

From Reference-Desk to Help-Desk: The crossover between library services and IT service delivery

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ABSTRACT

New technologies have had a major impact on academic libraries, which includes the libraries in the New Zealand Institute of Technology and Polytechnic (ITP) sector. This paper identifies six key technologies trends that have had an impact on academic libraries. These are examined in the context of the academic library and the following questions are raised; how has technology changed the academic library space, library services and the role of the academic librarian? In addition, the research also focuses on what support for technology is provided by academic librarians to students. To further provide evidence of technology change library managers and library staff from New Zealand ITP libraries were surveyed. This data was analysed to find common themes and patterns of the effects of technology. The research and the data were combined to form a discussion about the changes that had occurred due to the identified technologies, and the impact technology had on the academic library space, librarian role and library services. This paper limits itself to the discussion and conclusions that arose from the larger research project. A model was developed that is a visual representation of this study. This research may add value to the New Zealand ITP Library sector and IT Services departments within organisations by investigating the apparent overlap of services.

Keywords: Library technologies, IT Service Delivery, IT staff, Technology trends

1. INTRODUCTION

The larger study underpinning this paper investigated the functioning of libraries and their IT related services through a set of surveys and qualitative data gathering. This particular paper focuses on the discussion and conclusions that distil the findings of the surveys and the research from the literature review in the context of the research questions:

- How has technology changed the academic library at a New Zealand ITP Library?
- How has technology changed the academic librarian role at a New Zealand ITP Library?
- What support for technology is provided by academic librarians to students in a New Zealand ITP Library?

Six key trends were identified in the literature review; cloud computing, mobile technology and BYOD, web 2.0 and social media, online education, digital resources and the digital divide. These trends were selected for the impact they have made on academic libraries.

The aims of the research were to:

- Identify key technology trends that have created an impact on academic libraries.
- Explore how the identified technology trends have impacted on academic libraries and how this has altered library services to students.
- Discuss how technology has changed the academic library space.

- Discuss how technology has changed the academic librarian role.
- Explore what technology support is provided to students by the academic librarian.

To meet these objectives two surveys were undertaken. One survey for New Zealand ITP library managers and one for the New Zealand ITP library staff.

Fifteen library managers were emailed a request to complete the survey. There were 11 responses. Ten of the managers had libraries with student computer hubs containing varying amounts of computers. The majority (80%) said library staff provided IT support. All of the libraries provided IT support for library related technologies, with varying degrees of support for the other technologies.

These managers were also requested to forward a separate survey to their library staff. Fifty seven responses were received for this survey. Ten responses were deemed unusable due to incompleteness (did not finish the survey) or from respondents working outside of the ITP sector.

2. TECHNOLOGY TRENDS INFLUENCE ON LIBRARIES

Cloud computing is used by academic libraries in all its model types. This technology has been instrumental in giving students access to library resources, library services and research information, anytime and from anywhere.

Two of the library managers surveyed identified the cloud as a technology that will be impacting academic libraries in the next five years. And 53% of library staff report they have provided support for cloud storage as a service to students.

Mobile technology is also changing how students access library information and services. Many students arrive at academic institutions expecting to use their own mobile devices for their learning and information seeking. They expect to be able to

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connect to the campus wireless network, and have online access to their course work and research material. This trend is forcing libraries to create online environments that are mobile accessible.

Four managers identified mobile technology and BYOD as a trend that has impacted on the library in the last five years, and will continue to do so for the next five years. Library staff made the following comments about supporting mobile technology: Comments are numbered throughout this paper.

#12 In 2000 I was helping students find books in our collection. Now I help them with setting up their Wireless on their laptops to interact with our BYOD hotspot

#12 Documents stored in electronic databases are now accessible from anywhere where a student can access a wireless connection from their laptop. Students no longer have to visit one of our campuses to access these databases.

Web 2.0 has created new communication channels for libraries to connect with their users. Channels that can be used to promote Library services and research information, and a different avenue of communicating with students in their own space. It is particularly useful when trying to connect with younger students. Web 2.0 has been used in academic libraries in many ways, e-texting reserves or appointments, online chat, instant messaging, posting or commenting on Facebook or Twitter. These are all examples of strategies librarians are making to communicate with students in their own space.

Two of the surveyed library managers noted social media as a trend that has impacted on their library in the last five years, and three for the next five years. Library staff commented on the communication changes that web 2.0 has created for their services:

#18 More diverse forms of communication.

#20 changes in how library staff interact with patrons

The digital divide section of this research focusses on students who do not have parity of access to technology. Most New Zealand ITPs have computers or mobile devices for student use to help bridge this divide. However, the digital divide can also refer to the information rich and the information poor. In this context it means a lack of technical skills to access online information. Librarians have always bridged the information divide in society and in academic libraries this continues to be the case by providing IT support to students who need it.

Being digitally literate is having a basic level of computer skills and an awareness of the capabilities of the technology. Digital literacy is essential in this modern age of online education.

Question four of the library staff survey asks 'What types of IT support have you provided?' and provided a list of technologies to choose from (Library catalogue or discovery tool; Internet, Databases, e-books, Library website, software (Microsoft, Adobe...), Learning Management System (Moodle, Blackboard...), Turnitin (or other Content Matching Software), file management (saving, locating, recovering documents...), cloud storage (Google docs, dropbox), e-portfolios, log-ins, passwords and printing). This list can be further categorised into the following groups: library related technologies, network related technologies, curriculum based technologies, and generic technologies such as file management and software.

If you subtract the network technologies from this list you are left with a group of technologies that a student can be expected to use in the education system as it is today. Not all students will arrive at their institution with this knowledge or experience and some will require some level of support. Ten of the eleven libraries that were included in the survey had computers available for student use. Therefore the library is an obvious

place for students to seek support. The following comments were made regarding the digital divide:

#13 Older students are more afraid of technology, whereas the younger ones just get on with it

#19 ... frustrated that a student's academic achievement is so often impacted by how well they cope with technology.

#25 We have to explain how to use the technology a lot more to start with...

#35 ... many students need to learn to work computers as well as do their courses. Huge learning curve

Online Education or learning is the provision of education via the internet. Many tertiary providers deliver education in either a fully online mode, or in a blended environment. Online education has had a massive impact on the academic library. Academic librarians have had to look beyond their physical environments and make their resources and services available online.

A Learning Management System (LMS) is software used for the delivery of courses. In the library managers' survey, 72% of the libraries provided support for students with their institutions LMS, and 87% of library staff reported supporting students. Four of the library managers surveyed commented that they saw online education as a technology trend that has impacted their libraries in the last five years. Library staff made the following observations about supporting students with technology related to online education:

#19 ... where it is accepted and expected by students that academic library staff will be able to assist not only with traditional library queries but with any IT issue that are having in trying to create and submit assignments.

#31 A significant difference is 'permanent' access to course info online via Learning Management Systems. Students can refer back to resources used by tutors.

Digital resources refer to resources available in an electronic format such as articles, e-books, e-journals, databases, digital content and open access material. It is these resources that have changed the focus of the academic library from collecting resources to connecting users (LIANZA, 2015).

Digital resources are instrumental in changing the landscape of the library. Print collections are shrinking and more and more resources are being digitised. The digitisation of resources has altered user expectations, and they no longer need to visit the library to access quality research materials. The space caused by shrinking collections are filled with computers for student use.

In the Library Managers Survey, all the library managers' report they provided support for students with e-resources. This includes but is not limited to the Library Catalogue or Discovery Tool, Databases, e-books and the Library website. This is supported by the same results from the Library Staff survey.

Ten of the eleven library manager participants named e-resources as a technology trend that has impacted in the last five years, and six in the next five years. Many comments were made by library staff about the effect of digital resources and how they have changed their roles or tasks. The following comments are about the change to the librarian role or tasks:

#1 We are seeing an increasing shift away from physical resources to electronic resources

#3 Able to provide a better service – have to deal with a very complicated publishing works. Have to manage budgets differently... new providers of e-resources means I have to learn a whole new set of rules which can be time consuming

#34 Much more online research, fewer print books and journals
They also discussed the improved access for students and the increased volume of information now available online. The following comments from library staff are about the improved access for students to information:

#8 Makes research easier for students, opens up the virtual library so they are able to access all sorts of information whenever they want from where ever they want.

#9 Made resources more accessible

#12 Documents stored in electronic databases are now accessible from anywhere where a student can access a wireless connection from their laptop. Students no longer have to visit one of our campuses to access these databases.

#14 Wider access to information, quicker access to information.

2.1 How has Technology changed the academic library?

This section examines three of the six identified trends; cloud computing, mobile technology and web 2.0 and the impact they have had on the academic library space in the ITP sector.

The main advantage the academic library has in the institution is space. Often the library is at the centre of the campus, both geographically and symbolically (Walton, 2013).

The combination of cloud, mobile and social technologies have resulted in new ways of operating and academic libraries may find themselves in transitional states because of these changes. The transition of libraries operating in a physical space to including the virtual space is explored further in detail. As is the transition of library users from sole consumers of information towards creating and contributing content. Perhaps the most noticeable transition is the library space transitioning from a traditional library space to a learning space which encapsulates computers, and other support services. These transitions are the current response from librarians who are incorporating these new technologies into their libraries.

Physical to virtual

The combination of mobile technology and cloud technologies has hastened the transition of libraries operating solely in a physical environment to including the virtual environment. The combination of these two trends have changed the way we access information and how we learn from it. It is changing how we communicate and connect with people, and how we socialise (Johnson, Smith, Levine, & Haywood, 2010).

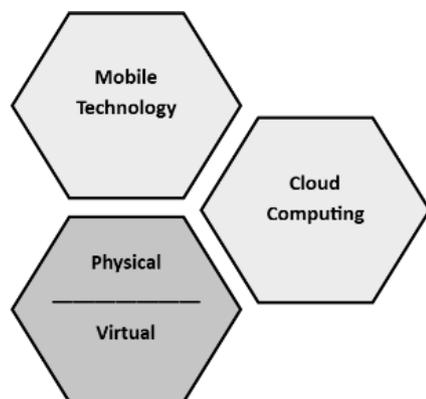


Figure 1: Physical to virtual

Increasingly the focus of academic libraries is changing from collecting information and resources to providing the connection or link to the user. And all of this information is

available at any time and from anywhere. This will only increase as more research material is digitised, print collections are reduced and more face-to-face library services have online equivalents.

Participant #23 from the Library Staff Survey comments that “The library space has changed to accommodate more computers and the collection has been reduced”. Academic libraries are currently straddling both the physical and the virtual world by maintaining the traditional face to face delivery of services while also increasing their online presence.

Consumption to creation

The combination of cloud computing and Web 2.0 has created a space where students are no longer just ‘consumers’ of information, but also creators. A large number of academic libraries are creating websites or online environments that provide different ways that students can interact, contribute and access their own content (Johnson, Adams Becker, Estrada, & Freeman, 2015).

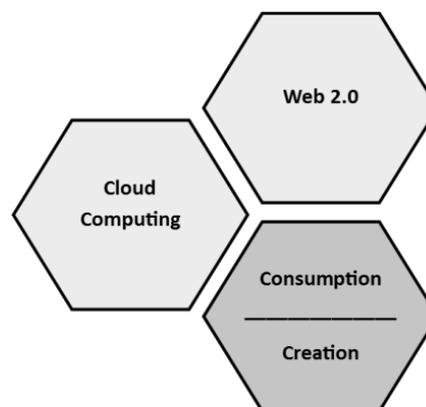


Figure 2: Consumption to creation

Web 2.0 has created a personalised online space where students interact with librarians and each other. Academic librarians need to build skills so they are comfortable communicating in this environment, and comfortable helping students with this new collaborative technology.

Content creation, such as posting messages and commenting online is second nature to many people and this is the main activity (82%) of New Zealand social network site users. This is followed by 73% of users who upload pictures, photos or videos (Crothers, Smith, Urale, & Bell, 2016). Social media has given students a new medium to improve library services by reviewing textbooks or commenting on library social media posts.

Supporting students as they learn to use this collaborative technology such as social media, blogs and e-portfolios in the academic realm can be a challenge for librarians if they do not have existing skills (Abram, 2008).

Learning spaces

Technology has influenced how students communicate and interact, and how they are educated and access information. It has also changed the physical library space and the culture of the academic library. Some of the changes to library spaces can be directly attributed to technology, with one of the primary catalyst for shrinking print collections directly due to the increase in digital information (Walton, 2013). This has created space for computer hubs or information common areas housed and managed within the library space.

Other changes are more a result of culture change and the realisation that the library is a space that belongs to students.

There is an overall acceptance that the library space must meet the student needs and librarians are there to support learning instead of just resource provision (Appleton, Stevenson and Boden, 2011).

The 2015 Horizon Report forecasted two long term trends (Johnson et al., 2015) on this topic. The increase in accessibility of research content, and rethinking of the physical library to include more productive activities. Some academic libraries now include ‘maker spaces’ in their libraries. These are dedicated areas that support students with the space and tools (i.e. 3D printers) to create or make things (Johnson et al., 2015).

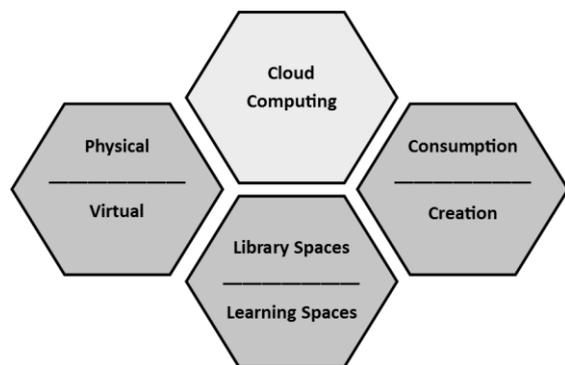


Figure 3: Learning spaces

The collaborative nature of cloud, mobile and social technologies (web 2.0) has created an expectation that the library space will accommodate both collaborative and individual study needs (Johnson, Adams Becker, Cummins, Estrada, Freeman, & Hall, 2016).

Increasingly New Zealand ITP academic librarians are taking a holistic approach to supporting students and are creating one-stop-shops in libraries by providing library, academic, pastoral and support services from the library building (Walton, 2013). This multi service delivery has further changed the landscape of academic libraries.

2.2 How has Technology changed the academic librarian role at NZ ITP libraries?

The second research question focusses on the role of the librarian and how technology has influenced changes. Library staff were asked the following question ‘What changes do you think technology has made to your role?’ (Question 7). This was an open question, and no prompts or suggested answers were provided. Over a third (37%) of the participants responded that providing IT support to students was a major change to their roles. Three of the comments were directly about the transition of helping students locate resources to providing IT support:

Participant #12 commented that “in 2000 I was helping students find books in our collection, now I help them with setting up their wireless...”. In a similar vein participant #38 stated that “we are increasingly doing IT tasks that were not part of the profession when I started working in libraries 18 years ago”. And participant #18 comments that “much more time spent every day on IT support for students instead of finding books and journals”.

Over a third of the library staff remarked how supporting students with technology required a broad range of skills, a need for up skilling and keeping up to date with new technologies. Participant #7 comments that “the ability and willingness to learn new technology is crucial for library staff

nowadays”. Participant #5 had a more positive approach to this topic commenting “While it does add to the tasks librarians undertake in order to help students, it does improve our own IT literacy”.

When asked what technological changes made the most impact in libraries, overwhelmingly the major change was the shift from print to digital resources at 68%. Changes to tasks due to automation of traditional tasks and changes to service delivery also rated a mention.

The Association of College and Research Libraries (ACRL) separated library professionals who were experiencing technological change into three categories:

- “Those who now actively contribute to the necessary transformation
- Those who could become contributors with some professional development
- And those who do not admit of retraining and will impede change until they retire” (American Library Association, 2007, p. 11).

Both library managers and library staff identified access to training as essential to their library tasks and for supporting students.

Another change has been new librarian roles that have been created specifically for supporting technology in libraries. Eleven per cent of the library staff participants have library roles where supporting technology was an integral part of their role. Library managers’ provided a list of newly created roles with a focus on supporting students with technology:

- Customer Services Officer – Technical
- Electronic Services Librarian
- Assistant Library – Electronic Services
- Library Assistant – electronic Services
- Electronic Resources Librarian
- Digital Librarian
- Digital Access Librarian

Nearly all (91%) of library managers surveyed rated technology skills high when recruiting new staff. These same managers commented that a desire to learn or upskill as essential.

The majority of library staff (85%) felt they were adequately trained in technology and many felt it was their own responsibility to keep up to date. When asked how the changes made them feel the majority felt positive (62%), 19% gave variable responses, 36% felt overwhelmed, leaving only 6% feeling negative towards technology or change. Library managers should take heart from this result.

Information literacy

Combining the two key trends online education and digital resources has changed the way that librarians deliver information literacy.

Information literacy is defined by the American Library Association (1996) as “a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information” (para. 6).

All the library managers and library staff surveyed indicated that they provided support for students for the following library related technologies:

- Library catalogue or discover tool
- Databases
- e-books
- Library website.

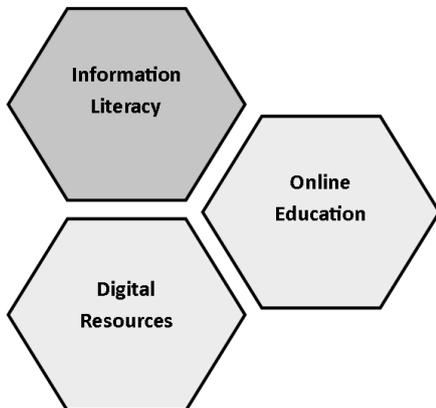


Figure 4: Information literacy

Information literacy has traditionally focussed on locating information. However with the proliferation of information available electronically students are often overcome by the quantity of information they find. This feeling is expressed by participant #22 of the library staff survey who commented that “it has led to information overload with many students overwhelmed by what they can find”. The focus on information literacy now includes teaching students how to use the tools that link them to the information, evaluating the information and understanding the ethical, legal and social characteristics of information (Saunders, 2009).

Two participants from the library staff survey made comments in a similar vein “changes it out of sight. Information Literacy classes are more web evaluation and database navigation (#35)”. Participant #29 states that “we are dealing with less traditional type search enquiries as information becomes easier to find in some ways, but there is a greater need for helping students to evaluate that information”.

The Australia/New Zealand Horizon Report (Johnson et al., 2010) supports the teaching of the following literacies; information, visual and technology. The responsibility for teaching any new technologies to students can be a grey area in a New Zealand ITP. The research data suggests a lot of this support provision occurs in the academic library.

Digital literacy

Digital literacy is defined as “a varied set of capabilities underpinned by digital technologies and computer literacy, which leads to the confident and critical use of information and digital technologies to enhance academic, personal, and professional development” (Johnson et al., 2015, pp. 24).

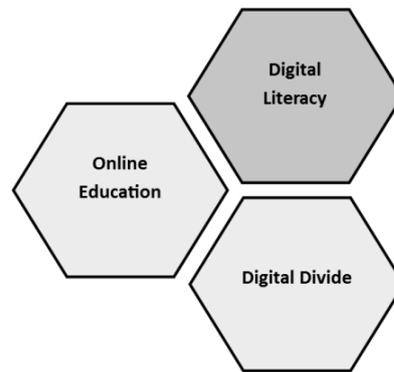


Figure 5: Digital literacy

The combination of online education and the digital divide can be the cause of students feeling undue stress and inadequacy due to lack of skills in technology. In this section the discussion centres on how digital literacy needs for students are addressed in the New Zealand ITP sector. The digital literacy needs of New Zealand ITP academic librarians, and how these are maintained are also addressed.

Question four in the library staff survey asks “What types of IT support have you provided?” and provides a list of technologies they could reasonably be expected to support in their libraries. If we remove the network and library related queries generally taught in information literacy sessions, we are left with the following group of curriculum and generic technologies:

- Learning Management System (Moodle, Blackboard...)
- Turnitin (or other Content Matching Software)
- e-portfolio’s
- Internet
- Software (Microsoft, Adobe...)
- File management (saving, locating, recovering documents...)
- Cloud storage (Google docs, Dropbox...)

Librarians have been delivering information literacy sessions for many years now and teaching students how to use educational and new technologies could be a natural progression of this service. With technology so pervasive in education digital literacy is as essential as the traditional literacies of reading and writing. It is easy to make the assumption that students today are more digitally literate because many have grown up with technology. And while this may be true of students who have come directly from secondary school they may not be familiar with tertiary educational technologies (Johnson et al., 2010). And, keeping in mind that the ITP sector attracts mature or second chance learners, these students may require additional support to get to the level of digital literacy required for their course or programme.

When library managers were asked whether they would hire someone with limited or no experience with computers they #4 responded “would you hire someone who can’t read or write”. So it is evident that this manager’s expectations is that all library staff have a high level of digital literacy.

Library staff were asked to rate their own digital literacy skills on a scale of 1-5, 1 being poor and 5 being excellent. The average for the 47 participants was 3.6 which is somewhat surprising when you consider the range of technologies they are recorded as supporting. Approximately 15% of these library

staff felt that training received in technology by their institution was inadequate. Library managers and staff recorded a mixed provision of training types provided by their institutions; internal and external training, professional development and conference attendance, internal communication, IT Champions and Community of Practices (CoPs). A recurrent theme throughout both surveys was an expectation from managers and library staff themselves that it was their own responsibility to keep themselves up to date with technology.

2.3 Support for Technology provided by academic librarians at NZ ITP libraries.

This section discusses what support for technology is provided by academic librarians. This does not include digital or information literacy that is taught in the formal environments. The type of support this refers to are the 'front-desk' queries or requests for support, that may come over the library desk, by phone or online.

The IT support portion completes the "Effects of technological change on the New Zealand ITP Library" model.

IT support bridges the gap between information and digital literacy, and gives value to the IT support provided to students by academic librarians. There didn't appear to be any research in the New Zealand ITP sector that focussed on the overlap of IT support provision in libraries. When computer labs or information commons were added to academic libraries it was not taken into consideration the effect the support required for students would have on library spaces or librarian roles.

Library managers were asked "who was responsible for providing technology assistance in their library" (Question 3). 80% responded that the librarians provided the support, but also internal IT service departments (40%) and student assistance (30%). Academic librarians are increasingly finding themselves providing more IT support to students. All of the library staff surveyed said they helped students with the library related technologies and the internet, printing, passwords and log-in figures were high, as were the figures for supporting educational technologies. Support for e-portfolios was not in high demand but it is expected support need will increase as e-portfolio use in the sector grows.

Generic support for software (83%), file management (81%), were high with cloud computing (53%) still relatively new and requiring less support. The IT support was offered either face-to-face, by telephone or online. The flow on effect of this is the need for academic librarians to become more technologically focussed than before, and to not only learn these skills for themselves but also be confident to pass them on to users.

Question 10 of the Library staff survey asks "How do the changes in technology make you feel?" Many of the responses were positive, with over half of the library staff surveyed feeling "challenged and excited" and 9% feeling "confident and comfortable" with technology. Library staff who felt variable or so-so made up 19% of the responses while 36% felt overwhelmed. Overwhelmed can be perceived as a negative reaction, however some of the 'overwhelmed' responses were coupled with positive feelings, such as #47 "excited, overwhelmed, challenged" or #44 "both excited about new possibilities and worried about the continual need for us and our book collections".

The research is clear that New Zealand ITP library staff must have different skills today than were needed when the focus was on printed resources, collections and traditional services.

3. CONCLUSION

The recurrent theme throughout this study has been the significant focus on technology in New Zealand ITP libraries

and the changes that have occurred. The library space has changed to accommodate student computers, and library services have changed to accommodate the students' needs for support with current and new technologies.

The New Zealand ITP library needs to be a space that:

- Provides access to computers (networked and mobile), and is set up for mobile devices by providing access to Wi-Fi, BYOD hotspots and device charging stations.
- Offers a variety of study spaces set up for individual or collaborative options that have adequate seating, different writing surfaces and adjustable furniture.
- Is a learning space that is student focussed and supports the research and education needs of the student.

The librarian role has changed with the increase in digital resources, the automation of tasks and changing needs of students. Some library staff will require training because of these changes and library managers will need to be aware of which category their staff are with attitudes to improving their technical skills. The mix of active contributors, potential contributors with training, and staff who are resistant to change and retraining will be different for every library team, and managers will need to provide training for staff who want it, and for those who don't want training but need it. What is encouraging is that the majority of library staff feel positive about the changes technology has created in their roles and want more training.

The increase in digitised resources and the shift to online education has changed information literacy. Librarians have always provided information literacy to students, which was traditionally focussed on locating information. The ease of locating information and the increased volume of results has shifted this focus to include evaluating and using the information and navigating electronic resources.

The students need for technical support has increased and for ITPs to successfully improve digital literacy and support students with technology they will need to provide library staff with the appropriate training. Access to a range of devices will need to be arranged so students bringing their own devices can be adequately supported. The level of IT support provided by librarians is increasing and student needs are becoming more complex as new technologies emerge. All of these changes are reflected in the following model.

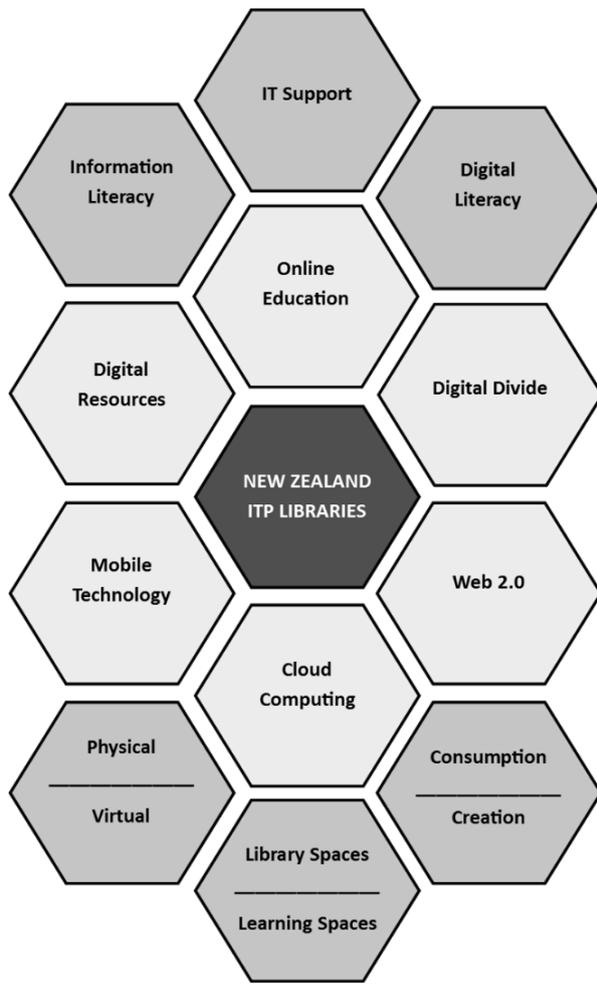


Figure 6: The effects of technological change on the New Zealand ITP library model

The 'Effects of technological change on the New Zealand ITP library' model provides a visual representation of this study. It identifies the six key technological trends, and the changes that these technologies have made to the library space, library culture and the role of the librarian. It places value on the new or improved literacies librarians are supporting and acknowledges the amount of IT support provided to students from the library space.

The 'Effects of technological change on the New Zealand ITP library' model has been constructed in a way that it can be easily adjusted or added to. Just as technology changes, so too must libraries, librarians, library services and so too will this model. The author concludes by suggesting that further research in the subject of technological changes on the New

Zealand ITP Library sector is warranted as new technologies develop and are adopted.

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