Study of mobile learning implementation and staff training in academic libraries in New Zealand

by

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Abstract

Research problem

Mobile devices are deeply embedded in our daily life. This research explored how academic libraries are using mobile devices as teaching and learning tools in delivering information literacy to students.

Methodology

To identify current practices of mobile devices in teaching information literacy and perceptions of staff development opportunities for staff, semi structured interviews were conducted with eight academic librarians across universities and Institutes of Technology and Polytechnics (ITPs). Interviews were then transcribed for emerging themes.

Results

This research found that implementation of mobile devices in delivering information literacy was very limited in academic libraries. Currently, there are initiatives to provide contents in mobile-friendly web design.

Results also showed staff development opportunities to foster m-learning in delivering information literacy were limited and mostly driven by enthusiasts within the institution.

Implications

M-learning enables learners to engage in learning with other learners whilst fostering personalized learning, accessing resources they need when they need it using mobile devices (Conradie, 2014). This research has found there are gaps and

limitations in support from the libraries, infrastructural needs and training opportunities that needs to be taken into consideration for any libraries that are planning to implement m-learning into teaching information literacy. Examining the needs of their learners and librarians may provide more accurate vision of gaps and limitations that needs improvement.

Descriptor

Academic libraries, mobile learning, staff development, information literacy

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Contents

Research topic

Mobile devices have become an essential part of our everyday life. On public transport, in restaurants and during lectures people are actively using mobile devices. In learning environment, smart devices enable instant communications between an educator and a learner as well as enables community of learners to share knowledge and provide feedback to each other. Despite some disadvantages such as socio-economic gaps that arise as societies rely more and more on mobile devices, benefits of utilising the technology cannot be ignored.

The purpose of this research is to examine how tertiary institutional libraries currently implement mobile learning (m-learning) in teaching information literacy (IL) to students as well as to investigate how library staff are trained to accommodate the technological expectations of students. The research will focus on identifying how tertiary institutional libraries have integrated m-learning into library IL initiatives and examine practices which have improved students' learning outcomes. This research aims to determine current support and training provided to support implementation of m-learning by tertiary libraries.

There are numerous benefits to adopting mobile technology in teaching and learning practice. Firstly, students can access and engage in learning anywhere anytime (Ozdamli & Cavus, 20112, p.940; Sølvberg & Rismark, 2012, p.28). Location is no longer a barrier to learning as long as there is internet, (3G, an internet connection to telecommunication devices (Cambridge University Press, 2016) or wireless internet) access or an app that can perform without internet connection. This gives rise to life-long learning opportunities for people who want to learn but who are disadvantaged by their geographic location or circumstances (Korucu & Alkan, 2011).

Secondly, through m-learning, a learner can personalize how they learn at a pace that is comfortable to them and can go back and revise what they have previously learnt easily and privately enabling a freedom to learn at the learner's own pace. Unlike traditional e-learning, the use of mobile devices, which in most cases have 3G and wireless internet function, allows the user to connect to internet to access or download information to view online and offline when they need to. "With adequate memory and storage capabilities, a mobile device does not need to be connected to the internet or network in order to provide timely information" (Williams, 2007, p.92).

Finally, e-learning requires a computer or a laptop and internet connection, whereas m-learning can occur without an internet connection via some mobile applications on a smartphone, tablets or Personal Digital Assistants (PDAs).

Key terms

- M-learning – Using mobile technologies to facilitate learning (Hwang & Tsai, 2011, p.65). For the purpose of this research, m-learning is defined as acquiring knowledge and skills anytime anywhere using mobile devices (Geddes, as cited in Aharony, 2010).
- E-learning - Pedagogical combination of electronics and learning (Nichols, 2007). This research defines e-learning as any learning or skills acquired through any electronic device including information accessed via the World Wide Web.
- U-learning - "Any learning environment that allows students to access learning content in any location at any time" (Hwang, Tsai, & Yang, 2008, p.83)
- Information literacy (IL) – Ability to locate, evaluate and use information effectively (American Library Association, 2000, p.2). For this research. IL will

include any instructional workshops and tutorials which enable participants "to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (Association of College & Research Libraries, 2016, para. 3).

- Academic librarian - Academic librarians are librarians who work in libraries in higher education institutions such as universities and who assist students and staff to fulfil their information needs. Typically academic librarians provide information literacy skills workshops (American Library Association, 2012). Higher education includes universities, institutes of technology, polytechnics and wananga (Tertiary Education Commission, 2013). Academic Librarians may have specific job titles such as Subject Librarian, Liaison Librarian, Information Advisor or a Learning Support Librarian (Chartered Institute of Library and Information Professionals, 2014).

Research contribution to knowledge and practice

This research anticipated to identify how academic libraries embed mobile devices into information literacy teaching initiatives and to identify examples of practices using m-learning pedagogies. For those examples identified, the researcher will further examine and what specific staff training is provided to help with implementation and what can be improved. This may include initiatives such as, the staff development workshops provided by University of Auckland Libraries and Learning Services to train staff on new and emerging technologies.

Results will be directly applied to developing library staff training in teaching, using m-learning pedagogies.

Literature review

Introduction to m-learning

According to the 2015 Horizon report, it is expected that innovative e-learning methods such as the flipped classroom and Bring Your Own Device (BYOD) can be integrated in to tertiary education within one year or less via online and mobile learning. (Johnson, Adams Becker, & Hall, 2015). M-learning enables the user to "take learning opportunities directly in the situation they occur" (Ryu, Brown, Wong, & Parsons, 2007, p.23). Because of the portability of mobile devices, learners can access and seek information instantly whenever they need it (Ozdamli & Cavus, 2011). M-learning has still not been precisely defined (Moura & Carvalho, 2013, p.58). Often the difference between e-learning and m-learning is unclear except the general understanding is that m-learning allows more flexibility and ubiquitous learning practices through portable device that allows internet access regardless of location and ability to access contents without internet through some mobile application. However, according to Melhuish and Falloon (2010), the difference between m-learning and e-learning is that in m-learning the "individual negotiates meaning for themselves, on their own or collaboratively using their own device in a situated context" (p.4). Mobile devices have blurred the conception of learning as a phenomenon which happens in certain places such as schools, universities, as acquisition of knowledge and information can occur anywhere as long as there is internet access and a mobile device. Acquisition of knowledge is becoming less structured and more readily available through handheld small devices.

Other core characteristics identifiable in m-learning are portability, flexible internet access. M-learning provides wider scope for adopting creative blended, interactive and collaborative learning opportunities which move away from traditional in-class only learning methods (Cochrane, 2013; Ozdamli & Cavus, 2011). M-learning creates learning environment different from traditional learning environment where knowledge is presented to groups of learners by an expert and often learners are expected to learn and understand the information on their own. With m-learning and blended learning, learners collaborate within a community of learners to share and build knowledge together and the educator becomes a part of the community as a mentor and supporter rather than a presenter (Cochrane, 2013). M-learning increases learners' expectation for more collaborative and personalized learning from institutions and a shift from a linear, instructional pedagogical approach to a connectivist approach which builds community of learning while also fostering personalized learning (Conradie, 2014).

Application of m-learning

New Zealand universities are tasked with providing learning opportunities to equip students with the skills and knowledge they need to meet future work force demands (Tertiary Education Commission, 2013). This is challenging due to the diversity of geographic location of some learners who live in rural areas far from urban centres where educational institutions are located. One advantage of m-learning is the "the provision of learning opportunities for geographically distant people and groups" (Aharony, 2010, p.2).

With mobile devices, learners can engage in learning, communicate with peers, collaborate and share documents and access learning materials and resources via smart devices right in their hands (The New Media Consortium, 2015). According to a study by Chen et al. (2008), students accessed learning systems using smart devices (PDAs and smartphones) twice as much than those who could only use desktop PCs and laptops. The study also found that accessing news on learning systems and discussion boards were the top two activities undertaken by students using smart devices (Chen et al., 2008). Seilhamer et al, found that students "expressed strong interest in using m-learning … demanded more features, as well as more mobile applications for their use" (2013, p.392). This appears to indicate that students are comfortable using and communicating from smaller screen. This could be a result of wide use of social networking and being comfortable with communicating casually in an online environment.

Design consideration for m-learning

When designing m-learning initiatives, key elements to consider include

- Providing supportive and instructional tools to aid communication between learners and instructors;

- Using collaborative and blended learning approaches;

- Criteria for assessing learning outcomes and;

- Training instructors to assist in creating and delivering effective m-learning initiatives and activities (Ozdamli, 2012, p.928).

Lastly, m-learning pedagogical approach can be very effective "when implemented within a sustained collaborative action-research methodology that includes the specific goal of designing for change." (Cochrane, 2013).

Staff training for m-learning

As outlined previously, designing an effective m-learning initiatives requires pedagogical understanding, physical environment and knowledge of mobile devices and its capabilities. In a recent study of library staff's perception of implementing mobile technologies in New Zealand and Australian vocational education and training (VET) libraries, only just over half of library staff perceived themselves as competent in using mobile technologies (Saravani & Haddow, 2012). Although mobile technology is more and more readily available and devices are becoming cheaper and more accessible we cannot assume that everyone is comfortable with using these devices, including librarians.

Factors motivating staff interest

Saravani and Haddow (2012) found that willingness to try new technologies is impacted on by personal or professional need or interest. These are important motivating factors for staff to invest time and effort into learning to use mobile technologies. Other factors which encourage library staff to familiarize themselves with mobile technology include access or ownership of devices and an understanding of the actual mobile technologies used by their clients (Klesel, Ndicu, & Niehaves, 2016; Saravani & Haddow, 2012). Davis and Partridge (2012) found technical skills, willingness to learn and explore new technology, providing services to meet client's needs and willingness to develop professional skills impact librarians' attitude towards mobile service.

Understandably, using social media sites such as blogs, Twitter and Facebook is emerging as new skills required to provide adequate reference services to academic library clients (Chawner & Oliver, 2013, p.29). Generational differences were also found where younger students showed positive attitude and were open to challenge

brought by m-learning than older students (p.8). It suggests technology should be taught in a way that is interesting and motivates learners, who are practicing or will practice librarianship taking into consideration that "not all student would like to adopt current technologies, either as students or later as librarians and/or information specialists" (Aharony, 2010, p.8).

M-learning staff development barriers

The evolution of library and librarians' role has created much more opportunities for development as well as challenges for those that are unfamiliar with the use and do not understand why it is necessary for libraries to adopt new technologies. Chawner and Oliver (2013) found that librarians felt the organization needs "to give all staff time to learn new things" which is often planned by HR Managers but buried under other higher prioritised tasks (p.37).

The study also found the need to work with IT department as one of the key factors contributing to skills and knowledge required to design and provides mobile services to clients. However, studies have found IT implementation often fails due to lack of cooperation and resistance to new technologies by users (Venkatesh et al, as cited in Aharony, 2010, p.3). Identifying skills needed to provide library services for clients have been researched and studied by many researchers over the years including personal attribution and characteristics as a major factor (Aharony, 2009; Aharony, 2010; Davis & Partridge, 2012; Saravani & Haddow, 2012). However, institutions and as employers, facilitating opportunities and training sessions for staff to learn and familiarize with the technology may also stimulate motivational for personal and/or professional development.

Aharony (2009) found that self-driven and confident librarians will also feel confident in trying new technologies and understand the personal and professional benefits that accompany the new acquired skills. In a later study by Aharony (2010), students studying towards librarianship showed similar attitude where some were more open to adopting new technologies and some were less inclined to invest their time and resources. The study also revealed that previous knowledge in computers and social media "understand the benefits of using technology, and recognize the advantage ofintegrating and using m-learning in their studies" (Aharony, 2010, p.7).

Support needs for m-learning staff development

A study by Saravani and Haddow (2012) found four categories of training were required by librarians in order to develop and provide effective mobile services.

1. Hands-on training with different device such as tablets, smartphones;

2. Training how to use and download resources on to e-book readers;

3. Understanding of different applications of different devices, for example difference between iPod and iPhone;

4. How to create mobile-friendly webpages (Saravani & Haddow, 2012, p.79).

An initiative to examine the need and provide relative training was piloted in the University of Glasgow Library. The solution to creating an environment that is encouraging and empowers confident library staff was the creation of '23 things mobile' course. Pilot course "showed that 95% of participants enjoyed it … 100% would recommend colleagues" and eventually persuaded the Library senior management for purchasing tablets, and relevant mobile applications. Initiatives such as these foster staff to bring innovative ways to deliver library services (Munro & Stevenson, 2015, p.83).

Challenges of implementing m-learning

It is not to say mobile learning has no limitation. Screen size, readability and battery capacity is compromised by portability and m-learning can be restricted by network bandwidth (Chen et al., 2008). Understanding of these limitations of mobile devices and constantly seeking for innovative design can however overcome obstacles that hold back active implementation of m-learning. For example, a case study of Spanish course by Beckman and Martin (2013) demonstrates innovative use of mobile device (iPod) for student to engage in self-paced learning. Students were provided with downloadable file they could listen to anytime anywhere which meant once downloaded, learning was no longer restricted to network bandwidth (Beckman & Martin, 2013).

Research Questions

This research was designed to answer the following questions:

1. To what extent have New Zealand academic libraries implemented m-learning in their information literacy programmes?

2. What m-learning related staff development opportunities are available/or needed in New Zealand academic libraries?

This research will also:

- Understand the perception of m-learning from library staff in academic libraries that have previously or are currently implementing m-learning. For example, existence of resistance from the library staff during implementation process

- Discover any difficulties faced by library staff in using mobile technologies in

academic libraries that have previously or are currently implementing m-learning. For example, cost, internet stability, user preference, user population.

- If an institution is not using m-learning, identify the reason behind it. For example, budget, audience characteristics, technological issues.

Research Design

To deepen the understanding of m-learning in an academic library context, a qualitative research method using an in-depth interview was chosen. A preliminary survey was also considered as it could identify key themes that could be used when creating interview questions. However, after a consultation with Dr Brenda Chawner, the supervisor for this research project and after considering the limited time and human resources and what was already observed in the literature, a decision was made to conduct semi-structured in-depth interviews only. Interviews would allow participants to freely express their experiences and perceptions which it was hoped would lead to response that were less which constrained and which provided full and meaningful information. Interview questions were designed to prompt in-depth conversation about m-learning practice and perception of the participants which it was hoped would lead to the collection of richer and more comprehensive data than questionnaires alone.

Each participant was interviewed individually and the interview was semi-structured to allow the flow of conversation. Questions were designed to operate as a conversation starter which encouraged librarians to provide insight into institution's practice and interviewee's perception. While a set group of questions was asked in a particular order these were repeated or re-stated if the researcher felt confirmation was necessary for clarification or had technical disruptions due to internet instability. This approach allowed interviewees to provide full answers and include examples related to the questions. This provided valuable data about mobile learning implementation in their own institution as well as staff development opportunities available to them. This kept the interview focussed on the research while still

allowing participants to share their experiences and their perceptions about each aspect freely and thoroughly. Additionally, it helped the novice researcher to stay on track and cover all areas of research interest.

Methodology

Participants

Participants consisted of librarians working in academic libraries who were actively involved in delivering information literacy skills. A preliminary scan of individual institutions of interest was conducted during the initial research design stage to understand what, if any, m-learning approaches were in place via the library websites. This included eight New Zealand universities and Institutes of Technology and Polytechnics (ITPs), examining of the structure of each library and its staff, different librarian roles, basic information about what the role entailed, informational pages for library services available for staff and students, Libguides and subject guides, library workshops, vision and mission statements and other relevant documents. However, role description was often unavailable and required a further search in Google or help from a colleague who may have knowledge of what a specific library position would do. Documents available via staff login were not accessible due to password restriction, except at the institutions where the researcher is based and were therefore excluded.

Due to the nature and the capacity of the research, ITPs sample was further reduced to five ITPs based on the review of website information concerning availability of library workshops and distance learning services to see if these potentially lent themselves to m-learning.

Potential samples for this research were:

Eight universities in New Zealand (Universities New Zealand – Te Pōkai Tara, 2015).

- Auckland University of Technology

- Lincoln University

- Massey University

- University of Auckland

- University of Canterbury

- University of Otago

- University of Waikato

- Victoria University of Wellington

Five selected Institutes of Technology and Polytechnics (ITPs) (New Zealand

Qualifications Authority, n.d.).

- Northland Polytechnic (NorthTec)

- Unitec New Zealand

- Waikato Institute of Technology (Wintec)

- Western Institute of Technology at Taranaki (WITT)

- Whitireia Community Polytechnic

From the sample listed above 11 institutes were then selected and invited to participate in the research.

Librarian roles

To ensure research elicited wide variety of experiences and perceptions of m-learning implementation and support, the research recruited participants from variety of library positions actively involved in delivering information literacy. These included

- Library Manager

- E-learning Librarian or equivalent

- Reference Librarian/Subject Librarian or equivalent

Data collection

As outlined in the Human Ethics application, an email seeking permission to invite library staff to participate was sent to Library Management staff before an invitation to participate in the research was sent to participants. Responses from the Library Management were:

Permission received	Permission refused	No response
9	1	1

The Library Management who did not wish their staff member to participate felt their staff member could not add much to the current research as librarians at this institution "do not use any mobile technology to deliver information literacy".

Of those who gave permissions to invite their library staff to participate in the interview, some also recommended the staff member most suitable for the research. An email reply appreciating the recommendation was sent outlining that participation was voluntary and to protect the confidentiality of the participants, further contacts would be made individually with all potential respondents.

An invitation email was then sent to selected and recommended librarians. The invitation email contained brief information about the research, the approximate duration of the interview, researcher's contact details as well as participant information sheet (see Appendix 1) and participant consent form (see Appendix 2).

The participant information sheet provided information about the research and its goal, interview procedure and participant rights.

Open-ended questions were carefully generated from themes emerging from literature review. Questions were piloted with a colleague and amended according to the feedback received. Interviews were recorded and later transcribed for in-depth analysis.

Face-to-face interviews were conducted wherever possible. However, due to geographical restrictions arising as a result of the locations of the institutions chosen, telephone call and virtual meetings were also conducted using the video conferencing tools Zoom or Skype. In one interview, an inconsistent internet connection disrupted the interview so video conferencing was terminated and the interview continued via a phone call.

Ethical consideration

Human Ethics application was submitted along with sample interview questions, the proposed participant information sheet and the proposed participant consent form to the Victoria University of Wellington, School of Information Management Human Ethics Committee (HEC). For sample interview questions, see Appendix 3. Although ethics approval was granted, the HEC recommended it would be ethical to seek permission from the Library Management before inviting individual librarians as the research could yield sensitive information about the library activities. Upon receiving permission from the library Management, individual interview candidates were sent an email with information about the research, the interview duration and participant information sheet and participant consent form which outlined that the participation in

the research was voluntary and the identity of the interviewees remained confidential to the researcher and participants only.

The interview started with a greeting, an introduction of the research, and participants being informed about the confidentiality of the interview and participant's rights to question or withdraw from the interview at any time. Participants were asked to provide a brief introduction of themselves, their role and their teaching experiences. Participants were given the option to request a summary of the interview and/or a copy of the final report. Two participants requested a summary of the interview as well as a copy of the final report and none of the participants requested to terminate or withdraw from the research.

Data analysis

Firstly, interviews were recorded and later transcribed using an application that converted speech into texts called Speechnotes (https://play.google.com/store/apps/details?id=co.speechnotes.speechnotes&hl=en). Scripts were revised and analysed for content and categorized into different approaches to m-learning implementation and training support for library staff. As recommended by the research supervisor, interview data were analysed manually rather than through a qualitative data analysis software such as NVivo. Different colours of papers were chosen as a method to separate themes and group interview texts together. Each interview was then further analysed and more specifically coded against the themes already identified. Some interview texts were coded to multiple themes. New themes were added as they emerged. This enabled the research to easily review and categorize interview data by each emerging themes.

Five themes emerged as a result of the literature and interviews:

1. Personal familiarity with mobile technology

2. Current support available from the institution

3. Mobile technology related training available for library staff

4. Kinds of training staff would like to receive in terms of using mobile technology

5. Barriers or difficulties in implementing mobile devices to information literacy teaching.

Findings & Discussions

Interview revealed that academic librarians are aware of multiple devices used by their staff and students and initiative are in place to support seamless access to information from variety of devices. Mobile friendly web pages were the most popular and in some cases the only mobile initiatives available in delivering information literacy workshops. It appeared all the participants agreed that implementing mobile technologies into workshops would be advantageous nevertheless developing a pedagogically sound m-learning approach that would be supported by the institution was the challenge.

Participant profiles

Of the eight academic librarians interviewed, seven librarians were a liaison librarian or equivalent and one librarian was in a managerial position. Six participants were academic librarians at a University library and two participants were from ITP libraries. All the participants were experienced in teaching in library roles or teaching outside the library with the length of experience ranging from 5 years to more than 20 years.

Familiarity and use of mobile devices

Participants were asked to briefly introduce themselves and were asked about their

access to, ownership and familiarities with mobile devices in their personal and work

life.

Relevant interview questions:

How much teaching experience do you have from either current or previous roles?

Thinking about your personal life:

1. *Do you own or use mobile devices on a regular basis? eg, smart phone, tablet*

2. *What do you mostly use your mobile devices for?*

3. *How familiar are you personally with the use of mobile technology in teaching & learning?*

Do you have any experience in learning using mobile technology? How did you find the experience? did it work for you? if not, what did not work for you?

All participants owned a smart phone and were familiar with using it. Only six

however had access to tablet/s.

Ownership of mobile devices

- Own a smartphone
- Own a smart phone and a tablet

25% / 75%
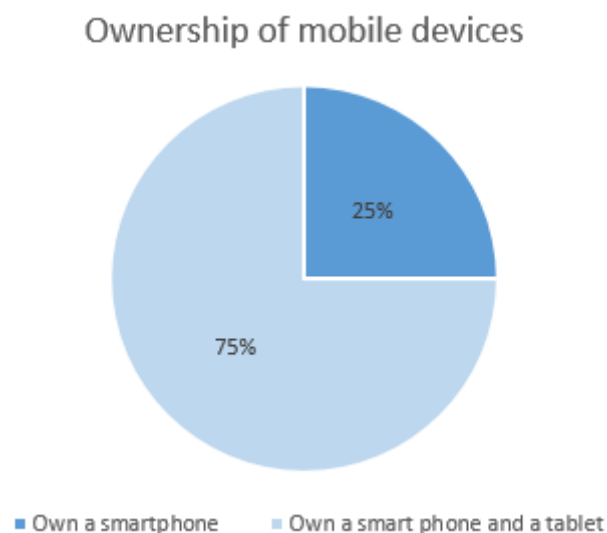
One participant indicated they had separate smartphones and tablets for work and

for personal use. Key uses of mobile devices were for

- News

- Social media

- Camera

- Calls and text

Participants also indicated that they used learning applications such as language translator, their institution's Learning Management System applications, reading e-book, map, calendar through their mobile devices.

Although institutional provision of devices and access varied depending on the institution, all the participants indicated they had access to mobile device/s that they could use for work related purposes if required. A number of participants indicated liaison librarians are provided with laptops and some had shared devices serving number of librarians.

Half of the participants had access to a smart device that was provided to them by their institution. Amongst the participants who did not have a mobile device provided by the organisation, three participants mentioned that they used their personal devices for work related purposes and in some cases outside work hours.

Mobile device support from the Library

50%   50%

■ Mobile device provided by the Library   ■ No mobile device provided by the Library
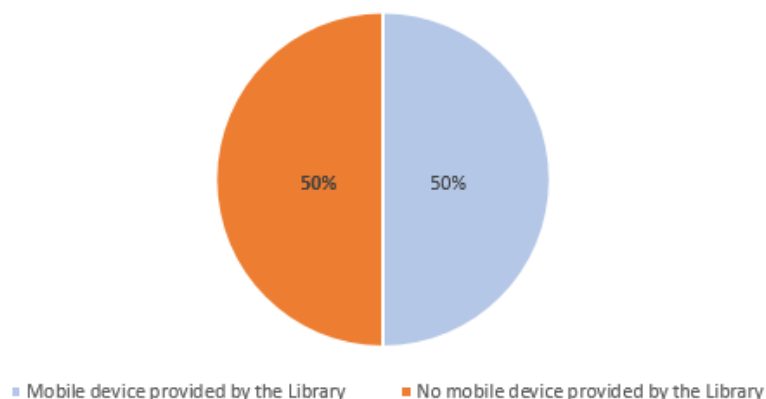
Mobile devices in delivering information literacy

Questions were asked to identify the extent of use of mobile devices in resources available through the library as well as information literacy workshops by the librarians.

Research question:

1. *To what extent have New Zealand academic libraries implemented m-learning in their information literacy programme?*

Accessing resources through mobile technology

Relevant interview questions:

- *Does your library offer webpage, libguide or information about mobile technologies? (mobile apps or vendor services eg ebooks)*

Results indicated that there were efforts to make library information accessible from any device regardless of screen size. Some of the participants indicated they used Libguides and the advantage was that they were responsive to different screen sizes.

> "There was a time when you'd be downloading all these apps so that you could use your mobile devices. But now, so many websites are just automatically much more mobile friendly. You don't even notice it's there ... we use Libguides 2 which was revamped for that purpose really, our discovery service has got a mobile friendly interface so they automatically detect [screen size] … alter the screen to fit it"

Another participant also mentioned,

"We do create libguide and we've got a website and most of the information that we provide, online information to, you know, catalogue and to research guides and that kind of things they can all be accessed from our website so in that sense, we have designed with the fact that people could access them from a mobile device if need be but not necessarily designed purely for that purpose. So we do try and keep that in mind, say for image sizing and things like that but it's not specific purpose"

Participants appeared to view mobile and online learning as indistinct from each other. Many learning resources were designed so that it was responsive to different screen sizes and devices so that m-learning related mainly to how students accessed the information rather than specific delivery and creation of m-learning objects or activities. As one participant put it:

"Information should be accessed seamlessly, no matter what device you're using"

According to Farley et al (2009), "notes should be provided in various formats that match the students' study practice ... students are engaging with their study in multiple locations, often opportunistically" (p.9).However, as Melhuish and Falloon (2010) argues, m-learning enables students to personalise learning in a given context.

Teaching using mobile technology

Relevant interview question:

- *Thinking about your work life:*

  Do you use mobile technology in information literacy workshops? if so, how do you use them? if not, would you consider using mobile technology in your IL workshops?

Only two participants said they use mobile devices in class IL activities. One said they used Audience Responsive System (ARS), also known as clickers for break-out rooms with English as second language students to increase classroom engagement because they were often more reluctant to engage in class.

> *"so by using clickers it's one way to get them to actually interact and give us some sort of indication that they understand what we teaching them without getting people to put their hands up or talk any of that sort of stuff which their often hesitant to do"*

Another participant said they had used polling activity using text messaging. However, this had proven troublesome due to poor internet connections.

> "*it simply did not work".*

Some did have suggestions for how more specific mobile technologies in learning could be utilised eg. Global Location System (GPS) and Augmented Reality (AR).

> *"we could create something like augmented reality and have a student investigating the different areas of the university so using geolocator"*

> *"augmented reality subtype. That side of it is quite fascinating. If we could do some kind of augmented reality tour of the library…That would be fantastic"*

Augmented reality tour of the library can enable students to know their institution's library even if they are geographically distant (Aharony, 2010)

Spaces for m-learning

All participants indicated that they had access to teaching rooms for information literacy workshops. However, most of these rooms were equipped with computers, designed for traditional lecture style teaching with rows of computers and a presenter

projector for point-and-click type sessions limiting freedom to interact with other learners and the use of individual devices.

The lack of availability of the rooms were mentioned by two participants and one of the participants pointed out that they asked students to use their mobile device in the information literacy workshop when there were no teaching rooms equipped with computers available. When asked whether the participant often had sessions outside computer labs, they said:

> *"I do out here because there's only 1 or 2 computer labs available so I don't have a whole lot. Um, at city I think they have few more computer lab they are using whereas I find I don't have quite as same access to them"*

Another participant mentioned there were only one training room in the library and the projector needed repair. Some of the participants pointed out that they had seminar room/s that were less structured and had no computers. However, they also mentioned these rooms was not purposefully built for interactive classroom style. The use of mobile was a 'back-up' rather than a planned.

> *"if we couldn't get a computer lab … (students) need to be able to see what I'm talking about and have a place in that case we might use mobile technology on their phones or and a tablet if they have them to access just to see what I'm talking about"*

These comments suggests, that despite the benefits of m-learning and its potentials to shift learning approaches to flexible and personalized learning found in literature and through interview, it requires physical environment as well as infrastructures such as better internet connectivity. This is often beyond librarian's capabilities and

only so much can be proposed by academic librarians. Librarians are required to perform and deliver information literacy skills with what is available in the institution or through 'freeware'.

Two participants noted that they do not provide hand-outs in their classes. Rather, students are shown where the hand-outs are in the Libguides or subject guides or given a shortened link which students can access from their mobile device or a computer if they want to follow through the hand-out or refer back to it after the workshop. By not providing hand-out sheets, it is ecologically sustainable and provides variety of access options, giving student the freedom to access information and learn to suit their learning style. Walsh suggests "viewing an online video tutorial on a mobile screen while trying at the same time to apply the skills it is teaching on a fixed computer can be extremely effective"(2012, p.53). Another participant noted that when they are teaching in big lecture theatres for a large class also referred students to the hand-out loaded onto the Libguide to actively use during the class.

> *"it's useful to do a hand-out put it on my libguide and then I say to them "if you want to use your mobile devices to follow on your hand-out, here's the hand-out" and show them where they can open it so that works quite well"*

This demonstrates how learners can utilise mobile devices to access information and take learning opportunities instantly when needed (Ozdamli & Cavus, 2011)

As acknowledged earlier, the examples of actively incorporating learning initiatives were very few. Instead, they recognised the potential for online components to serendipitously be accessed by mobile devices in addition to traditional computers. One of the example of this was the use of Google forms. Google forms was mentioned by two participants as a form to encourage interactive engagement with

students. Google forms are accessible from any device including mobile devices. One participant mentioned they have tried using an application that would convert photographed texts into electronically readable texts (formally known as optical character recognition (OCR)), however, *"it was a lot of work for not much information"* and since then, have been using Google Forms for feedback and quizzes which can be accessed via mobile device although students tend to access them via the computer provided in the training room.

> *"Google forms we started using a lot of for getting feedback from students and doing quizzes and like, instead of giving them worksheets in class, like print worksheets we can give them a Google form that they fill out and then the class everybody in the class has access to the results the afterwards"*

Another participant said that they encouraged students to use personal devices in their information literacy classes although they do not believe it worked well in small smart phone screens.

> *"I do say whatever device you use, bring that to the class. I fully expect them to be in class using whatever device, so a lot of them have tablets or laptops or, some of them have got smart phones but not many of them uses smartphone for work. The problem is screen is so small and most people prefer a bigger screen than you get on your smart phone"*

Conversely, another participant commented, that some students did not seem to mind small screens and were happy to use smart phones to follow along. Perhaps, more students are becoming used to multi-tasking and searching for information and reading large chunks of texts through a small screen. The disparity in perceived students' preference for screen sizes perhaps are determined by factors such as:

- kinds and amounts of information displayed/provided,

- Student characteristics (one participant mentioned that they felt specific groups (e.g. mature students, health sciences students) were less technologically engaged that others (e.g. Science students),

- Familiarity/confidence with technologies or particular smart phones (brands, screen size, models).

Well-planned pedagogies and learning objectives, may facilitate students to use mobile technologies in learning environments such as library information literacy workshops.

Staff development opportunities

Research question:

2. *What m-learning related staff development opportunities are available/or needed in New Zealand academic libraries?*

Participants were asked what staff development opportunities were available for library staff to up-skill or prepare them for implementing mobile technologies into teaching information literacy workshops. Participants were also asked what they would like training on and what areas of mobile technology they were interested in learning more about.

Staff development opportunities currently available

Relevant interview questions:

- *Does your library support the use of mobile devices in teaching & learning for librarians? if so, how does it support ?*

- *Are you aware of any professional development opportunities offered by your institution/library on mobile technology in teaching and learning? If yes, what SD opportunities are available for librarians?*

When asked if they were aware of any professional development opportunities on mobile learning in their institution, responses were varied. One participant commented,

"there's no formal training and no structure planned"

Another mentioned that a staff survey on skill shortage had been conducted recently and they were waiting to see what eventuated as a result of this.

Although all participants had access to staff development opportunities within their institution there were no training opportunities specifically on mobile technology. Most training centred around using technologies in teaching and mobile technologies were introduced as only a small part of these sessions. However results did appear to indicate that interest in mobile learning is growing in the academic setting.

"it's not actually officially part of the university per se, but it's a special interest group … every month there's a session that they'll run on some aspects of teaching and they've been very heavy over the years about mobile technology"

Common practices of acquiring knowledge

Six participants indicated there was a culture learning through the experience of other librarians. A lot of knowledge and skills transferral was informal and occurred between staff when one staff member explored an area of interest and 'knows a little' and then shared that knowledge. One of the participant mentioned that most of the

tools were self-trained or trained by another staff who are familiar with a tool and would disseminate what they know to other staff.

Another participant mentioned that they sometimes recruited external experts to present a session for their library staff. Finally, one participant mentioned that they would often test a feature on a mobile device (e.g. Endnote for Ipad, exporting Google Scholar reading from 'My Library' to EndNote Mobile) and share their experience with students as well as with their colleagues.

Special interest groups were also a common source of information transfer where more experienced staff could demonstrate their experience and skills in using technology and technology oriented pedagogies to other staff members or teams.

Results seems to indicate a lack of evidence to suggest libraries or institutions are trying to enable library staff to further their m-learning interests and capabilities and motivate staff to develop professionally by providing opportunities to learn and familiarize with mobile technologies used by their learners.

Training gaps and proposed staff development initiatives
Relevant interview question

Are you aware of any professional development opportunities offered by your institution/library on mobile technology in teaching and learning? if no, would you like to receive some training? what areas of mobile technology would you like available for you?

Several training gaps were identified by participants which relate to m-learning. The most common areas where participants indicated they would like training was understanding the pedagogies of teaching and designing courses and learning outcomes for an effective m-learning. For example, one participant indicated that

they did not know where to and how to use mobile technologies in delivering information literacy.

Another suggested training initiative was providing a general suite of skills when using mobile technologies. Most participants emphasised that having the confidence and basic understanding of mobile technologies and familiarity was essential to encourage in adoption of mobile technologies into teaching information literacy in the library. One participant suggested a suite of courses on principles of using technologies and pedagogies. For examples, a series of modules covering skills on

"how to facilitate a really engaging session";

"confident about what I am teaching";

"mobile applications I would like to use and why I should use them" and;

"skills to go off and explore".

Some have noted technologies should be used to support the pedagogies rather than designing a workshop contents and activities around technologies for the sake of introducing technologies. They suggested general skills updating on an on-going basis similar to getting, a *"warrant of fitness"* for your car.

Four years since a study by Saravani and Haddow (2012) revealed around half of librarians perceived themselves as technologically competent in using mobile devices. However, it would be interesting to explore how much has changed in current librarian's perceived competence in using mobile technologies since 2012.

Also, skills and peer-reviews and peer observations culture where there are people around that is familiar with and who uses lot of mobile technologies who can 'train

the trainers'. Having experts around in general was also mentioned by one participant as helpful.

Other training area participants indicated they would like more support was in understanding areas for training was technical skills such as learning about tools for specific purposes, for example augmented reality applications. Technical skills ranged from knowing and familiarising with operating mobile devices. One mentioned *"where do you go and how to change setting in iPads"*.

Another technical skills mentioned by another participant was around knowing how to troubleshoot. They expressed that they wanted to know how to find information to build basis for troubleshooting, being able to understand and figure out the solutions to why technical barriers such as why some databases were accessible only on-campus, principles and occasions where ezproxy would limit access so they can explain to students when asked. They also mentioned Google is good in terms of finding general information but not institution specific information.

One participant believed librarians should be confident with technology in information skills whereas one participant mentioned they feel they should have technical skills because this would give,

>   *"Opportunities to make ourselves really indispensable"*.

Technical skills were required of librarians in past (Davis & Partridge, 2012; Saravani & Haddow, 2012) and seems it still is and it will probably remain an expectation for librarians.

Limitations and barriers

All participants were asked what they thought were the limitations and barriers in implementing mobile devices in information literacy workshops.

Relevant interview question:

- *Are there any barriers or difficulties in implementing mobile technologies in teaching and learning?*

Most participants indicated although they could see the benefits implementing mobile technology into teaching, they were also concerned that they lacked understanding of teaching pedagogies and workshop design as well as confidence in using mobile devices. Some felt that some workshops were device driven rather than pedagogically sound for mobile learning environments. Results appear to indicate that currently the capacity to design and facilitate a pedagogically sound information literacy workshops is currently missing and require support from within and beyond the Library.

Another participant commented that because we're dealing with technologies, there is always potential for technology to fail. Use of varied and diverse devices, institutional security protocols, network connectivity, can all contribute to the failure of successful m-learning initiatives. Configuration or network access restrictions can also contribute to lack of success (for example, multiple device access policy).

Similarly, another point commonly mentioned by the participants was that implementing mobile technology into teaching were often more troublesome and even when it is implemented into workshop design, it would often occupy half the class time to set up or not work at all. Unlike lectures where an instructor sees same

group of students over number of classes, information literacy workshops are typically a one-off and content heavy.

> *"Sometimes we don't have time and the classes are done really short, compacted space or that the time in the class we only have usually 1 hour with students and we've got so much to cover that trying to fit something in that's not going to get them side-tracked that's actually going to be part of the class and actually beneficial is probably the other really crucial thing. There's no point in bringing something in just for the hell of bringing something in. You wanted to actually be relevant to what your teaching them and help in some way so either, you know, giving us feedback so that we know that we're picking up we were talking about or getting them to do some hands-on stuff so that they can reinforce and in their minds what they doing so it's got to be able to slot it into a short type class"*

One participant mentioned, they have a new seminar room with no computers so

> *"we've told people that they have to bring their own devices ... So far you know, there can be a few issues because we also have [name of institution's virtual desktop software] which is relatively new … but because they don't all know about it, it can take half the class to set it up"*

Even if the initiatives to create flexible learning spaces and institutional systems to support it are available, if the system is not promoted institution-wide and the space is not carefully designed to suit the pedagogical learning required, it is still unlikely to succeed.

Participants also mentioned that although many students have mobile devices, some still do not want to use mobile devices for learning. The most common mobile devices are smartphones but as indicated earlier often the screen sizes are too small to read non mobile friendly resources. As one participant also indicated, students are reluctant to bringing tablets to the campus because they do not have anywhere to store them. It is much easier to use University provided computers than bringing a mobile device and carrying it all day.

> *"recently been told that our big computer labs around the campus, and we've got some in the library are gonna slowly be disestablished. We don't agree with this entirely because a lot of the students bring their gear along but lot of them rely on labs, not necessarily because they haven't got their own but they don't want to bring to Uni ...there's no lockers so there's nowhere to put them."*

Another participant also mentioned

> *"you advertise something as bring your own device and one person does. It's more around instruction then expectation. People expect that side of things [equipped with computers] to be served up for them"*

Also, as another participant indicated,

> *"we still find there are odd students who are totally not technologically savvy so the odds of them having a smart phone are probably pretty slim and sometimes in some classes we spend half the class trying to get people to put their phone's away, so I don't really want to encourage them to get their phone's back out so there's a bit of a fine line there I think"*

Physical spaces and mobile devices

Respondents reported that library support for staff use of mobile was different at individual institutions. Despite many participants mentioning that having the mobile device they could use and explore was a really helpful and effective way of learning and familiarising themselves with technologies, only two of the eight participants said subject librarians (often referred to as liaison librarians) were provided with an individual mobile device that they could use for consultations. Some noted that provision of individual mobile devices depended on their role in the library with preference being given to more senior staff members or those directly involved in e-learning initiatives(for example, a Manager or a team leader, an e-learning librarian). One of the participants mentioned they often used colleagues's devices when they need to test out how a website or an online resource might display on different devices and screen sizes.

One participant indicated that although they would like to learn about Apple products such as ipad and iphones finding the time or the environment to learn and explore was difficult

> *"[to learn they will need] to take it home with me and have it over the weekend but I don't have time ... it's hard to play [around with the device] at work because you feel like you're wasting time if you're searching videos and playing videos or watching stuff or you know..but it's the easiest way. Half the time it's the case of student comes to the desk and you look it up on IT help page"*

This finding aligns with the finding from Chawner and Oliver (2013) that organisations need to support library staff by providing time to learn new skills, including technological skills in using mobile devices.

Another barrier to implementing mobile devices into teaching information literacy was the set-up of physical teaching spaces, technical infrastructure and equipment. Most participants indicated there were very limited support from the library and the institutions in terms of:

- Physical layout of the room

- Inconsistent internet connectivity

- Inability to connect mobile devices to the projector

Participants indicated that computer rooms were equipped with computers arranged more suited to learners following step by step instructions with interactive elements consisting of instructors periodically asking questions that requires basic answers.

"If you look around you, we've got rows of desks, rows of computers, it's a training room not a teaching room … just the physical setting arrangement and so that trickles down to impacting on whether or not we use mobile devices and you know people won't bring them"

One participant noted that technologies should support the pedagogies but technologies tended to take precedence as evidenced by the training room layout at their institution:

"forces into a particular kind of pedagogies one that is actually a little bit outdated now".

M-learning arguably opens up opportunities for blended, interactive and collaborative learning environment, moving away from traditional 'point and click' instructional teaching styles.

One participant who was given a mobile device acknowledged that having access to a mobile device encouraged them to use such devices but they have yet to implement in information literacy workshops.

> *"I mean they're encouraging us by giving us access and they've also supplied us [technology to connect mobile device to training room projectors]. So you know they're encouraging us to go that way it's just that we haven't you know really I don't think we've really taken that big leap in that way [mobile devices in teaching and learning]"*

This was not the case for other participant. One participant mentioned even if the organisation provided mobile devices for the staff, they would not use it since there was no equipment to connect the device to the projector, unlike the lecture theatres.

Infrastructure, in particular internet connections was another common barriers to implementing mobile technology into teaching information literacy skills. One participant mentioned they had organised a BYOD training session where

> *"staff turning up and of course everything just shut down. We only had like 10 in the room or 8 in the room or something like that but Internet just couldn't cope"*

> *"Possibly getting if it required support from beyond our team leader would be hard because … anything that involved money or time out in training or you know that would require somebody else to say "yes you can go ahead and do that" … that's probably the biggest thing"*

Staff attitude

Staff were questioned regarding opportunities within the institutions for staff to develop skills required to implement mobile learning

When asked about barriers or difficulties in implementing mobile technology into teaching information literacy, participants also mentioned that one of the factors that hinder the implementation of mobile technologies in teaching information literacy is the attitude towards the new approach.

> *"the best example was giving us all the [device name] so we're forced to, and we're all at different level and some people struggle with it first some people you know being using for a long time … but yeah I think some of us are not so interested"*

> *"But then again it's a familiarity thing. If you've used them a couple of times so you kind of used to it and it's not so bad. So I mean that's another obstacle too. You've got a few people who probably have more resistant to change. Like "this is the way I teach and I'm going to keep teaching this way". I think most of our teams are pretty good but there's a possibly a couple that may be more resistant than others"*

Again, the individual interest and willingness to develop professional skills as influential factors was found to be consistent to the findings from previous literatures (Davis & Partridge, 2012; Saravani & Haddow, 2012).

Similarly, individual enthusiasm to explore different technology and the interest in mobile devices which is not endorsed from the management is another contributing factor as mentioned below.

"Sometimes we don't have time and the lack of opportunity. [Name of an online tool] kind of worked because one of our team she learnt how to use it and then kind of did the implementation in the classes so that was a good way to do it I think"

"with the app that I've worked [explanation of the app], that was me that did that and that was because we had time before a class to do it"

It was also mentioned that having experts is one thing and also keeping them was another barrier.

"[as a result of a recent institutional changes] most closest to mobile technologies in e-learning have all left have quit or resign" and within the library there are limited or no library staff with the technical skills to explore mobile learning resources and set examples."

"there's really nobody that we can get, I don't think for mobile teaching, nobody that I know of or had. Although I wouldn't be surprised because we're such a silo university a lot happens here without people knowing what's going on"

"there's institutional approach, we are required to follow that approach. It's interesting that those away from the main campus are doing different things and so they clearly don't have the same barriers as we do"

"I think um I mean m-learning is just e-learning. I think it's pedagogy supported by technology but it's just in a different form and there different things that you can do and can't do depending on what piece of technology you have"

"I think the barrier at the moment is it's simply not present in our teaching culture here. And the wider culture across the university in terms of the discipline

knowledge in the faculties. You get the occasional enthusiast doing it and there are some great examples of people who really are enthusiastic and they have using it but it's not yeah it's down to individual enthusiasm and it's not a system-wide supported approach"

A participant concluded the interview by saying,

"there has to be a complete sea change on how we view teaching and learning ... if we want to meet students in their own environment basically and their world as much as possible, we'll never do it fully because we're not 19 but we can make forays into that world reflect more closely reflect how they learn in what they used to learn. I think we can do that by using mobile technology"

There was a notion of expectation that eventually, the need to distinguish learning through mobile technologies and online environment will disappear. The methods and tools can be used interchangeably and collaboratively to bring the best learning suited to individual learners. Academic librarians are challenged with finding "logical and useful ways to incorporate" constantly changing mobile technologies in delivering information literacy workshops (Williams, 2007, p.87).

"I think one day we'll stop calling it m-learning and it's just going to be learning like e-learning and it will stop calling it e-learning and it's going to be learning and I hope we do it soon because I think it's just learning I think at the moment we're not really not doing it very well"

Recommendation

As discovered in the research, providing access to technologies were perceived as an encouragement from the institution. Librarians perceived exploring and

developing familiarities in mobile technologies as part of their professional development which could be openly practiced during working hours. However, this approach can be expensive and may require a complex approval process. According to Koffer et al, providing a supportive environment for privately owned IT tools "directly impacts individual IT innovation behaviour" (2015, p.373). A workplace environment that welcomes BYOD encourages innovativeness as well as the empowerment to explore. Sense of ownership and knowledge about the functionalities impacts on the staff behaviours when it comes to technologies (Klesel et al., 2016; Köffer et al., 2015)

It is not to say there are no risks pertained to this approach. Threats to work-life balance, network securities and economic disparities amongst staff will need to be considered.

Research limitations

A number of limitations were identified which were associated with this research.

Due to the time constraints and the researcher's experience, this research is limited to the experiences and perceptions of eight librarians working in academic libraries in New Zealand. However, examining wider academic libraries serving different higher educational sector could be a possible future research topic.

Participants were limited to library managers, e-learning librarians or equivalent and Subject Librarians or equivalent. Increasing the sample to include all library staff involved in delivering information literacy such as library assistants, IT staff could yield further discovery of current practice and more importantly perceptions of barriers and training needs as was discovered in Saravani and Haddow (2012).

It is assumed that the term mobile technology and mobile devices relate to portable devices that are wifi and/or 3g capable and would operate using Android or iOS. However, there are devices that are ambiguous and whether they can be classified as mobile devices (for example Microsoft Surface Pro) will need to be reviewed.

Due to the geographical diversity of the interview particpant, some of the interviews were conducted over video conferencing application which resulted in intermittence, inconsistency in clarity of the participant's voice of which was only discovered in transcribing process.

Conclusion

This research has found evidence that libraries are putting efforts into creating resources that can be accessed from multiple screen sizes ranging from a large computer screen to a small smart phone screen. This translates to a new freedom for students to learn and acquire knowledge on an anywhere anytime basis, thus tackling location and learning preference barriers that have previously existed. However, creating a learning environment where learners become true m-learning (Melhuish & Falloon, 2010) seems a challenge much more difficult to overcome.

Of the eight academic librarians interviewed, all expressed that they were in favour of incorporating mobile devices into teaching and learning whether it is directly using a mobile application such as instant feedback or creating a customisable application to ease library access by a click of a button, rather than typing the web address incorporated with voice recognitions searches. Contrast to this, some have also questioned whether the efforts and hard work is necessary because a lot of what is

taught in the library is web based and there has already been a lot of work invested into these resources to transform or create them in mobile friendly format. By having information accessible from variety of devices, libraries are already encouraging learners to query and seek information whenever and wherever (Ozdamli & Cavus, 2011). Learners are used to and even to some degrees expect websites to be responsive to whatever device they are using. However, taking it further to create a learning environment where learners become an independent and collaborative through their mobile devices in a given context (Melhuish & Falloon, 2010) seems difficult due to current physical infrastructure of training rooms, lack of initiatives and support from the library and the institution as a whole and the instructional design of workshops. As discovered in the findings, training rooms are often strictly structured with lack of flexibility to move around and interact with other learners, instead environment is tailored so that learners are provided with knowledge and are largely interacting with the instructor and the presenter screen and at most with other learners that are within proximity for a brief time.

The research also concluded that the need for structured and on-going training opportunities and management support is needed to encourage academic librarians to explore mobile technologies. Practical opportunities to explore and providing an environment and time to think of ways to integrate mobile technologies with teaching pedagogies to deliver information literacy workshop is also needed. Although the need for the librarians to be familiar with mobile technologies emerged strongly, the support within the institution was inconsistent and comparatively insufficient.

Lastly, below is the diagram of important key components discovered from the current research. It is recommended that libraries should consider these elements carefully before implementing m-learning into information literacy.
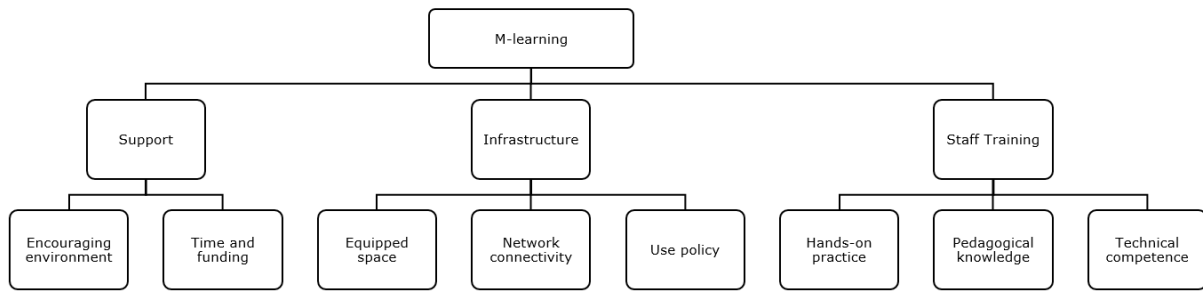
Figure 1 Key components for implementing m-learning

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Appendix 1

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI

VICTORIA
UNIVERSITY OF WELLINGTON

Study of mobile learning implementation and staff training in academic libraries in New Zealand

INFORMATION SHEET FOR PARTICIPANTS

Thank you for your interest in this project. Please read this information before deciding whether or not to take part. If you decide to participate, thank you. If you decide not to take part, thank you for considering my request.

Who am I?

My name is Heera Kim and I am a Masters student in Master of Information Studies at Victoria University of Wellington. This research project is work towards my research report.

What is the aim of the project?

The aim of this project is to examine how mobile learning (teaching and learning pedagogy using mobile devices) is currently used in teaching information literacy in academic libraries. Additionally, the study will examine what development training options are available for library staff to assist them in accommodating the technological expectations of students.

This research has been approved by the Victoria University of Wellington Human Ethics Committee. The approval number is 23287.

How can you help?

If you agree to take part I will interview you in a quiet area, such as meeting rooms or an office or via phone or video calls if face to face interview is not possible. I will ask you questions about mobile learning. The interview will take approximately 1 hour. I will record the interview and write it up later. You can stop the interview at any time, without giving a reason. You can withdraw from the study up to four weeks after the interview. If you withdraw, the information you provided will be destroyed or returned to you.

What will happen to the information you give?

This research is confidential. I will not name you in any reports, and I will not include any information that would identify you. Only my supervisor and I will read the notes or transcript of the interview. The interview transcripts, summaries and any recordings will be kept securely and destroyed 2 years after the research ends.

The report will name neither the participants' nor the institution. However, the report may refer to institutions as a University or ITPs.

What will the project produce?

The information from my research will be used in my Masters report. You will not be identified in my report. I may also use the results of my research for conference presentations, and academic reports. I will take care not to identify you in any presentation or report.

If you accept this invitation, what are your rights as a research participant?

You do not have to accept this invitation if you don't want to. If you do decide to participate, you have the right to:

- choose not to answer any question;
- ask for the recorder to be turned off at any time during the interview;
- withdraw from the study up until four weeks after your interview;
- ask any questions about the study at any time;
- receive a copy of your interview recording (if it is recorded);
- read over and comment on a written summary of your interview;
- agree on another name for me to use rather than your real name;
- be able to read any reports of this research by emailing the researcher to request a copy.

If you have any questions or problems, who can you contact?
If you have any questions, either now or in the future, please feel free to contact either:

Student:	Supervisor:
Name: Heera Kim	Name: Brenda Chawner
University email address:	Role: Senior Lecturer
kimheer@myvuw.ac.nz	School: Information Management
	Phone: 04 463 5780
	Brenda.chawner@vuw.ac.nz

Human Ethics Committee information

If you have any concerns about the ethical conduct of the research you may contact the Victoria University HEC Convener: Associate Professor Susan Corbett. Email susan.corbett@vuw.ac.nz or telephone +64-4-463 5480.

Appendix 2

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CONSENT TO INTERVIEW

This consent form will be held for 2 years.

Researcher: Heera Kim, School of Information Management, Victoria University of Wellington

- I have read the Information Sheet and the project has been explained to me. My questions have been answered to my satisfaction. I understand that I can ask further questions at any time.

- I agree to take part in a (video/audio) recorded interview.

I understand that:

- I may withdraw from this study up to four weeks after the interview, and any information that I have provided will be returned to me or destroyed.

- The information I have provided will be destroyed 2 years after the research is finished.

- Any information I provide will be kept confidential to the researcher and the supervisor. I understand that the results will be used for a Masters report and a summary of the results may be used in academic reports and/or presented at conferences.

- My name will not be used in reports, nor will any information that would identify me.

- I would like a summary of my interview: Yes ☐   No ☐

- I would like to receive a copy of the final report and have added my email   Yes ☐   No ☐ address below.

Signature of participant: _____

Name of participant: _____

Date: _____

Contact details: _____

Appendix 3

Interview Questions

1. How much teaching experience do you have from either current or previous roles?

2. Thinking about your personal life:

    a. Do you own or use mobile devices on a regular basis? eg, smart phone, tablet

    b. What do you mostly use your mobile devices for?

    c. How familiar are you personally with the use of mobile technology in teaching & learning?

3. Thinking about your work life:

    a. Does your library support the use of mobile devices in teaching & learning for librarians? if so, how does it support ?

    b. Do you use mobile technology in information literacy workshops? if so, how do you use them? if not, would you consider using mobile technology in your IL workshops?

4. Do have any experience in learning using mobile technology? How did you find the experience? did it work for you? if not, what did not work for you?

5. Does your library offer webpage, libguide or information about mobile technologies? (mobile apps or vendor services eg ebooks)

6. Are you aware of any professional development opportunities offered by your institution/library on mobile technology in teaching and learning? If yes, what SD opportunities are available for librarians? if no, would you like to receive some training? what areas of mobile technology would you like available for you?

7. Are there any barriers or difficulties in implementing mobile technologies in teaching and learning?

8. Is there anything else that you would like to comment?