Does on line learning click with nurses?

A qualitative study

Kim Riley
Clinical Nurse Consultant
Aged Care and Rehabilitation Services Clinical Network
Hunter New England Local Health District

Address for correspondence

Kim Riley
Aged Care and Rehabilitation Services Clinical Network
Hunter New England Area Health Service
Scott Memorial District Hospital Campus
PO Box 287
SCONE   NSW   2337

Telephone: 02 6540 2118
Fax: 02 6540 2180
Email: kim.riley@hnehealth.nsw.gov.au

ACKNOWLEDGEMENTS

ABOUT THE AUTHOR:

Kim Riley is a Clinical Nurse Consultant with the Aged Care and Rehabilitation Services Clinical Network in Hunter New England Area Health Service. Kim has extensive experience in rural health and she has qualifications in general nursing, midwifery, child and family health (Karitane), Critical Care, Public Health, Health Service Management and Gerontology.

TABLE OF CONTENTS

LIST OF TABLES

EXECUTIVE SUMMARY

This research has demonstrated that while the Mylink platform is valued by nurses it is not currently hitting the mark in terms of engagement, participation and transfer of knowledge. What this research does show is that online learning is successful when:

- Completion of online learning is supported by the organisation and managers; when nurses are provided with adequate time and resources (access to computer, quite environment and reliable network access)
- There is accountability for education being undertaken; completion rates of online learning modules are monitored in order to comply with mandatory requirement to meet internal and external accreditation processes and
- Completion of education modules is linked to organisational goals or targets.

It is accepted that Australia's ageing population will increase the demand for hospital bed days over the next 20 – 30 years. It is also accepted that the care of hospitalised older people requires nurses to gain new knowledge and skills in order to prevent older people declining in function as a result of their admission to hospital. Online learning provides a way to overcome the challenges that many rural nurses face in gaining access to continuing professional development.

In order to increase nurses' engagement and satisfaction with online learning, the following recommendations are made. None of the recommendations would be effective if they were implemented in isolation. The recommendations are:

1. Provide nurses with time to undertake online learning during their working hours
2. Provide nurses with a dedicated space to undertake online learning that is away from the ward environment
3. Provide a clearer pathway for accessing the Mylink platform
4. Reduce or streamline password requirements
5. Promote online learning beyond mandatory requirements
6. Provide support to developers and designers of education modules to assist in the production of online modules that are better able to meet the needs of all users
7. Increase the range of education styles and options for users of online learning

ABSTRACT

DOES ONLINE LEARNING CLICK WITH NURSES? A QUALITATIVE STUDY

Australia's ageing population will cause an increased demand for public hospital beds over the next 20 – 30 years. In order to cope with this change in patient demographic there is a need for clinicians to acquire knowledge and skills related to the care of older hospitalised people to reduce the risk of functional decline that can result from a period of hospitalisation. Like all rural nurses, those who work in Hunter New England Area Local Health District (HNE LHD), find it difficult to access continuing professional development. In order to overcome these barriers, HNE LHD has embraced on-line learning.

Initially, this research set out to determine (using randomised control methodology) if the completion of a series of online learning modules about the prevention of functional decline resulted in an increase in clinician knowledge and a resultant change in practice. This question was unable to be answered due to low participation rates.

A qualitative study was then carried out to gain a better understanding of how nurses perceive online learning for continuing professional development in regard to things that enable engagement, issues that lead to dissatisfaction and disengagement and a description of what the ideal learning platform could look like. Semi-structured interviews were undertaken with 14 nurses of various professional designations at three rural facilities. The facilities were part of the Primary and Community Network in Hunter New England which provide acute, sub-acute and residential aged care services to their local community.

The research found that the mylink platform and online learning was supported by nurses. For the majority of nurses, online learning was primarily associated with completion of online modules required to meet annual mandatory requirements. Nurses valued being able to access the modules at any time of the day and night. They also valued being able to revisit modules as many times as they liked to refresh their knowledge or clarify things. However, nurses reported that the system was not user friendly, hard to access and navigate and that module content and design did not meet many of their learning needs.

Analysis of the interviews indicated that online learning works well when: there is accountability for education being undertaken – such as annual mandatory requirements; staff are supported by their managers and provided with time to undertake online learning during and completion of online learning modules are linked to organisational goals and targets.

The findings and recommendations of this research will assist policy makers and designers of online learning platforms and modules to have a better understanding of the needs of rural nurses in order to deliver an online learning environment that nurses will want to participate in.

Key words: functional decline, online learning, nurses knowledge, practice change, engagement, satisfaction.

RESEARCHER'S NOTES

The original aim for this research came from a desire to find out if a series of modules (*Principles of Enablement Nursing)* about the prevention of functional decline in older hospitalised people resulted in an increase in nurses' knowledge and an identified change in their nursing care. The modules address each of the five domains where decline can (and does) occur during hospitalization: mobility, nutrition and hydration, cognition, continence and self-care. The modules were designed and recorded by myself (and reviewed by a peer) and included information, for each domain, on the changes that occur during the normal ageing process, what happens during hospitalisation, assessment skills that nurses can easily use to determine an older persons' risk of decline and preventative or intervention measure that nurses can readily implement to prevent or limit any decline. The learning program includes a knowledge test at the end. Completion of the series and the quiz results in an entry in each individual nurse's electronic education record (Pathlore).

The original study included a randomised control trial (RCT) and an audit of medical records which were both designed to determine if completing the *Principles of Enablement Nursing* modules resulted in an increase in nurses' knowledge about the assessment and prevention of functional decline; following on from that, a documented change in their practice to include the enablement principles that had been identified in the modules.

What was not expected was the low participation rates by nurses who worked at hospitals which were part of the study. This caused me to reflect on why nurses had not participated; was it something to do with the modules, or was it something to do with online learning more generally.

This led me to ask 'Why didn't the nurses at the research sites complete the modules and what are their perceptions of, and attitude toward, online learning?' In order to answer this question, 14 nurses from three facilities were interviewed to gain a better understanding of these issues. Besides the manager at each site, I did not seek out any particular designation of nurse.

I would like to mention that I was known to a large majority of the nurses interviewed as a result of the length of time that I have been employed in the health service. I have previously had a working relationship with three of the 14 nurses or managers interviewed, but I did not have a line management relationship with any of the nurses or manager interviewed. Although some interviewees mentioned projects or professional work experiences that we had shared, I do not feel that the responses they gave were affected by that relationship. Prior to undertaking the interviews, I had to put aside the disappointment that my nursing colleagues had not participated in the quantitative phase of my research. I had to reflect on how this might influence the way that I went about the interviews. This led me to approach the qualitative phase using an Appreciative Inquiry methodology as a way to gain maximum benefit out of this research.

This report will present the findings of the qualitative study. The methodology for the RCT is included should anyone wish to replicate the study, as the initial question remains unanswered.

INTRODUCTION

Evidence shows that older people, those with chronic diseases or people of any age with disabilities are at risk of functional decline during admission to hospital. It is estimated that by 2050, there will an increase in the demand for hospital bed days of between 70 and 130%. Not only that, the proportion of occupied bed days for the care of older people will increase from 50% in 2005 to over 70% in 2050 (Schofield & Earnest, 2006).

Online learning is increasing in use as the way to provide continuing professional development to nurses across HNE LHD. The obvious benefits that online learning provides to not only nurses, but also to the organisation as a whole, is its availability at all hours of the day and night, the increased numbers of nurses who can access it at any given time, reduction in costs for the organisation, attendees and educators in terms of travel and time away from the workplace, standardisation of the delivered message across a huge area and reusability (Brunero & Lamont, 2010). Young (2003) notes that a lack of support and staff shortages are the main work related reasons that stopped nurses from attending face-to-face education. Many articles have reported satisfaction and self-reported changes to clinical practice following completion of online learning modules (Childs, Blenkinsopp, Hall, & Walton, 2005; Young, 2003; Atack, 2003).

In July 2009, the Aged Care and Rehabilitation Services Clinical Network (ACARS) of Hunter New England Local Health District (HNE LHD) developed an online learning program (*Principles of Enablement Nursing)* to raise awareness of the nursing led strategies that can prevent functional decline in older hospitalised people across five domains (mobility, cognition, hydration and nutrition, continence and self-care). The *Principles of Enablement Nursing* program incorporates a number of strategies, resources and tools to support and guide clinicians in their care of older people. Central to this was the recognition that nurses working in rural areas find it difficult to access education and support (Banks & Togno, 1999; Hunter New England Area Health Service, 2010). In order to overcome the barriers rural clinicians face, the learning packages were (and remain) available electronically on the ACARS Network Mylink site.

The modules are accessed via a link from the HNE LHD intranet homepage. The modules are available to all clinicians and staff employed at all facilities across HNE LHD using their username and password. The *Principles of Enablement Nursing* program is made up of seven modules with a knowledge quiz at the end. An entry is transferred to the clinician's electronic training record upon successful completion of the quiz (score of 8 or more out of 10).

The research was conducted at facilities in the Primary and Community Network of HNE LHD, which comprises all hospitals (Multi Purpose Service, Community Hospital and District Hospitals) across seven clusters. Rural Referral Hospitals and those hospitals that fall within the Greater Newcastle Cluster were excluded from the study due their increased access to education and peer support or metropolitan location. See Appendix 1 for a map showing location of MPS, Community and District Hospital within HNE LHD.

The initial research had the aim of determining if completion of the series of modules resulted in an increase in nurses' knowledge and following on, implementation of strategies to limit or prevent functional decline in older hospitalised people they cared for. Using a randomised control design it involved nurses' completing learning modules (depending on which arm their site was randomized

to), undertaking a pre and post quiz and answering a survey. All aspects of the nurses' involvement in the research were to be completed online. The initial study also included an audit of medical records at research sites. All documents (letters, consent forms, quiz question bank, survey and medical record audit) can be found at Appendix 2. The stratification flow chart which provides information on the randomization process can be found at Appendix 3.

LITERATURE REVIEW

A literature review was undertaken using the CIAP search engines Medline and CINAHL as well as Google Scholar. Literature was sourced over an extended period of time beginning with the commencement of the research project, right up until writing the report. As the research project changed, there was a need to undertake further review of the literature. The search was narrowed to articles that were written in English and published after 2000. Articles published before that date that were thought to be sentinel articles, due to many other articles making reference to them, were included in the review. Key search terms were: *online learning, continuing professional development, nurses, e-learning, practice change, engagement and satisfaction.*

It is widely recognised that the care of older people in our hospitals will rise over the next 50 years. This will mean that by 2056 the percentage of Australia's population over 65 will increase to between 23 – 25%. In 2007, the percentage of the population over 65 was only 13% (Australian Bureau of Statistics, 2008).

Evidence also shows that functional decline occurring during hospitalisation of older people is associated with adverse outcomes, ranging from an increased length of stay to higher levels of entry to residential aged care and increased mortality (Australian Bureau of Statistics, 2008; Australian Health Ministers' Advisory Council, 2004; Creditor, 1993; Graf, 2006; Wakefield & Holman, 2007). Functional decline in the older hospitalised person can being after just two days of reduced mobility or bed rest (Creditor, 1993; Graf, 2006).

Nurses need to be constantly updating their skills and knowledge in order to provide nursing care that is best practice and evidenced based. Continuing professional development (CPD) is necessary for the maintenance of professional standards by nurses improving and broadening their breadth of knowledge, skills, expertise and competence (Nursing and Midwifery Board of Australia, 2010). There are many deterrents to nurses participating in CPD. Schweitzer & Krassa (2010) and Young (2003) identified that nurses do not undertake CPD, due to the cost of attending, family responsibilities, travel distances and the inability to get time off work, usually due to understaffing.

It is also difficult for educators in rural areas to reach all clinicians across such huge distances. Brunero and Lamont (2010) recognised that providing education to nurses by 'in-service' is limited in appeal and effect. In-service style of education is not able to reach all staff, or meet their educational needs.

The benefits of online learning (availability, cost, consistency and access) are known and several studies have also shown that outcomes for online learning are equal to, or better than, face-to-face delivery methods (Arbaugh, 2000; Clark, 1999; Neuhauser, 2002). Neuhauser (2002) writes that online learning is most effective for people who have the following characteristics: strong self-starter, self-disciplined and knowledgeable and at ease with technology. Chumley-Jones et al (2002)

undertook a review of the literature pertaining to web-based (online) learning across medical, dental and nursing literature and concluded that web-based learning adds to the suite of tools that educators and clinicians can use. They go onto write that there is no evidence that people learn more from web-based programs than by traditional methods even though users rate their satisfaction with on-line learning as high (Chumley-Jones, Dobbie, & Alford, 2002).

While the benefits and advantages of online learning are well documented, there are also disadvantages. For many people on-line learning is perceived as an isolating experience which requires great personal motivation to undertake and complete. Online learning has been described as prescriptive and places the learner in a submissive role (Brunero & Lamont, 2010; Farrell, 2006).

Several studies have looked at the effectiveness of online learning in changing practice. Atack (2003) interviewed 11 nurses to determine the impact of online learning on their clinical practice. Chang, Hsiao Sheen, Chang, & Lee (2008) asked nurses to complete a simulated test following completion of e-learning programs. Whilst Beckman, Schoonhoven, Boucque, Van Maele, & Defloor (2008) undertook knowledge tests before and after nurses completed their face-to-face or online learning. Of those studies reviewed, none were found to have confirmed that nurses had changed their clinical practice after completion of online learning modules, evidenced by documentation in the medical records or direct observation of nursing practice.

Nurses' perceptions and feelings toward online learning have also been previously explored. Atack (2003) undertook focus group interviews with nurses that identified barriers such as the lack of time and the nature of the workplace (hectic and constant interruptions). While Pawlyn (2011) found that nurses' experiences of online learning are influenced by a range of factors, including skills with computer use, organisation support and reliability of the technology. Atack & Rankin (2002) found that registered nurses' enrolled in a post-diploma web-based course found that a lack of computer skills, workload and a misconception of how long a course will take to complete plus a lack of preparation and knowledge of how to undertake online learning were responsible for nurses not completing a module or course.

In an another study, (Kenny, 2002) found that nursing students reported that confidence with computers both enhanced and detracted from their satisfaction with online learning. The ability to work at their own pace enhanced satisfaction and also allowed exposure to a wide range of material that they might not otherwise encounter.   Satisfaction with computer based learning was further enhanced for student nurses in Kenny's study through interaction with other online learners via forums, blogs and group work to complete tasks (Kenny, 2002).

Non-completion of online learning has been reported in several studies. Bocchi et al (cited in Maor and Volet) estimated that a combination of busy lives and workplaces and lack of preparation (computer skills, an understanding of self-directed learning and time to complete the course) can attribute to a non-completion rate between 13% and 54%.

In an unrelated professional group (media professionals), Maor & Volet (2007) found that the same issues, in regard to satisfaction and completion of courses, existed in this group as for nurses. Maor and Volet (2007) write that satisfaction and engagement were influenced by workplace and organisation features (lack of time and work load, support from the organisation to undertake study during work hours and access to computers), personal issues (preference for face-to-face learning

and computer skills and confidence) and content or design courses (quality of production, relevance of content to practice).

AIM OF RESEARCH AND RESEARCH QUESTION

This research initially set out to determine if nurses' knowledge about the prevention of functional decline and the care that they provide to older hospitalised people improve as a result of completing online training

As a result of poor participation rates, the research sought to determine what are the factors that impact on the efficacy of the provision of continuing professional development delivered online for rural nurses? While there has been research into what factors increase or decrease participation and satisfaction with online learning, they have largely been focused on nurses studying at university or registered nurses engaging in a post-graduate web-based university course. The majority of articles were focused on identifying factors that prevented nurses' participation in online learning.

The aim of this research is determine what factors had a direct impact on nurses' engagement with online learning for continuing professional development in the workplace, what they felt made it easy for them to participate and what factors prevented them from engaging, what factors decreased their satisfaction and make them not complete a module and also, what they imagined the Mylink platform would look like if it were designed to meet all their needs and expectations.

The research question is: '***Does online learning click with nurses?***'

STUDY METHOD

In order to better understand why nurses did not engage with online learning and also with a view to determining why participation rates were low in the RCT, semi structured interviews were conducted at a three sites. Participation was sought using firstly, a purposive sampling method, which involved writing to managers of those facilities who had initially agreed to their facility being part of the RCT. The letter provided information about the research project and attached to the letter was a consent form, which indicated their agreement to be interviewed and also their agreement that on the day of their interview, a convenience sample of nurses who are willing to interviewed. Sixteen managers were approached and five agreed to an interview and consented to the principle researcher approaching nurses at their facilities to be interviewed. After managers and nurses at three sites were interviewed, the principle researcher felt that saturation of information had been reached. See Appendix 4 Letter to managers and Appendix 5 Consent form.

Nurses on duty on the day their manager was interviewed were approached and provided with a copy of the Participant Information Sheet (Appendix 6) by the principle researcher. Nurses were given time to read the document and ask any questions prior to consenting to being interviewed. Consent was indicated by participation in the interview. Of the fifteen nurses approached, only one declined to be interviewed. Manager interviews were undertaken in their office with only the principle researcher and the manager being interviewed in the room. Interviews of nurses took place in a private room at the nurses' place of work at a time that was convenient to them. Again, only the principle researcher and the nurse being interviewed were present in the room. At the

beginning of each interview, participants were asked general demographic data which is displayed below (Table 1).

Table 1 Details of study participants

Demographic		Number (%)
Health service setting		
	Multi-Purpose	5 (36)
	Community Hospital	4 (28)
	District Hospital	5 (36)
Work role		
	Management (HSM or NUM)	4 (28)
	Clinical nurse specialist	3 (21)
	Registered nurse	2 (15)
	Enrolled nurse	2 (15)
	Assistant in nursing	3 (21)
Employment status		
	Full time	8 (58)
	Part time	5 (36)
	Casual	1 (6)
Length of time employed in the health service		
	0-10 years	7 (50)
	10 – 20 years	2 (15)
	Over 20 years	5 (36)
Participant age		
	20-29 years	4 (28)
	30-39 years	1 (6)
	40-49 years	0 (0)
	50-59 years	5 (36)
	60-69 years	4 (28)
Gender		
	Male	2 (14)
	Female	12 (86)

The interviews followed a semi structured outline with the interviewer having key questions that each participant was asked. Subsequent or follow-up questions were asked depending on responses. An outline of the semi-structured interviews for both managers and nurses can be found at appendices 7 and 8. The interview questions were trialed prior to use with a research peer being the interviewee. The trial interview was recorded which provided the principle researcher with the opportunity to reflect on the interview questions and interview technique.

The interviews lasted from 30 to 60 minutes, depending on participant responses and were recorded using a digital recorder. Each interview was identified and stored digitally on the recorder as Interview A, B, C and so on until N.

Transcription of the interviews was undertaken by the principle researcher. Each interview was identified according to their designation (HSM = Health Service Manager, NUM= Nurse Unit Manager, CNS = Clinical Nurse Specialist, RN = Registered Nurse, EN = Enrolled Nurse, AIN = Assistant in Nursing) and numbered according to the order of interview for their designation (first manager interviewed = HSM1, second manager interviewed = HSM2, and so on). At the time of the interview, participants were asked if they would like to review the recording of their interview or

receive a copy of the interview transcript. No participant wished to review the recording or receive a copy of the transcript of their interview.

The interviews were coded manually by the principle researcher using a coding table (Appendix 9) to identify key themes and sub categories within each key theme. Interview transcripts were read and reread until recurring themes and subcategories emerged. Many issues were applicable to more than one theme or sub-category.

Ethics approval to undertake the RCT was received from the Hunter New England Research Ethics and Governance Unit on 25th July 2012 (12/07/18/5.02). A request to amend the RCT was approved on 24th August 2012 to change the wording in one question in the participant survey. A further amendment was approved on 18th December 2012 to undertake interviews at selected sites.

ANALYSIS

In order to learn more about the enablers to nurses engaging in online learning, an Appreciative Inquiry (AI) methodology was used in the interviews and analysis of the data. Appreciative Inquiry focuses on 'what is working', rather than focusing on or identifying problems (McDonald, Bammer, & Deane, 2009). By identifying and analysing what works, these learnings can be used to further increase nurses engagement, satisfaction and learning (Sullivan Haven, Woods, & Leeman, 2006; Trajkovski, Schmied, & Jackson, 2013). The benefit of using an appreciative inquiry model is that we know that there are parts of online learning that work, by using this framework it provided the opportunity for nurses to identify the good things and following on from that, how those factors could be further improved to make online learning work for them, the end users.

It was an option to undertake an analysis of online learning, given the low participation rates in the quantitative research, using an approach that sought to find out what is not working or focus on problem solving, and then trying to determine solutions to those issues. This is the conventional problem-solving method which identifies problems, analyses causes, creates solutions and develops actions plan to implement solution. In contrast, AI identifies the best of what is, imagines what could be, designs a system that matches the imagined and implements processes to get to what was imagined (Ludema & Fry, 2009). By using an appreciative inquiry framework, the interview questions and coding of interviews tried to identify what works well for nurses with current online learning, what factors support their participation and satisfaction with online learning, what they imagine an online learning platform could look like to meet their needs, and what factors could be enhanced to meet their imagining and thus, increase participation and satisfaction of this learning method. One of the unique benefits of AI is that it provides participants (the interviewees) with the opportunity to imagine what could be and to put forward ideas that can enlighten and challenge developers (and users) of online learning to strive for a system that is the best that it can be now and into the future (Zandee & Cooperrider, 2009).

Analysis of the data was divided into two key themes: what is working well and what could be done to make it work even better. Sub-themes emerged from the research and there were overlapping sub-themes. In the 'what is working well' category, sub-themes relating to access, acquisition of new knowledge, consistent message, flexibility, cost and accountability emerged. While in the 'what could be done to make it work even better' category, sub-themes relating to time, access, transference of knowledge and engagement emerged. This category included data that came from

nurses being asked to imagine what online learning would look and behave like if they were able to design a learning platform that met all their requirement and expectations.

FINDINGS

WHAT IS WORKING WELL

Using an AI methodology, gaining an understanding of what is working well in regard to online learning involved asking nurses to reflect on positive experiences with online learning and what contributed to making that experience a positive one (Sullivan Haven, et al., 2006). Online learning and Mylink is well supported by managers and nurses. Nurses most value the access to online education to maintain current knowledge but also to gain new skills and knowledge. Online learning provides nurses and managers with education resources that might otherwise not be available to them. Subthemes emerged: access, acquisition of new knowledge, consistent message, flexibility, cost and accountability

KEY DRIVER – MEETING ORGANISATION GOALS

The key driver in the use of online learning is the completion of modules that each HNE LHD employee must undertake on an annual basis in order to fulfill mandatory education requirements. It is evident from the comments provided by managers and nurses that this system works well in terms of providing a consistent message to all staff across a wide geographic area. Having the same information available to all staff contributes to a sense of all staff working toward the same goal regardless of where they work. For nurses in rural areas, having access to the same information as their colleagues in metropolitan centres is seen as important. All nurses interviewed saw a close relationship between ongoing professional development, delivery of patient care and meeting organisational goals.

In terms of what is working well, meeting organisational goals is a central theme. When the completion of online learning is an organisational requirement and is supported and monitored by managers then completion of online learning is high. Overwhelmingly, nurses interviewed reported that their use of online learning did not often extend beyond fulfillment of mandatory requirements.

> No I don't think I have done anything else but the mandatory. (AIN3)

> I struggle to get all my mandatory stuff done…. I don't go looking for anything else because I struggle to get what I have to do, to get that done. (CNS2)

> All the mandatory stuff. That is probably about it. Through mylink the only thing I have done Is book in for a course. (CNS3)

Nurses were asked what could be done to increase participation extend beyond completion of modules to mandatory education requirements.

> Maybe it needs to be something where people are made to feel good about something. You know not 'oh yeah, this is online learning and you have to do it'. But you know, this is really interesting and you can actually benefit from doing this. Appeal to people's sense of wanting to better themselves, not just fulfill a criteria. (RN1)

ACCESS TO EDUCATION

Most of nurses interviewed reported that they valued the Mylink platform and online learning for providing them with access to information that allowed them to keep up-to-date with changes in practice and access to information that might otherwise not have been available to them. For those nurses who accessed online learning for reasons other than the completion of mandatory requirements, satisfaction and appreciation of online learning was high. For rural nurses, it is widely acknowledged that access to continuing education is often difficult (Banks & Togno, 1999), so the ability to access education without having to leave their workplace or travel long distances to another facility was acknowledged.

> *With online learning I can get access to information that I wouldn't otherwise know how to. (AIN2)*

> *We are in a rural place, we don't have the same access as city people have and this online learning helps. It helps us have basic information on stuff that we are not usually exposed to. (RN2)*

For some of the nurses interviewed, being able to access education and learning on line, increased their own accountability in regard to ongoing professional education. These findings have been replicated in other studies. Kenny (2002) found that online learning gave nurses greater independence in identifying and meeting their own learning goals. In this study, nurses who felt that online learning does allow for more self-directed learning, also indicated that they sourced information and education from sources external to the Mylink platform by using a search engine.

> *I do a lot of stuff online… finding solutions to immediate day-to-day problems, researching medical journals to find out what is going on with somebody today. (CNS3)*

> *I have been online and found lots of other information portals and also using 'Google' or something and I use them – it is quicker. (CNS1)*

ACQUISITION OF NEW KNOWLEDGE

Related to the sub-category of access, online learning provided rural nurses with the ability to acquire new knowledge and skills, which was important and valued, as it allowed nurses to keep pace with changes in practice. Several nurses interviewed, who worked at a site that did not currently have a general practitioner felt that it helped them to increase their knowledge in nursing practices in the event that their hospital did get medical coverage or they went to work in a different facility.

> *This online learning really helps in rural areas. I have done things that I would not have done otherwise with online training, which must benefit the organisation because anything that increases my knowledge of dealing with people has got to be a benefit. (RN1)*

> *Because we don't have a doctor, you kind of get stuck in a little rut where you don't go outside the box to learn anything – and this is where online learning comes in. (AIN1)*

CONSISTENT MESSAGE

Another of the sub-theme nurses identified as working well is the consistent message that online learning is able to provide to all staff across HNE LHD. Kruse (2002) identified the ability of online learning to deliver a consistent message that is able to target the specific needs of the organisation. Both nurses and managers appreciated this, especially in regard to mandatory education and saw the value that this has for their practice and for the organisation as a whole.

> *Easier to get a message out to everybody in a prescribed amount of time and ask for cooperation and implementation. (CNS1)*

> *I think it benefits because everyone can access it and get the same information. (EN1)*

FLEXIBILITY

Nurses were very supportive and attached great importance to the flexibility that online learning offered. It was recognised by nurses that their busy and constantly changing work environment means that they are not able to routinely build a time to undertake online learning into their work day, so being able to access the Mylink platform at any time of the day or night, seven days per week increased their satisfaction with online learning. Linked with flexibility, is being able to return to the same program in the future and refresh and relearn subject information. This is supported in other research, for example Kenny (2002) writes that student's satisfaction with an online course was greatly enhanced by learning and educational material being available at any time and not restricted to when a face-to-face session is scheduled or the library open. This sentiment was echoed by participants in this study.

> *It is good in the fact that if you don't get time to do it today, then you can do it tomorrow….. that you can just do it in your own time… so that you know that you don't have to do it totally then. If you only have half an hour, you can always go back to it and there it is. I like that. (NUM1)*

> *I could do it within my own time and I could come back to it whenever I liked and refresh my memory. (EN2)*

COST

The benefit to the organisation in terms of the cost of online learning was recognised by many nurses. Cost benefits became evident related to the organisation, their ward and also themselves. This mirrors what other research around the use of online learning has described. Cost savings as a result of the increased uptake of online learning can relate to nurses travel, accommodation, educator costs, as well time away from the work place and backfilling of their shift (Kruse, 2002; Kenny, 2002; Atack, 2003). The more clinicians adopt online learning to self-direct and self-initiate their own continuing professional development, the cost to the organisation and to nurses themselves for CPD will be reduced (Chang et al, 2008).

> *It is, I guess, not as expensive as sending someone away for a day's training, so there is not that replacement issue. It has its financial advantaging as well as rostering. (NUM1)*

> *I see it as a cost cutter. (CNS1)*

ACCOUNTABILITY

Issues emerging around accountability are linked to meeting organisational goals, access to education and also delivery of a consistent message. At the moment, accountability is closely linked to annual completion of a prescribed series of mandatory modules. The Mylink platform allows managers to monitor their staff's compliance with mandatory education as well as allowing each nurse to keep an electronic record of continuing professional development that they have engaged in. For nurses, this has been further strengthened by recent changes to professional registration.

> *From an organisation point of view it is good for benchmarking and a sort of numbers game so that we can see that 80 people have training in obstetric management or whatever, so there is that accountability nature. (HSM2)*

> *But I think something else is contributing to a lot of people being interested in going online is the fact that AHPRA now requires so many hours or so many points of education and I think that is motivating a lot of people to look at other options to do it. (HSM3)*

> *And there is another reasons too… because it puts another thing on that transcript you print out, it is a good record of what you have done for your registration. (RN1)*

WHAT COULD BE IMPROVED TO MAKE IT WORK EVEN BETTER

Nurses and managers were asked to reflect on what could be done better to increase their satisfaction and engagement with online learning by building on past experiences. Interview participants were asked to consider what online learning would look like if they were able to build a platform that met all their requirements. It is evident that online learning is valued by nurses and that if certain areas where enhanced, their engagement, satisfaction and support of online learning would increase. In this section, several sub-themes emerged: time, access, transference of knowledge and engagement.

TIME

Time to undertake online learning is the major issues that nurses and managers identified as something that could be done better to improve their overall satisfaction and engagement with online learning. In this research and previous research, time is repeatedly mentioned as an obstacle to commencing or completing online learning, combined with a busy work place where there are constant interruptions (Maor & Volet, 2007; Atack, 2003: Scweitzer & Krassa, 2010).

> *As for doing it during the day, getting the time to do it and then you get distractions and you don't get back to it. You start and a buzzer goes and you don't get back. Your train of thought is gone and your interest is lost pretty much. (EN2)*

> *I do have an issue with online learning. I am time poor to do it at work. I find it difficult to do when I am at work. (CNS2)*

Based on the information provided by nurses and managers, issues around time are critical. In nurses own words, it is evident that nurses do not engage with online learning beyond the

requirement of fulfilling mandatory education primarily due to a lack of time. Added to the time pressure is the time taken to access mylink, navigate the system and locate the learning modules. Using AI methodology, nurses and managers were then asked to imagine how the system could be improved. Many nurses and managers were able to identify solutions.

> *Why do we have a time factor, do we not roster people or do we not give people the opportunity to have the training. I think that is it, if you want to find the root cause, managers are not allocating time for people to do it. (HSM2)*

> *Like I said, it would be good to have that time, to have that day. To sit down and do all those modules in one day and you are not stressing about having to get back to the ward in 20 minutes. (AIN1)*

ACCESS

Along with time and also caught up with time, were issues around increasing and improving access in four areas: access to computer, network access, accessing program and access to support. All of these issues around computer access and computer literacy are supported in the literature (Atack, 2003; Kenny, 2002; Atack & Rankin, 2002; Maor & Volet, 2007; Kruse, 2002).

Many nurses reported issues with access to a computer.

> *In the medical ward there are two computers. We have a ward clerk who dominates one and it leaves one computer for seven staff for morning and afternoon – the same computer that is used for looking up results. (NUM1)*

> *It is reliant on a computer that is functioning and I think that sometimes has its downfalls. (CNS2)*

Network access was an issue that really impacted on nurses' satisfaction with online learning.

> *Computers don't work half the time or it goes slow and you can't get back on or it freezes half way through. (AIN1)*

> *I guess if the connection is slow, so that affects the time it takes, how long you have to wait. You either stop or you wait. Usually you stop. (RN2)*

Nurses also expressed their frustration with finding or accessing programs on mylink and this has a direct impact on commencing and completing modules or learning programs.

> *I don't find it user friendly. Sometimes it is just getting it up on the computer can be difficult. You think it is going to be easy and you try to access your way through the online thing and you think 'well I have run out of time just trying to get onto that site'. (RN2)*

> *Once I am logged in, why should I have to have another lot of passwords, why can't I just click on this. Take resus for kids, have never done that even though I want to because I struggle to get into that particular Edmore program and in the end I have given up.   Doesn't mean that I don't want to do it, just means that when I had time I couldn't actually get in. (RN1)*

> *I just find it frustrating. When you know you want to do something and you can't find it. (NUM1)*

Many nurses indicated that they were not computer literate and also found it difficult to access support. Confidence with the use of computers and computer skills also affected nurses' ability to access programs and as a result their satisfaction with online learning. Nurses' self-confidence was affected by a lack of computer skills and the subsequent difficulties that they had in accessing programs.

> *Only the ability to navigate the computer….when you are reasonably illiterate with computers, which is the biggest problem I have, and I think 'Why is this so hard'. (RN1)*

> *Then I feel…. disheartened. Everyone says it is so easy, well why is it so hard for me. (EN2)*

> *Some are hideous to get access into and to access support to get you on there is further more hideous in rural and remote. (CNS1)*

Computer confidence could also be linked with needs of older nurses (64% of nurses in this research were over the age of 50) and how their educational needs may be different to younger nurses, especially in regard to accessing CPD online.   This is also reflected in the literature, studies have shown that older workers report that they often needed more time and support to complete online training (Pool et al, 2013; Maor & Volet, 2007).

> *They can be quite skilled clinicians but they haven't got the computer skills that somebody that has come out of school, high school or uni have, so there is varying degrees of skill in how to navigate the different programs and I think that [age] is a big limitation for some people (HSM3)*

> *I think the older generation, that haven't been born and bred with computers is a limitation. (HSM2)*

> *Sometimes accessing different things is not always easy if you are not that way inclined, especially for us older generation. (CNS2)*

Again, interview participants were asked to put their vision for providing more support to overcome their issues around access.

> *Is there someone magically sitting out there who comes up and says to people, 'come here and I will show you how to use mylink'. (RN1)*

> *Somebody to sort out problems, my main issue with it, and you call up and say 'there is a glitch' and they say 'no there is not'; and I say ' well I am currently sitting here and there are three people talking over the top each other' but nothing is done to fix it. (EN1)*

> *Sometimes just an easy link, or an explanation on the front page or something to advise people how to navigate. (HSM3)*

Nurses also imagined a system that did not require multiple passwords in order to access online learning. The need to enter the same password multiple times or to have multiple passwords is

something that causes huge frustration and has a direct impact on satisfaction and engagement with online learning.

> I don't see why, once I am logged into the computer with my name and password, why I need more names and more numbers to get into the different systems. (RN1)

Nurses and managers both suggested that part of increasing use of online learning includes increasing the number of computer terminals that nurses have access to. This could be even further enhanced if nurses were able to use a computer that was situated away from the busy ward environment.

> And another thing, we don't have enough outlets for people as well. (HSM3)

> There is nothing worse than sitting there in front of the computer going through all this stuff, that needs your 100% attention and you have got things happening around you. (CNS2)

Many nurses felt that their satisfaction to online learning would be increased, as well their learning enhanced, if access to the internet was more widely available. Many links to sites were blocked and this causes frustration.

> And not everybody has access to the internet and I see that as quite restrictive. The internet as far as hospitals go, there is plenty of blocks to stop you getting off into things you shouldn't be looking at at work, which is fair enough. But to actually be able to get on and google all sorts of medical information is information and learning. (CNS1)

> Yes, some sites are blocked and this restricts access to information quickly. (CNS3)

Nurses and managers identified that their use of online learning could be improved if they were told what was available and where to access it on Mylink. Many of the nurses interviewed were not aware of the amount or variety of modules that were available but were also able to suggest how their awareness could be raised.

> I think for me it is around promoting what is available to people. I don't think we do that very well at the moment. (HSM2)

> If it was promoted and you know, then it becomes another resource to you which you know about. After a while you start to use it as part of your natural method of learning.....pop one [module] up on the home page, like falls, every now and then. Make it a point to put a new one on each month. (CNS3)

> A bit like we have policy, procedure and guidelines at the moment. You can type in something and then it comes up, the whole list, and you can click on it and open the one you want. (RN1)

TRANSFERENCE OF KNOWLEDGE

While many staff praised online learning for giving them access to a range of learning opportunities, there are also concerns about how well new knowledge is transferred into practice and following on from that, how this affects standards of care. Caught up in this theme are nurses and managers

concerns about how well online learning can be used to gain new skills or to assess competency. Nurses and managers also expressed concern that online learning may not always provide all the necessary skills or knowledge and they were concerned about this in regard to their own practice as well as the broader nursing community.   Program completion might not be the ideal way to get an indication that the online learning experience has been effective or that completion of the module has resulted in any new knowledge or skills (Farrell; 2006).

> *You can say I have completed this here is my certificate, but how much do you know they have understood and that leads to our standards of service. How are our standards of service going to be maintained if that understanding, that online understanding is not there? (HSM1)*

> *So you know, it is alright to teach people to do things on computers, but you need the practice and the experience to see things. And this is going to be the downfall of nursing and hospitals if people are left to do things that they should not be doing. (RN1)*

> *But at the end of it I never really knew if I was competent.   I did the quiz, I got the print out to say that I had completed it but am I competent? I don't know. (NUM1)*

However, nurses also saw the link between completion of online learning and related competency assessment as an indicator that they are remaining current in their knowledge and skills.

> *Things are constantly changing and in ED we have competencies that we have to do every year. (CNS2)*

Nurses indicated that transference of knowledge was also affected by module design and how engaging the module was.   This theme will be further explored in the following section.

> *I must say some of them are boring, it is very easy, especially if you are doing these things on night shift to sit there and think 'gee I wonder what those last few pages were about because at the moment I am making a shopping list about what I need to do when I get home tomorrow morning. (RN1)*

> *It is boring as can be, so who is to say that I am actually listening, who's to say that I am not doing something else at the same time, so you really can't guarantee full focus on these programs. (HSM1)*

Nurses were also concerned about how often the information contained in the modules was updated and reflected current evidenced based practice and this was linked to standards of care.

> *Keeping up with current practice, that could be debatable. Depends on how often the program is assessed and updated. Many have been the same for years. So the argument for keeping up to date is not very strong. (CNS3)*

Caught up in transference of knowledge are nurses' feelings that online learning did not currently provide a way for them to engage in further discussion and obtain feedback to get clarity around any questions they may have or even where they could go to get further information. Many nurses saw this as a huge drawback of online learning and this was one of the main reasons why many nurses

continued to have a preference for face-to-face learning. The isolation and solitary nature of online learning has also been described in literature (Brunero & Lamont, 2010; Farrell, 2006; Kruse, 2002).

> *As I say it is limited if you have questions you can't always find all the answers or get feedback. So given the chance I would still choose face-to-face unfortunately. (RN2)*

> *It is just those little questions that can't be answered online. Whether it is personal questions or anything like that, getting the gist of it is difficult online. (AIN1)*

> *I don't think online learning can provide clarity when clarity is needed. Sometime you need to discuss and what is good for me and what I might understand on a computer, others might not. (HSM1)*

Nurses and managers were asked to suggest how online learning could be improved to increase the transference of knowledge and make the online environment more aligned to the learning needs of clinicians in rural settings. Many of the comments related to ways to overcome the isolated nature of online learning, increase interaction and also direct learners to further information via links or articles.

> *I guess if you had at the end of the online learning, you could have an open forum, an email maybe if students have a question so that they can throw it to someone and get a reply back. As I said, interaction or something. (RN2)*

> *If I could ask it [the computer] a question and it could talk back to me that would be great. (AIN1)*

> *There are a few things that could be done. You could have a day's education, you could have a computer lab set up somewhere central and nurses were actually allocated the time to go and I am thinking a central place now. Perhaps they could have an educator there to answer any questions that they might have around those topics as they are completing them online. (HSM1)*

> *It would be good to be able to cross reference. Quite often you will find information is presented on a subject that in a certain context that doesn't quite apply to your immediate situation. Where if you have another few things to look at you can pick the eyes out of it and put ideas together and be a bit innovative that way as well. (CNS3)*

Nurses also suggested that in order to improve or enhance the link between completion of online learning and clinical practice there could be a need for nurses to demonstrate that certain learning had been undertaken in the particular field you were working in.   Nurses also identified that having different levels of education, depending on your clinical experience would also support ongoing professional development. Nurses felt that having a tiered approach would mean that they could better match their CPD requirements to their level of experience or knowledge in a particular subject.

> *How do we motivate people, I think that your right to practice in certain areas should be withdrawn until you have completed whatever the prescribed learning is and you can practically demonstrate that you have got that learning done.   (CNS1)*

So if you have done it before, or if you have never done it before, you complete a certain module. The next year, a few questions or something, and if you know it and you get them right that is good, if not, go back to the first module. (AIN3)

If it was a new topic that you knew nothing about, you would have to start from the beginning. But if it is a refresher, then I would rather dive right in. (AIN2)

ENGAGEMENT

How engaged nurses are with online learning is woven into how much time they have to undertake online learning, their interest in the subject (and undertaking CPD online), computer access and literacy, motivation to undertake online learning and the design of the module. Module design was seen as important to maintain user interest. Nurses had preferences for different styles of modules depending on their learning style and the module subject. Nurses also wanted to be able to access links to other sites where they can find further information about a topic.

I also think that possibly with online learning, allowing for some of it not to be so much online. To be able to print stuff to read elsewhere, and then to be able to go to the next tier. (EN1)

I like the ones with a range of different things. You are reading, you also listen to it, see the video or a scenario – actually put yourself in there. (AIN3)

Probably the little videos do work. Something that has an auditory component, in other words there is somebody speaking to you. And things that have, OK you have learnt that module, here is the test and the test has to be an academic challenge. Right, now we will move onto the next bit. That works well. (CNS1)

It is apparent from the interviews that module design is integral to nurses' engagement and satisfaction with online learning, and following on from that, how much they learn. When asked, nurses were able to describe factors relating to content delivery that would appeal to them.

Where you are interacting with the program, where you type something, something that keeps you active and interested and where you got feedback. (EN2)

I think it would be good to have the computer lab set up I mentioned earlier and then maybe the computer would be better embraced, the programs would be embraced better if there was that system, maybe people would look forward to attending those days. (HSM1)

I think you need to be involved, click on things and move things and there has to be feedback. (RN1)

The tone of person, the quality and size of the production – they have to be of good quality. They have to be clinically relevant and concise….within the scope of practice that we are allowed to practice. I don't just want to know it is black and white, I want to know why it is black and white. I think that there should be different levels, start-up, intermediate and advanced. And I think you should have to do the start-up to get the intermediate to get to the advanced. (CNS1)

Nurses were also able to identify the need to form closer ties between online learning and face-to-face delivery. Many nurses saw that by having online and face-to-face complement each other it would further increase uptake and utilisation.

> *I think that online learning is well used when there is an online learning component before you go attend the face-to-face component. (CNS1)*

> *Online learning helps you with preparation before doing the face-to-face. (RN2)*

DISCUSSION

The aim of the study originally, was to determine if completion of the online learning modules, *Principles of Enablement Nursing,* resulted in a positive change in knowledge and practice in nurses. The study was not able to demonstrate this initial aim. What the study did demonstrate, is that nurses at a number of rural sites across HNE LHD do not utilise online learning to undertake continuing professional development to any significant degree beyond completing those modules that are required to meet annual mandatory requirements.

In order to increase nurses' utilisation, engagement and satisfaction with online learning there is a need to be a focus on the expressed needs of nurses.

The benefits of online learning are widely recognised, both in the literature and by the nurses and managers who participated in this research. Online learning, for rural nurses, is seen as the way to overcome the lack of opportunities for accessing continuing professional development. Online learning provides access to information that would not otherwise have been available to nurses in rural areas and this is appreciated and acknowledged. As stated above, there is a strong association amongst nurses between online learning and completion of modules required to meet annual mandatory education requirements. When managers talked about supporting nurses to undertake online learning they are relating their support to ensuring that nurses complete mandatory education to meet reporting and accreditation requirements. Support for completion of online learning varies from facility to facility, but usually includes allocating time to complete the training, monitoring of completion rates and follow-up with nurses who have not completed the set modules in the necessary time frame.

Access to the programs 24 hours a day is very much appreciated by nurses and is seen as critical to enabling them to undertake online learning at a time that suits them. However, it is evident from the lack of engagement with the online component of this research and also nurses' own words, that most nurses do not engage with online learning beyond the requirement of fulfilling mandatory education, primarily due to a lack of time. While most nurses have access to one or more computers, these computers are usually in a busy ward environment.

The research also demonstrates that across three sites, there is varying degrees of confidence in the use of computers and this has a direct impact on how staff view and engage with online learning. Compounding this are the issues that many nurses and managers expressed about the lack of access to computer terminals and the reliability of the network. Users of online learning talked about their frustration with unreliable intranet connections, slow download speeds, system freezing or being offline. The research also highlighted the difficulties that nurses and managers have in accessing

Mylink and navigating the system in order to find the modules. Overwhelming, the need to enter a password multiple times or have multiple passwords causes frustration and is a major contributor to nurses not starting or finishing modules. Nurses were not aware of the vast array of learning that is currently available on Mylink. A lack of access to support or help if they experienced problems accessing a module increases their dissatisfaction and raised negative feeling and self-doubt amongst some nurses.

Following this research, it is clear to the researcher that online learning for continuing professional development has not been widely accepted or utilised by nurses, beyond undertaking mandatory education. Nursing is based around personal interactions with our patients and our colleagues. Online learning, as it currently exists in HNE LHD, does not provide nurses with any opportunity to interact with peers or ask questions or reflect on what they have just seen or heard and how the subject may relate to their practice. Because of this, provision of CPD online lacks validity for many nurses which in turn, raise concerns with nurses about maintenance of professional standards. Many of these concerns stem from how online learning is currently used, supported and promoted within HNE LHD. Nurses question the value of the modules currently available and therefore, influenced by their own experiences related to ease of access and module design, do not actively seek participation in online learning.

RECOMMENDATIONS

In order to increase nurses' engagement and satisfaction with Mylink, the following recommendations are made. None of the recommendations would be effective if they were implemented in isolation. The recommendations are:

1. **Provide nurses with time to undertake online learning during their working hours**.
   Support (by scheduling of dedicated time) is currently only provided for nurses to complete the requirement of mandatory education. In order for online learning to become accepted by nurses, managers must be able to provide nurses with time to complete online learning during their allocated shift or if attended afterhours, recompensed in some other way.

2. **Provide nurses with a dedicated space to undertake online learning that is away from the ward environment.**
   It is not reasonable to expect that effective learning can take place in a busy ward office, however many nurses do not have access to a computer that is in an environment conducive to learning.

3. **Provide a clearer pathway for accessing the Mylink platform**
   Instructions on how to access Mylink from the HNE LHD intranet homepage should be developed. Ideally, the instructions would include diagrams and screen shots of each individual step. This instruction sheet would need a prominent place on the HNE intranet homepage in order to be easily accessed by nurses.

   Support must also be given to all nurses but especially those who do not have confidence in their computer skills in order to overcome negative feeling toward online learning, but more importantly, feelings of self-doubt and frustration about their own abilities.

4. **Reduce or streamline password requirement**
   Including reviewing the number of times a password is required to gain access to the modules which are on the Mylink site or which are accessed from the Mylink site. Several external sites which provide online learning, accessed from Mylink, require a different username and password.

5. **Promote online learning beyond mandatory requirements**
   Nurses' participation in online learning is currently related to the completion of online learning for mandatory requirement. In order to increase participation rates and to strengthen the link between completion of online learning and clinical practice, thought should be given to increasing accountability on behalf of the nurse to demonstrate that there has been recent active learning in the areas in which she or he works, this could be done through the annual Professional Development Review process.

   There needs to be an easy way for nurses to find out what modules are available and where on Mylink the module is located. This may include promotion in HNE LHD Newsletters, via group email or on the HNE intranet home page.

6. **Provide support to developers and designers of education modules to assist in the production of online learning modules that are better able to meet the needs of all users.**
   Support must be provided to be those clinicians who are developing, or who have developed, online learning modules related to their particular field to assist in the production of learning modules that are of high quality, interactive and that also provide a mechanism for meaningful feedback.

   Support should include assistance with writing, designing, recording and editing modules. Each module should provide information regarding CPD points required for professional registration and there must be a process to assign CPD points. There should be a mechanism whereby the content of modules is reviewed and updated on a regular basis (time frame would depend on content).

7. **Increase the range of education styles and options for online learners**
   To make online learning meet the needs of all learners, there must be capacity for users to have access to further information which they can print off and also the option to go to other websites where they can further explore the topic.

   To make the modules relevant to clinical practice, modules should contain a video or scenario which includes the user as part of the process. This could include students (users) having to answer questions or reflect on decisions or actions that may be happening in the scenario. A tiered approach to learning would progress in complexity of information or depth of knowledge through each tier. In order to increase validity for users, knowledge tests that are part of online learning modules should challenge students to reflect on what they have learnt to demonstrate understanding.

REFERENCE LIST

Arbaugh, J. (2000). Virtual classroom versus physical classroom: An exploratory comparison of class discussion patterns and student learning in an asynchronous Internet-based MBA course. *Journal of Management Education, 24*(2), 207-227.

Atack, L. (2003). Becoming a web-based learner: registered nurses' experiences. *Journal of Advanced Nursing, 44*(3), 297.

Atack, L., & Rankin, J. (2002). A descriptive study of registered nurses' experiences with web-based learning. *Journal of Advanced Nursing, 40*(4), 457 - 465.

Australian Bureau of Statistics. (2008). *A Profile of Carers in Australia*.

Australian Health Ministers' Advisory Council. (2004). *Best practice approaches to prevent functional decline in the older person across the acute, sub-acute and residentail aged care services*.

Banks, G., & Togno, J. (1999). *Telehealth in Australia: Equitable Health Care for Older People in Rural and Remote Australia.* Paper presented at the 5th National Rural Health Conference, Adelaide, SA, Australia.

Beckman, D., Schoonhoven, L., Boucque, H., Van Maele, G., & Defloor, T. (2008). Pressure ulcers: e-learning to improve classification by nurses and nursing students. *Journal of Clinical Nursing, 17*, 1697-1707.

Brunero, S., & Lamont, S. (2010). The 'difficult' nurse-patient relationship: Development and evaluation of an e-learning package. *Contemporary Nurse, 35*(2), 136 - 146.

Chang, W.-Y., Hsiao Sheen, S.-T., Chang, P.-C., & Lee, P.-H. (2008). Developing an e-learning education programme for staff nurses: Processes and outcomes. *Nurse Education Today, 28*, 821 - 828.

Childs, S., Blenkinsopp, E., Hall, A., & Walton, G. (2005). Effective e-learning for health professionals and students - barriers and their solutions. A Systemic review of the literature - finding from the HeXL project. *Health Information and Libraries Journal, 22*(2 (supplemental)), 20 - 32.

Chumley-Jones, H., Dobbie, A., & Alford, C. (2002). Web-based Learning: Sound Educational Method or Hype? *Academic Medicine, 77*(10), 86-93.

Clark, D. (1999). Getting results with distance education. *The American Journal of Distance Education, 12*(1), 38-51.

Creditor, M. (1993). Hazards of Hospitalisation of the Elderly. *American College of Physicians, 118*, 219 - 233.

Farrell, M. (2006). Learning differently: e-learning in nurse education. *Nursing Management, 13*(6), 14-17.

Graf, C. (2006). Functional Decline in Hospitalised Older People,. *American Journal of Nursing, 106,*(1), 58 - 67.

Hunter New England Area Health Service. (2010). *Draft Hunter New England Telehealth Clinical Strategy 2010 - 2014*. Newcastle, NSW, Australia: Hunter New England Area Health Service.

Kenny, A. (2002). Online learning: enhancing nurse education? *Journal of Advanced Nursing, 28*(2), 127 - 135.

Kruse, K. (2002). Beginner Basics: The Benefits and Drawbacks of e-Learning. http://e-learningguru.com

Ludema, J., & Fry, R. (2009). The Practice of Appreciative Inquiry. In P. Reason & H. Bradbury (Eds.), *The SAGE Handbook of Action Research: Participative Inquiry and Practice* (Vol. Second Edition, pp. 280 - 295). London: SAGE Publications Ltd.

Maor, D., & Volet, S. (2007). Engagement in Professional Online Learning: A Situative Analysis of Media Professionals Who Did Not Make It. *International Journal on E-Learning, 6*(1), 95 - 117.

McDonald, D., Bammer, G., & Deane, P. (2009). *Research Integration Using Dialogue Methods*. Canberra: ANU E-Press.

Neuhauser, C. (2002). Learning Style and Effectiveness of Online and Face-to-Face Instruction. *The American Journal of Distance Education, 16*(2), 99-113.

Nursing and Midwifery Board of Australia. (2010). Continuing professional development registration standard. Australia: Nursing and Midwifery Board of Australia.

Pawlyn, J. (2011). The use of e-learning in continuing professional development. *Learning Disabilty Practice, 15*(1), 33 - 37.

Pool, I., Poell, R., & Cate, O. (2013). Nurses' and Managers' perceptions of continuing professional development for older and younger nurses: A focus group study. *International Journal of Nursing Studies, 50*, 34 - 43.

Schofield, D., & Earnest, A. (2006). Demographic change and the future demand for public hospital care in Australia, 2005 - 2050. *Australian Health Review, 30*(4), 507 - 515.

Schweitzer, D., & Krassa, T. (2010). Deterrents to Nurses' Participation in Continuing Professional Development: An Intergrative Literature Review. *The Journal of Continuing Education in Nursing, 41*(10), 441 - 447.

Sullivan Haven, D., Woods, S., & Leeman, J. (2006). Improving Nursing Practice and Patient: Building Capacity With Appreciative Inquiry. *Journal of Nursing Administration, 36*(10), 463 - 470.

Trajkovski, S., Schmied, V., & Jackson, D. (2013). Implementing the 4D cycle of appreciative inquiry in health care: a methodological review. *Journal of Advanced Nursing, 69*(6), 1224 - 1234.

Wakefield, B., & Holman, J. (2007). Functional Trajectories Associated with Hospitalisation in Older Adults. *Western Journal of Nursing Research, 29*(2), 161 - 177.

Young, K. (2003). Using e-learning to liberate the talents of nurses. *Industrial and Commercial Training, 35*(4), 137 - 141.

Zandee, D., & Cooperrider, D. (2009). Appreciable Worlds, Inspired Inquiry. In P. Reason & H. Bradbury (Eds.), *The SAGE Handbook of Action Research: Participative Inquiry and Practice* (Vol. Second Edition, pp. 190 - 196). London: SAGE Publications Ltd.

LIST OF APPENDICES

Appendix 1	Map of Hunter New England Local Health District
Appendix 2	Randomised Control Trial documentation
Appendix 3	Stratification and Randomisation flowhcart
Appendix 4	Information letter – Managers
Appendix 5	Manager consent form
Appendix 6	Participant information letter
Appendix 7	Interview questions – Manager
Appendix 8	Interview questions – nurse
Appendix 9	Coding table