount of support students need, this may vary over the students’ learning journey as they acquire study skills and experience, and may be different in the first years of study than in later years of study. Considering secondly the way support is provided by the embedded librarian, this also may change over time to match the needs of students as they progress through their studies. This may take a form such as a journey from the provision of relational support while students are dependent, to a more transactional approach while students are developing the skills and literacies they need, to a more remote support as students become independent from the need for student support. This
journey for students from dependence to semi-dependence and on to independence may be matched by support from embedded librarians being relational, transactional and finally remote. These additions to the ELS model may require further investigation before they can be incorporated into the model. Further iterations of the ELS model may include representation of the amount of support students need, and the way that the support should be provided.

Models of learner support in online classrooms are more prevalent than models of embedded librarian support in online classrooms. This makes the contribution of the ELS model more significant, as it addresses an identified gap in the emerging literature on embedded librarian theory while also adding to the existing literature on learner support theory. The ELS model provides a theoretical basis for understanding how embedded librarians can provide effective learner support in the student’s online tertiary learning.

Eisenhardt’s (1989) work on building theory from case study research indicates the process is iterative. The ELS model has been developed in this way, with attention given to the relationship between the model and the practice at points throughout the whole development phase of the model. Eisenhardt (1989) explains the ideal number of case studies to use as a basis for building valid theory is between 4 and 10 cases. This current research, based on 6 case studies, falls within these parameters, leading to what should be an empirically valid theory (Eisenhardt, 1989). However, validation of this model is needed through further studies in the future.

Comparison with Other Models

The ELS model relates well to other educational models, complementing, supporting and expanding on some of their ideas. There are a small number of models within the literature on embedded librarianship which are outlined here in relation to the ELS model. These are Thorpe’s (2002) Second Generation DE and Online, Collaborative Learning Compared models, Lowe’s (2005) PARS model, and Fields’ (2016) SAMR/ILS model, all introduced in the literature review of this study. This placement of the ELS model alongside other models confirms the contribution of the ELS model in the literature as providing a new and complementary perspective of both the embedded librarian and, more widely, a learner support model.

Thorpe’s (2002) Second Generation DE and Online, Collaborative Learning Compared models are perhaps the closest model to the proposed ELS mode. As noted
previously, Thorpe showed a comparison of two model classrooms with the tutor (faculty member) and learner as classroom participants in both classrooms and support changing within the classroom from a tutorial or residential learning resource to web resources. Directional arrows indicated the location and source of the learner support being provided. This model was first published in 2002, before the time the first embedded librarian support emerged, but provides useful background for the current model as it shares similarities in the way it conceptualises the online classroom context and the learner support provided within it. The ELS model provides a useful addition to the Thorpe model by incorporating a specific form of learner support and identifying factors that make the model effective.

Lowe’s (2005) PARS model presented a complementary model for learner support in the online tertiary environment, looking specifically at providing academic and relational support. The focus of the identified phases in PARS of Guiding, Clarifying, Encouraging and Monitoring looks at the changes made in the provision of support given over time. It looks at the changing balance of academic support, relational support and the growth of student self-directedness in the students’ journey over the duration of their studies. The ELS model focuses solely on the provision of support in the duration of a single class and identifies the factors of support in this context. These two models could be used together to demonstrate how the provision of embedded librarian services may change over time as students progress through their studies.

The SAMR/ILS model is the final model for comparison. This model, developed by the researcher (Fields, 2016), drew on these same case studies to develop a theory of integration of support into the classroom setting. The original SAMR model (Puente, 2006) described integration of technology into teaching and learning practices in terms of the four stages of Substitution, Augmentation, Modification and Redefinition. The SAMR/ILS model (Fields, 2016) sought to adapt this model to integrate learner support into the online classroom. SAMR/ILS provided a supporting theory to the ELS model as it provided a guide for librarians to move the physical location of learner support from the library into the classroom itself. These two models can be used together by using the ELS model to identify factors of effective learning support and incorporating these into the various stages of the SAMR/ILS model to create a more detailed plan of how learner support using embedded librarians can be enacted. This makes SAMR/ILS a complementary model to the ELS model.
Contributions of the Study

The contributions this study makes to the field of learner support are threefold; adding to the literature, identifying elements of effective embedded librarian practice, and contributing theory to the field.

Firstly, this study addresses a paucity of literature on New Zealand embedded librarian practice, where very few studies exist, and no multiple case studies are known. The present study is a cross-institutional study which contributes more widely to the literature on library practice and learner support in the New Zealand context.

Secondly, this study has identified six key factors contributing to the success of the embedded librarian practice. While some of these factors have been discussed in the literature, they have not been shown as inter-related factors accounting for the success of embedded librarian learner support. These factors include relationality, immediacy, relevancy, interactivity and parity of support. Added to this is faculty-librarian collaboration which supports faculty and has some indirect benefits to students where the collaboration involves direct support of the teaching process.

Thirdly, the ELS model developed from the findings of this study provides the research and practitioner communities of distance and online learning with a framework of how embedded librarian support can be provided. Concepts in the theory may be applied widely and theory used on its own or in conjunction with other theories in learning and learning support. The ELS model can be used as a planning tool to assist in the design of an effective learner support system. The ELS model also has the potential to be more widely applied to other learner support in online classrooms.

Limitations of the Study

As with all research, there are a number of limitations which must be considered. These limitations are in the areas of sample size and response rates which have been mitigated or managed to minimise their effect.

Participation in the study was voluntary and limited to a convenience sample. This related to all participation factors: the choice of online classes, questionnaire respondents and interviewees. There was no option in the study relating to the choice of online classes, as the practice was just starting to emerge at the point when the research began. Only two
institutions were identified as meeting all of the criteria being sought (online tertiary classes in New Zealand with embedded librarian participation in those classes in some manner). The practice is now more widespread, and there may well be a wider range of classes now to choose from, but it was not possible to include them in the current research. This is the nature of investigating a new or emerging practice. All questionnaire responses that were valid were included, and all classroom participants consenting to an interview were interviewed apart from one student whose circumstances changed. This enabled as large a number of participants to be involved as possible but may not have gleaned all viewpoints as participants self-selected for participation in these data collection methods.

The response rate in the questionnaire was 20.4%, constituting 67 valid responses from a total pool of 329 students across the six online classes. It is difficult to ascertain if there is a particular percentage below which results lose some of their value. Morton, Bandara, Robinson, and Carr (2012) supported this view and argued that participation rates should not be measured simply in terms of participants against population, but rather should include details of “non-participants, attempts to improve participation, and the denominators used to calculate response rates” (p. 106). Attempts to improve participation included repeated invitations via the online classrooms to complete the questionnaire, with changes in wording to encourage engagement. One difficulty to note in this study was the difficulty in encouraging students to complete an online survey when it was not directly related to their own studies so may not have appeared relevant. Another difficulty was the researcher not being able to build a relationship with these students to encourage participation further as to do so meant an intrusion into their online learning space which may have influenced the results of the questionnaire. It was noted that the number of responses to the questionnaire was higher from students at Institution A at 25.2% that from students at Institution B at 9.7%. This may be accounted for in the results of the case study itself, with less relationality at Institution B and more transactional distance with the embedded librarian, resulting in an expectedly lower engagement with the questionnaire. The implication of this is that the results of the questionnaire from Institution A may be more trustworthy than the results from the questionnaire at Institution B. The multiple case study method, however, has sufficient robustness in its method to combine data within groups such as institutions to mitigate these response rates and the triangulation of data from other sources such as the interviews also improves the validity of the questionnaire results.
Recommendations for Future Research

The findings of this research invite further research. This is not only because this study delves into an area of embedded librarian practice and learner support that contains new elements, but also because the embedded librarian practice itself is still emerging and developing. This presents scope for further development and application of ideas. Four key areas have been identified for future research which may support or expand the findings and value of this study.

Firstly, a follow-up inquiry into the scale and methods of embedded librarian practice can be conducted internationally. This may determine a fuller range of expressions of practice for embedded librarian support and may also determine the extent to which the ELS model applies across all practices. This may also validate and further develop the ELS model and extend its use in other fields.

Secondly, further research can be conducted on embedded librarian practice in the New Zealand context as uptake of this practice is expected to have grown since the time this study began. This also provides opportunity to identify possible bicultural or multicultural considerations in the practice.

Thirdly, further research can be conducted on embedded librarian practice across a wider geographical and institutional base to both corroborate and expand the results of this research. This could also help to determine how the practice of embedding librarians in online classrooms changes as the practice becomes more widespread and more mainstream.

Lastly, further research can be conducted by using or assessing the use of the ELS model beyond the confines of embedded librarian practice, into other areas of embedded learner support in online tertiary classrooms.

Conclusion

The purpose of this study was primarily to seek to understand how embedded librarians worked in practice, particularly in the New Zealand setting, and to identify factors contributing to the effectiveness of this relatively new form of learner support. The findings from this multiple case study of six online tertiary classrooms in the New Zealand context provided six clear descriptions of online tertiary classrooms employing embedded librarians as a form of learner support. While there were similarities among classes at Institution A
where micro-level embedding with interactive library discussion forums was common, and among classes at Institution B where macro-level embedding with RLOs was common, there were variations in the provision of embedded librarian support and the forms and nature of interactions across every case study in this research. Despite this variation, there were moderate (65.0%) to high (95.7%) levels of agreement among all classes on the benefits of having an embedded librarian.

In classes where embedded librarians predominantly provided support in an online discussion forum in the classroom, the support was in a one-to-one and one-to-many mode, as students read answers to their own questions and also answers to questions posed by other students in the class. There is value in students reading the questions and answers from others within an online undergraduate class as relevance may be high. Relevance levels of this type of support may diminish in postgraduate classes as study and assessments may be more individual in nature and content. In classes where personal contact with the embedded librarian is limited and RLOs are used to deliver formal library or information support packages, learners are still supported but experience it in a different way. This is not to say that the support is any more or less effective, it is just experienced differently. From the students’ perspective, learning can be achieved, and skills can be applied to the tasks at hand to achieve maximum understanding and application of the subject content being delivered. Librarians at this macro-level of embedded practice are taking on tasks that could equally be completed by educational designers, and the lines of support provision start to merge with other players involved in the online classroom.

Best practices have been identified in the areas of location of, form of, and access to support, with relationality, immediacy, relevancy, interactivity, parity, and faculty-librarian collaboration being the key success factors. These best practices in providing learner support through embedded librarians increase our understanding of the provision of this form of learner support and what makes it effective. With this identification comes the opportunity to capitalize on the effectiveness of this support to provide an even more effective learner support service.

The Embedded Learner Support theory and model developed from this multiple case study provides a theoretical basis for understanding the provision of this form of learner support. This model is the culmination of the whole of this research, identifying the participants in the online tertiary classroom and the direction learner support needs to take to guide students towards full capability and confidence in information and other literacies to
support their current and ongoing learning. Although it was developed from online classes in the New Zealand context, this model sits well with other theories in the field including the Second Generation DE and Online, Collaborative Learning Compared model (Thorpe, 2002), the PARS model (Lowe, 2005) and the SAMR/ILS model (Fields, 2016), which gives some assurance that it may have wider applicability.

A Final Word

This research ends with a quote from the English author Neil Gaiman summing up the need for successfully navigating our way in our increasingly information-rich society:

In the last few years, we’ve moved from an information-scarce economy to one driven by an information glut. According to Eric Schmidt of Google, every two days now the human race creates as much information as we did from the dawn of civilisation until 2003. That’s about five exabytes of data a day, for those of you keeping score. The challenge becomes, not finding that scarce plant growing in the desert, but finding a specific plant growing in a jungle. We are going to need help navigating that information to find the thing we actually need. (Gaiman, 2013, p.15)

Students need support in navigating information to find what they actually need and need support in becoming competent and independent navigators. All tertiary graduates, regardless of their chosen subject area, need to become self-aware, self-sufficient and skilled enough to be able to continue finding the information they actually need, long after they depart from tertiary institutions and formal study. The use of embedded librarians is one way tertiary institutions are able to help students engage fully with information and other literacies to graduate with a set of skills that enable them to maintain the currency of their qualifications regardless of subject, be lifelong learners, and sustain relevance in a rapidly-changing world.
References


doi:10.1017/S0958344005000716

Fields, A. (2014). Engaging learner support: An investigation of faculty-library collaboration to provide live course-specific learner support within the online classroom environment. *Journal of Open Flexible and Distance Learning, 18*(1), 46-57.


Guillot, L., Stahr, B., & Meeker, B. J. (2010). Nursing faculty collaborate with embedded librarians to serve online graduate students in a consortium setting. *Journal of Library & Information Services in Distance Learning, 4*(1-2), 53-62.


Kumar, S., & Ochoa, M. (2012). Program-integrated information literacy instruction for online graduate students. *Journal of Library & Information Services in Distance Learning, 6*(2), 67-78.


Appendices
Embedded Librarians in the online classroom

Welcome!

Thank you for participating in this study. My name is Alison Fields and I am a Doctor of Education (EdD) student in the College of Education at Otago University.

Embedded librarians are librarians who work outside of the library, within a team of other people. You will have an embedded librarian in your online classroom, working just with your class, giving you specific library, information or searching assistance relating to your course. This emerging practice of embedding librarians within online tertiary classrooms provides a new avenue for learner support.

The aim of my doctoral research is to identify how the embedded librarian model is implemented and how it can best be utilised as a form of learner support. The results of this questionnaire will help to determine how students interact with an embedded librarian in practice, and how support is given to students in this context.

The questionnaire is strictly anonymous, and should take around 8 minutes to complete. By taking part, you will be making a valuable contribution to research and practice in providing learner support directly to students in online classrooms.

Before you begin, please read the following statements:

• I understand that the data I provide is anonymous, and that any personal information collected is for statistical reasons only.
• I understand that survey data will be password protected until it is destroyed five years after the conclusion of the project.
• I understand that the results may be used in the researcher’s EdD thesis, presentations, conference papers, and journal articles.
• I can withdraw from the survey by closing the survey. Any data collected up to that point will not be used.
• If I have any questions I can contact researcher Alison Fields at alison.fields@postgrad.otago.ac.nz (+64 03 578 9947) or primary supervisor Prof Wing Lai at wing.lai@otago.ac.nz

If you accept all of the statements above please proceed to the next page to begin.

Thank you for your time.
Please tell us a bit about yourself:

1) Which gender are you?
- Male
- Female

2) Which age group are you in?
- 16-29
- 30-49
- 50+

3) Which ethnic group(s) do you belong to?
- New Zealand European
- Māori
- Samoan
- Cook Islands Maori
- Tongan
- Niuean
- Chinese
- Indian
- Other: [ ]
4) Which course are you currently enrolled in?*

- [ ]
- [ ]
- [ ]
- [ ]

*Course names removed to retain anonymity of the classes used in this research.

5) Which programme (qualification) are you currently enrolled in?

[ ]

6) What major or discipline are you studying?

[ ]

7) Are you a full-time or part-time student?

- [ ] Full-time
- [ ] Part-time
8) How many years have you been studying at the tertiary level?

- 1
- 2
- 3
- More than 3

9) How many years have you studied online at the tertiary level?

- 1
- 2
- 3
- More than 3

10) How comfortable are you in using online technologies?

- Very comfortable
- Somewhat comfortable
- Uncomfortable
Tell us about your experiences with the embedded librarian in your course this year:

11) We’d like to know how the embedded librarian in your course provides you with instructional support (e.g. how to find information). How much do you agree or disagree with the following:

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Somewhat agree</th>
<th>Somewhat disagree</th>
<th>Strongly disagree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>The embedded librarian in my class provided resources, links to resources or search strategies relevant to this course and its assessments.</td>
<td>![Circle] (Strongly agree)</td>
<td>![Circle] (Somewhat agree)</td>
<td>![Circle] (Somewhat disagree)</td>
<td>![Circle] (Strongly disagree)</td>
<td>![Circle] (N/A)</td>
</tr>
<tr>
<td>I had difficulties or problems with searching the library catalogue, other information resources or databases during this course.</td>
<td>![Circle] (Strongly agree)</td>
<td>![Circle] (Somewhat agree)</td>
<td>![Circle] (Somewhat disagree)</td>
<td>![Circle] (Strongly disagree)</td>
<td>![Circle] (N/A)</td>
</tr>
<tr>
<td>It was easy to find the embedded librarian to ask for support.</td>
<td>![Circle] (Strongly agree)</td>
<td>![Circle] (Somewhat agree)</td>
<td>![Circle] (Somewhat disagree)</td>
<td>![Circle] (Strongly disagree)</td>
<td>![Circle] (N/A)</td>
</tr>
<tr>
<td>I felt I could ask the embedded librarian any questions regarding resources to support the course.</td>
<td>![Circle] (Strongly agree)</td>
<td>![Circle] (Somewhat agree)</td>
<td>![Circle] (Somewhat disagree)</td>
<td>![Circle] (Strongly disagree)</td>
<td>![Circle] (N/A)</td>
</tr>
<tr>
<td></td>
<td>Strongly agree</td>
<td>Somewhat agree</td>
<td>Somewhat disagree</td>
<td>Strongly disagree</td>
<td>N/A</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>-----</td>
</tr>
<tr>
<td>The replies, feedback or answers from the embedded librarian were helpful to me.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The embedded librarian encouraged me to be successful in this course.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The embedded librarian responded to questions in a timely manner.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

ID: 24

12) We’d like to know how the library forum in your course provides you with peer support. How much do you agree or disagree with the following:

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Somewhat agree</th>
<th>Somewhat disagree</th>
<th>Strongly disagree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>I enjoyed the library forum questions and discussions.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>There were many opportunities to interact with peers in the library forum.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I was hesitant to ask the embedded librarian questions where other students could see my postings.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
I felt respected by the other students in the library forum.  

Students in this course were willing to reply and join in conversations in the library forum.

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Somewhat agree</th>
<th>Somewhat disagree</th>
<th>Strongly disagree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>I had difficulties or problems with technical aspects of using library catalogues, databases or e-books.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I knew where to ask for help when I had any technical issue with library resources.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

ID: 30

13) We’d like to know how the embedded librarian in your course provides you with technical support (e.g. how to download documents, e-books). How much do you agree or disagree with the following:

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Somewhat agree</th>
<th>Somewhat disagree</th>
<th>Strongly disagree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>I had difficulties or problems with technical aspects of using library catalogues, databases or e-books.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I knew where to ask for help when I had any technical issue with library resources.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
I felt I could get technical support from the embedded librarian when I needed it.

Asking the embedded librarian in the library forum for technical help with accessing library resources, databases or e-books was difficult for me.

| ID: 35 |

14) We'd like to know how satisfied you are with the support provided by the librarian in your course. How much do you agree or disagree with the following:

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Somewhat agree</th>
<th>Somewhat disagree</th>
<th>Strongly disagree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>I felt the embedded librarian was easily accessible.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>The library forum contributed to my interest in this subject.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I felt the library forum helped me achieve the</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>objectives in this course.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>---------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I liked the library forum format.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I felt comfortable with the library forum being part of the course.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would recommend the library forum facility to others.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would like to have an embedded librarian in my future classes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ID: 43
What else can you tell us?

ID: 44
15) How could the embedded librarian support your learning better?
16) What is your overall impression or evaluation of the embedded librarian and library forum support in your course?

ID: 46

17) Do you have any other comments you would like to make about the embedded librarian and the support they provided?

ID: 1

Thank you for taking our survey. Your response is very important to us.
Appendix B: Interview questions

Interview questions for faculty in classes with an embedded librarian

SEMI-STRUCTURED INTERVIEW QUESTIONS

The general line of questioning is indicated below, with additional prompt questions included to help progress the discussion if needed.

QUESTIONS FOR FACULTY MEMBERS

1. What did you do to prepare for this course before it started?
   a. Does any of what you did involve working with the embedded librarian? How?

2. Was there any identification of skills or assistance likely to be needed by students before the start of the course?
   a. Describe.
   b. What did you do with that information?

3. How were the students made aware of the presence of the embedded librarian in the class and what the librarian could do for them?

4. Describe what the embedded librarian did during the running of the course to support students.
   a. Did they provide resources? Answer questions? Other things?
   b. Did the library forum run as you expected it would? How or how not?

5. Did the embedded librarian do anything to support you during the running of the course?
   a. Describe.

6. Describe your interactions with the embedded librarian during the course.
   a. What topics? Support for the students? Support for the course? Support for you?
   b. Where: In the library forum? Privately between just the two of you? Other?

7. Did you feel the students were supported by the embedded librarian?

8. Is there anything else you would like to add?
   a. Anything you would like to see done in future classes with embedded librarians?
   b. Anything you would like to see done differently?
   c. Anything else?
Interview questions for librarians in classes with an embedded librarian

SEMI-STRUCTURED INTERVIEW QUESTIONS
The general line of questioning is indicated below, with additional prompt questions included to help progress the discussion if needed.

QUESTIONS FOR EMBEDDED LIBRARIANS
1. What did you do to prepare for this course before it started?
   a. Does any of what you did involve working with the faculty member? How?

2. Was there any identification of skills or assistance likely to be needed by students before the start of the course?
   a. Describe.
   b. What did you do with that information?

3. How were the students made aware of your presence in the class and what you could do for them?

4. Describe what you did during the running of the course to support students.
   a. Did you provide resources? Answer questions? Other things?
   b. Did the library forum run as you expected it would? How or how not?

5. Describe your interactions with students during the course.
   a. What kinds of questions did you get?
   b. Were you answering the same question once or several times?
   c. Do these questions differ from what you would get at the library’s reference desk?

6. Describe your interactions with the faculty member during the course.
   a. What topics? Support for the students? Support for the course? Support for the faculty member?
   b. Where: In the library forum? Privately between just the two of you? Other?

7. Did you feel you were successful in supporting the students?

8. Is there anything else you would like to add?
   a. Anything you would like to see done in future classes with embedded librarians?
   b. Anything you would like to see done differently?
   c. Anything else?
Interview questions for students in classes with an embedded librarian

SEMI-STRUCTURED INTERVIEW QUESTIONS
The general line of questioning is indicated below, with additional prompt questions included to help progress the discussion if needed.

QUESTIONS FOR STUDENTS
1. Where you already a regular library user or information seeker before you started this course?
   a. What kinds of resources did you use?
   b. Were you happy with your own skills in finding information before the start of the course?

2. Were there any research or information skills you knew you needed before the start of the course?
   a. Describe.

3. How were you made aware of the presence of the embedded librarian in the class and what the librarian could do for you?

4. Describe what the embedded librarian did during the running of the course to support students.
   a. Did they provide resources? Answer questions? Other things?
   b. Did the library forum run in a logical way? How or how not?

5. Describe your interactions with the embedded librarian during the course.
   a. What topics? Support in your subject area? Support with referencing? Other?
   b. Where: In the library forum? By direct email just the two of you? Other?

6. Did you read the discussions in the library forum?
   a. Did you read anything there that was useful to you? Describe.

7. Did you feel supported by the embedded librarian?

8. Is there anything else you would like to add?
   a. Anything you would like to see done in future classes with embedded librarians?
   b. Anything you would like to see done differently?
   c. Anything else?
Appendix C: Information sheets for Participants

PUTTING SUPPORT WHERE THE LEARNERS ARE:
A MULTIPLE CASE STUDY OF EMBEDDED LIBRARIANS WITHIN NEW ZEALAND
ONLINE TERTIARY CLASSROOMS

INFORMATION SHEET FOR PARTICIPANTS

Thank you for showing an interest in this project. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate, we thank you. If you decide not to take part, there will be no disadvantage to you, and we thank you for considering our request.

What is the Aim of the Project?

The purpose of this research is to understand how the inclusion of librarians embedded within the online tertiary classroom works as a new model of learner support. This will allow opportunities specific to the presence of embedded librarians in the online tertiary classroom to be more readily and purposefully utilised, and for the value of this form of learner support to be maximised. This project is being undertaken as part of the requirements for Alison Fields’ Doctorate in Education.

What Type of Participants are being sought?

Participants are being sought from online classrooms which feature an embedded librarian interacting directly with students within the online classroom. All participants will have the opportunity to contribute to this study through a survey, interviews and by being part of the online classroom itself. No compensation for time is being offered for this study.

It is anticipated that implications and benefits include developing an understanding of the relationships involved in this new classroom context and identifying effective ways of providing direct learner support in this context that can then be fed back into this online classroom environment to improve practice and benefits to learners in future online classrooms. Results of the research will be made available in the completed thesis, and in various publications and presentations resulting from the research.

What will Participants be Asked to Do?

Should you agree to take part in this project, you will be asked to participate in a survey (students only) and possibly an interview, and give consent for online conversations with the embedded librarian to be viewed by the researchers after the end of the semester. The online
survey for students is anticipated to take around 7-10 minutes to complete and will be available near the end of the semester. A purposeful selection of students (3 from each online classroom), and all faculty and embedded librarians in the course will be invited to participate in interviews via phone or Skype after the semester has finished. Interviews with students will take around 15-20 minutes and interviews with faculty and embedded librarians are anticipated to take around 40-60 minutes.

Please be aware that you may decide not to take part in the project without any disadvantage to yourself of any kind.

What Data or Information will be Collected and What Use will be Made of it?

Survey data from students will comprise questions about your experience with the embedded librarian service in the online classroom together with some demographic information so that groups of students who benefit from this service can be identified.

Interview data from students, faculty and embedded librarians will focus on more detailed questions on experiences with the embedded librarian service, and will be gathered using phone or Skype interviews. These will be recorded so that written transcripts can be made. Contact details of interviewees will be collected so that any clarifications can be made at the transcribing or interpretation stage.

This project involves an open-questioning technique. The general line of questioning includes interaction with the embedded librarian, how information is sought or used in your learning process as part of the course taught in the online classroom, and if the presence of the embedded librarian made a difference to you. The precise nature of the questions which will be asked have not been determined in advance, but will depend on the way in which the interview develops. Consequently, although the University of Otago Human Ethics Committee is aware of the general areas to be explored in the interview, the Committee has not been able to review the precise questions to be used.

In the event that the line of questioning does develop in such a way that you feel hesitant or uncomfortable you are reminded of your right to decline to answer any particular question(s) and also that you may withdraw from the project up until the end of the data collection phase without any disadvantage to yourself of any kind.

Interactions between the librarian and students will be gathered from the library forum or discussion area after the end of the semester, so that analysis of the librarian’s contribution to learner support in this environment can be made.

Raw data will be seen only by the researcher, supervisors, transcribers and research assistants. It will be securely stored so that only those mentioned above will be able to gain access to it. Data obtained as a result of the research will be retained for at least 5 years in secure storage. Any personal information held on the participants such as contact details, audio recordings after they have been transcribed etc, may be destroyed at the completion of the research even though the data derived from the research will, in most cases, be kept for much longer or possibly indefinitely.

Interview participants will have the opportunity to correct their information following transcription, and may withdraw their information any time up until confirmation of transcript data has been completed. All participants may request to be informed where and when the research results are published or otherwise made available.
The results of the project may be published or presented and will be available in the University of Otago Library (Dunedin, New Zealand), but every attempt will be made to preserve your anonymity.

Can Participants Change their Mind and Withdraw from the Project?

You may withdraw from participation in the project at any time up to the end of the data collection phase without any disadvantage to yourself of any kind.

What if Participants have any Questions?

If you have any questions about our project, either now or in the future, please feel free to contact either:-

*Alison Fields*  and  *Kwok Wing Lai*

College of Education  
at the University of Otago  
P.O. Box 56  
Dunedin 9054  
University Telephone 0508 650 200 extn 5456

Email fieal191@student.otago.ac.nz

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Email wing.lai@otago.ac.nz

This study has been approved by the University of Otago Human Ethics Committee. If you have any concerns about the ethical conduct of the research you may contact the Committee through the Human Ethics Committee Administrator (ph 03 479 8256). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.
Appendix D: Consent forms for Interviewees

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CONSENT FORM FOR PARTICIPANTS

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.
I know that:-
1. My participation in the project is entirely voluntary;

2. I am free to withdraw from the project at any time up to the end of the data collection phase without any disadvantage;

3. Personal identifying information e.g. audio-tapes and interview transcripts, will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for at least five years;

4. This project involves an open-questioning technique. The general line of questioning includes interaction with the embedded librarian, how information is sought or used in your learning process as part of the course taught in the online classroom, and if the presence of the embedded librarian made a difference to you. The precise nature of the questions which will be asked have not been determined in advance, but will depend on the way in which the interview develops and that in the event that the line of questioning develops in such a way that I feel hesitant or uncomfortable I may decline to answer any particular question(s) and/or may withdraw from the project without any disadvantage of any kind.

5. The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand) but every attempt will be made to preserve my anonymity.

I agree to take part in this project.

.............................................................................   ................................
(Signature of participant)     (Date)

.............................................................................
(Printed Name)