USING MOBILE DEVICES TO IMPROVE POSTGRADUATE NURSES’ ACCESS TO LEARNING

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Abstract

This paper describes a research project that was conducted in Australia to discover the most beneficial methods for using mobile learning in postgraduate nursing education. Classic grounded theory methods were used to develop a theory titled ‘Economising learning: how nurses learn with limited resources.’ It found that mobile technologies assisted nurses with continuing learning by requiring fewer of their personal resources such as time and money, therefore enabling the nurse to undertake more learning.

Interestingly nurses did not view mobile learning as being distinct; rather they used mobile devices namely smartphones and tablets to interact with information they could otherwise have accessed on a computer. In taking a pragmatic approach to how best use mobile devices to facilitate learning in the post-graduate arena, mobile technologies saved the student time and money when used as an alternative to stationary devices. The convenience of mobile devices could, therefore, be leveraged for postgraduate learning. That is not to say that the specific affordances of mobile technologies do not have benefit, but the convenience of mobile technologies was the main benefit to the post-graduate nurse.

Nurses continued to learn regardless of whether they accessed formal learning. One way a nurse learned was through accessing information about specific patient needs throughout their work day. Most commonly, nurses accessed information about medications using their mobile device. Accessing medication information in this way saved the nurse time as compared to accessing either paper-based information or a computer away from the bedside, or more concerningly, not accessing information due to time restraints. Mobile devices allowed nurses to access information about procedures or particular conditions that arose throughout the day quickly. The nurses accessed the information mostly to gain reassurance that their existing knowledge was correct rather than to rectify a knowledge deficit. This knowledge checking enabled the nurse to ensure best practice.

Email was often used to send information to nurses. Nurses reported that they accessed this information via their mobile device and sifted the information to determine if it was valuable to their clinical area or should be discarded. They determined the value using their personal clinical experience, and according to the respect they held for the person sending the information. They sorted the information according to when they could access it and how they wanted to interact with it.

When nurses accessed formal learning, mobile devices allowed the nurse to minimize the impact of learning on their personal lives. Nurses reported downloading their learning before traveling and engaged with that learning while en route to work. They accessed course materials in time that was usually wasted while waiting for children's activities or appointments. Nurses also interacted with learning by listening to podcasts while doing household chores or exercising.

The findings of this research should be used to increase the nurse’s ability to access and engage with postgraduate learning using mobile devices and other strategies.

1 INTRODUCTION

Over recent years, it has become increasingly difficult for nurse educators to access nurses for education during work hours, and difficult to have nurses released to attend education due to staffing deficits [1]. It was, therefore, necessary to search for alternative methods of educating nurses other than face-to-face, that would enable nurses to access education when and where it was needed. Mobile learning is one strategy that could be leveraged to improve access to education for nurses. It was necessary, however, to explore the readiness of nurses to engage with mobile learning. This research utilised classic grounded theory methods to discover from nurses, their use of mobile devices in their private and professional lives together with the drivers and inhibitors of continuing learning. Nurses within the research identified multiple barriers to continuing learning that were impacted by the
use of mobile devices; namely time, cost and connectivity. Interestingly, the nurses did not distinguish mobile learning from other learning undertaken on a computer. The use of mobile applications (‘apps’) was the one affordance that was used by many within the participant group to both undertake learning activities and gain information for practice at the bedside. Internet connectivity was a barrier in some instances with some nurses not connected at home or having intermittent internet access. When nurses could download materials to save on their device or had consistent access to the internet, they were able to save both personal time and costs associated with learning. Nurses used multiple methods to overcome barriers to learning through using mobile devices both with and without an internet connection.

2 METHODOLOGY

A classic grounded theory approach was taken to discover beliefs from nurses about the use of mobile devices in continuing learning. Nurses were interviewed across five states within Australia with the main focus located in Queensland. Participants were registered nurses who had current registration with the Australian Health Practitioner Regulation Agency (APHRA). Ethics approval was granted by the University of Southern Queensland (H13REA054) and the hospital groups involved in the research (HREC/13/QTDD/144 & HREC#13/05). There were 27 participants of who 24 were women and three men from private and public run hospitals in metropolitan, regional, rural and remote areas. Participants were recruited through approaching hospitals and advertising for participants, through direct invitation, or via the post-graduate courses they were enrolled in at the University of Southern Queensland. Interviews were conducted in a location suitable to the participant via, face-to-face, Skype, and telephone. Field notes were taken throughout the interview, and reflective listening used to ensure the participants’ views were understood. The analysis of interview data was conducted using classic grounded theory methods resulting in the development of the theory of Economising Learning: How nurses maintain competence with limited resources. This theory is explored in greater detail in other publications.

3 RESULTS

There are numerous definitions of mobile learning which are often either highly exclusive, by only allowing specific devices, or overly inclusive by classifying many e-learning activities [2]. The definition used in this study was “the processes (both personal and public) of coming to know through exploration and conversation across multiple contexts amongst people and interactive technologies” p.225 [3]. A definition, however, meant nothing to the participants. The nurses within this research identified mobile learning as using mobile devices essentially in the same way as a computer. Participants expected to be able to access information via the internet, and interact with learning in a similar way to when using a stationary computer. Even so, mobile applications were identified as being unique to mobile devices. No other affordance of mobile technology was specifically identified as being leveraged. Nurses would swap between a mobile device and personal computer depending on what best suited them at the time and in what context. Therefore, there was not a clear distinction between what was mobile learning and what was eLearning.

It was important in this research to identify nurses’ current use of mobile devices, both in their personal and work lives, as well as the drivers and inhibitors to accessing learning. This knowledge allows educators to introduce mobile learning at a level that nurses are comfortable with and that will positively impact on their access to learning. Participants in this research identified multiple barriers to undertaking postgraduate learning. These barriers included lack of time, lack of finances and lack of stable internet connection. When nurses faced these, they re-evaluated their need for learning and only when their need or drive for further learning overcame the pressure of their limited resources, did they undertake further learning. These multiple barriers have been identified in other research, however, here nurses identified strategies to overcome the barriers while limiting their impact on the nurse’s personal life.

It has been found that heavy workloads, and insufficient staff or staff with insufficient or inappropriate skills, means that nurses were unable to undertake learning within work hours [4]. This means that nurses need to undertake learning in their personal time [5, 6]. Various researchers have explored where nurses will find time within their personal lives to undertake learning. Dowswell and colleagues [5] found that undertaking learning was often to the detriment of the nurses’ families; as a result, participants with families were less likely to view continuing education in a positive light. The authors proposed that if staff needed to attend training in their own time or fund it themselves, a large

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proportion of the workforce would be disadvantaged. These findings contrasted with Thoidis and Pnevmatikos [6] who found that rather than taking time away from other activities, nurses used their personal leisure time for learning.

Although learning is rarely undertaken within work hours [5, 6], many nurses view continuing professional development as a shared responsibility [1, 6]. Learning activities that people undertook during their free time were activities that they considered to be important to their well-being. Participating in learning during their free time also impacted on the availability of that time to be used for other leisure activities [6].

Findings from this research indicate that the use of mobile devices gave nurses additional time and therefore, reduced the impact on the nurse's personal life due to the ability to access learning when and where it suited them. The literature does not clearly articulate how people save time during learning by using mobile technology or eLearning. It does, however, show across multiple articles that mobile learning allows people to learn anytime and in any place and therefore allows people greater access to learning resources [7-9].

Nurses in this research made time available for learning through essentially two methods. Nurses 'caught time' within their lives by undertaking to learn at times that they would otherwise not use productively. The strategy of catching time included engaging with learning while waiting for family or appointments or learning within small amounts of time captured during the work day. The nurses multitasked by undertaking learning while they were traveling by public transport to work, where they were able to read or watch downloaded videos. Podcasts were found to be very versatile for multitasking with nurses listening to podcasts while exercising, traveling or undertaking tasks at home. It would, therefore, be valuable to tailor learning packages to being used in these circumstances.

With nurses indicating that cost of learning is a barrier, it is important to discuss the cost of learning in Australia. Ross, Barr and Stevens [10] reported that nurses in Australia spent on average $AUD30 per hour of learning. With 20 hours of learning required for registration as a registered nurse each year, this indicates that each nurse would need to spend $AUD600 per year for learning. Included in this average is mandatory training that is usually provided by the employer and would not have a cost associated with it for the nurse, making the actual cost of learning far greater than the average indicated. Continuing education is, therefore, a multi-million dollar industry with many companies providing continuing professional development as an adjunct to their core business or as their core business. Continuing learning has differing costs depending on the mode of delivery. Costs associated with face-to-face learning as a rule far outweigh that of eLearning [10]. The costs related to face-to-face learning are also greater with nurses needing to include the costs of parking, travel, accommodation, and child minding. Additionally, an added barrier was the costs to the organisation of staff being released to attend face-to-face learning [10].

Connectivity was both a driver and a barrier to learning. Nurses who had a reliable connection to the internet reported saving time and costs, whereas lack of connection to the internet was a barrier to learning. The available connectivity depended on the learning environment in which the nurse was located at the time. Learning environments varied from the hospital to home and anywhere in between. In the clinical area, mobile devices were chosen to quickly access information on the run, whereas desktop computers were chosen if the nurse was going to spend time undertaking more lengthy or involved learning. However, access to computers was an issue identified by most nurses in the workplace. Computers were shared with other health professionals and therefore, were not always available to the nurse for learning. The hospitals within the study had paper-based health records. Therefore, the number of computers available may improve as the hospitals within Australia become digitalised. When not in the workplace or home environment, nurses used mobile devices for learning. In this circumstance, they were not always connected to the internet and therefore needed the learning materials to be downloadable to the device.

Accessing information via the internet afforded nurses the opportunity to target the knowledge they required and be the authors of their learning experience. By nurses taking advantage of free medical sites and databases, they can negate some of the barriers to learning, including financial and demands on personal time. It is, therefore, necessary for nurses to have an awareness of the many government-based and university-based sites that are considered to be more evidence-based. This knowledge could be introduced in nursing schools [11].

Being connected via a mobile device in the workplace enabled nurses to save time accessing information. Nurses used their mobile phones to search for information on drugs or to check on best practice, therefore, accessing information when and where it was needed. Nurses explained that if
they were not able to use their mobile device in this manner, they needed to access information through paper-based sources, via a limited number of computers or take advice from other colleagues. These strategies cost the nurses time in their work day and meant that they were not always able to access evidence-based information to inform their practice. As the information is directly applied to patient care in a busy environment, the nurse needs to ensure that the information is from a reliable source. Nurses in specialty areas identified websites that were reliable for their particular field of practice and were referred to regularly, however, in the more generalist areas, consistent sites were not identified. Workplace managers could take an active role in identifying and promoting websites and mobile applications to staff, thereby having some influence over the sites where nurses gain knowledge. These benefits have been demonstrated in other research.

Research conducted in Canada with pharmacists, nurses, and physicians, demonstrated the benefits when staff was given access to a recommended online resource. The site was selected as it provided evidence-based treatment recommendations, which had been authored and reviewed by Canadian medical experts and were widely used by family physicians and pharmacists. It was continuously updated and published by a not-for-profit professional organisation [12]. All participants in the research believed that the information from the site was relevant to their needs. The participants stated that they learned something new from the information, were reminded of things they had forgotten or were otherwise reassured by the information. The site also had some influence on the management of patients and in patient outcomes [12].

Connections within the workplace also impacted on reducing barriers to learning. When nurses were emailed links to learning opportunities by other staff, it meant that they did not need to search for the learning opportunity thereby saving the nurse time. Emails from respected colleagues within the work area were more likely to be used by the participants as they believed the information would be both relevant to their work area and from a reliable source.

4 CONCLUSIONS

Time and financial constraints are unlikely to resolve as nurses are required to work smarter to cope with increased demand. Therefore, the findings from this research should equip managers with the knowledge to reduce the quantity of time and money being contributed to learning by registered nurses and increase the efficiency of learning opportunities.

As nurses were using mobile devices to access learning via the internet, the learning should be mobile friendly. Meaning that the learning should be readily visible on a mobile device and the ability to be used with multiple mobile operating systems. This research identified that nurses are not always connected to the internet when they are using mobile devices for learning or that the connectivity can be intermittent. Learning opportunities, therefore, need to be downloadable to enable the nurse to take the learning and interact with it at a time and location that is suitable to them. Downloadable learning packages also allow a nurse with intermittent internet connection to download the package at a time when the internet is more reliable. Learning needs to be maintained and further developed in undergraduate nursing courses to enable nurses to seek out internet sites that are reputable in order to inform practice. This learning also needs to be continually revisited in the work environment to ensure nurses are using best practice. Workplaces endorsing and promoting particular websites and databases will assist nurses in this decision making.

Mobile technologies are valuable for nurses as they enable them to increase their access to continuing learning; building on how nurses are already using the technologies in their personal lives. The current usage patterns of nurses demonstrate that there is great promise for leveraging the additional affordances of mobile technologies to both increase access to and the quality of learning opportunities for continuing learning.

REFERENCES


