

Virtual classroom technology: facilitating distance education nurses' knowledge of systematic literature searching

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Online learning environments are increasingly viewed as a valid and beneficial means of facilitating learning in the higher education setting. Blackboard Collaborate is an online collaborative learning (OCL) technology that can be used as a virtual classroom in the distance education setting to facilitate knowledge of systematic literature searching. The technology allows for learning pedagogical principles that encourage collaborative engagement. The authors discuss how they developed and delivered instruction on systematic database searching for health literature to distance education nursing Masters' students. An online self-reporting survey was administered to determine student knowledge, and to gauge student experience of using this technology.

Keywords: Online Collaborative Learning, e-learning, distance education, virtual classroom, blended learning

Introduction

Since the late 1990s there has been increasing acceptance and adoption of online technology in the higher education setting. Online learning environments are increasingly viewed as a valid and beneficial means of facilitating learning (Basioudis & de Lange, 2009; Beckem & Watkins, 2012), and provide flexible learning opportunities to the 21st century student (Harasim, 2012). In Australia, mature-aged students (adult learners) comprise a significant proportion of the higher education sector (Tones, Fraser, Elder, & White, 2009). To address their 'time-poor' circumstances (Stone & O'Shea, 2013) students are increasingly seeking out time-efficient and flexible modes of learning (Kenny, Kidd, Nankervis, & Connell, 2011). The literature highlights successful programs using virtual classroom technology in the distance education environment (Carbonara, 2005; Quinn, Regan, & Schoech, 2008; Reeves, Herrington, & Oliver, 2004) and in particular, for nursing students (Bigony, 2010; Bourbonnais, Langford, & Giannantonio, 2008).

In response to the challenge of providing synergy between learning pedagogies and the online learning environment, current debate centres on a need to either create new models of learning that better align with online technology (Harasim, 2012), or adapt existing learning pedagogies to online technologies (Beetham & Sharpe, 2013). While a consensus is yet to be reached, emerging literature suggests it may not be necessary to develop new learning theories for use in the online learning environment. Instead, what is required is an understanding of what online technology offers to students and determining how learning pedagogies can best maximise learning via this medium. However, creating customised online learning environments based on appropriate learning pedagogies remains a major challenge (Harasim, 2012), with educators striving to provide a close alignment between the learning pedagogy, intended learning outcomes, and the online technology. For adult learners, online environments that enable them to understand and integrate task requirements into their own structure of awareness (Beetham & Sharpe, 2013) best facilitate core principles of adult learning (Knowles, 1980). Of the three most recognised types of online learning technologies used in higher education, Online Collaborative Learning (OCL) emphasises student discourse and collaboration (Harasim, 2012).

This study aimed to explore postgraduate distance education nurses' knowledge of conducting online systematic searching for health literature, and to gauge their experience of using this technology. The OCL technology, Blackboard Collaborate, was the platform used to deliver two educational sessions to Masters of nursing breast and cancer / palliative care students.

Blackboard Collaborate

Blackboard Collaborate (www.blackboard.com) enables real-time interaction between the instructor and the students and between the students, thus bringing the rich functionality of the classroom to the virtual environment (Reeves et al., 2004). Students engage with the instructor via the whiteboard, microphone, chat feature and emoticons. The technology has the potential capacity to facilitate learning pedagogies that foster collaborative participant involvement.

Methods

The School of Nursing and Midwifery resides within a multi-campus-based University in Victoria, Australia, where the graduate nursing courses are delivered via blended or distance education. The participants from Australia and New Zealand were undertaking the Master of Nursing (Breast Care) and Master of Nursing (Cancer/Palliative Care) via distance education. All were mature-age and some had not studied for many years.

The study

The course coordinator had previously used Blackboard Collaborate to alleviate anxiety and feelings of alienation expressed by distance education students (Bigony, 2010; Kenny et al., 2007; Stone & O'Shea, 2013) new to the higher education environment. Building on the success in using the technology, the course coordinator considered broadening its application to include additional learning opportunities. Two assessment activities required the participants to undertake a systematic search of the health literature, identify relevant health databases, and construct appropriate search strategies. Their existing knowledge and ability of these skills was variable, ranging from none to very little. To facilitate the participant's proficiency in literature searching, two sessions on searching instruction in CINAHL and MEDLINE were jointly delivered by the course coordinator (located at a satellite clinical school) and librarian (located at the main campus). As the web-tour feature didn't synchronise with real-time searching, screen-capture software and Power Point were used to simulate a real-time search experience. Homework activities addressing Subject Terms or (MeSH) Headings were provided to form the groundwork for the second follow-up session. At sessions end the participants were invited to complete an online survey developed using the software program 'Qualtrics'. Because of their limited experience in online database searching, baseline data for comparison was not collected. Ethics approval (FHEC12/167) was obtained from the University Ethics Committee.

The survey

The survey comprised three sections and elicited participants' engagement, knowledge, and confidence. The first section addressed engagement with Blackboard Collaborate. Section two addressed issues such as: how to construct a search strategy, refine a search, and locate high-quality journal articles. Section three focussed on confidence and ability to undertake database searching and retrieve full-text articles online. The response rate was 75% ($n=18$) from a total sample $N=24$.

Study findings

Section 1: Blackboard Collaborate sessions

All participants ($N=18$) either attended the session, listened to the recordings only, or both. Session features and content were rated on a Likert Scale from 1 (*least*) to 5 (*most*).

Table 1: Importance of session features and content

Real time engagement	3-5	$n=15$
Social interaction	3-5	$n=16$
Session content	3-5	$n=14$
Follow-up activity	3-5	$n=12$

Qualitative feedback about listening to the recordings highlighted how the online technology facilitated engagement. Sample quotes included: "... keep in touch with what other students were doing"; "... clarify information regarding assessment requirements"; and "... evaluate how others were travelling".

The recordings helped to alleviate feelings of isolation associated with being a distance education learner: (Again), "... lessened the isolation, I didn't feel like I was alone"; "It gets so lonely being out here in the desert ... You are so far away, so isolated. When you talk to others [fellow students], it's like being in the same room with them". The content was used as a reference point for learning: "[I] used the session recordings as a sound base for both assignments ... would have really struggled without them"; "They [the session recordings] helped me to refocus again if I was bogged down"; and, "... improved skills in using the library resources".

Section 2: Search strategy and refining searches

This section addressed participants' knowledge of conducting a search strategy, refining a search, and locating high-quality journal articles. The majority of participants rated an improved knowledge of these processes.

Table 2: Students' understanding of basic and advanced search processes

Understood the process of limiting the search results to peer-reviewed articles and using the clinical queries filter	n=15
Understood use of keyword searching in a search strategy	n=16
Understood the importance of identifying alternative, terms and synonyms, and the importance of the search strategy	n=14
Subject terms in CINAHL and MEDLINE provide structure and precision in systematic searching. Number of students who understood question on subject terms and truncation in keyword searching	n=12

Section 3: Attitudes towards research

Participants rated their confidence in a range of activities using a Likert Scale ranging from *OK* to *very easy*.

Table 3: Students' confidence in basic and advanced research skills

Ability to find the full text of an article	n=18
Confidence in using health databases CINAHL & MEDLINE	n=17
Improved confidence in conducting an advanced search in health databases	n=17
Confidence in referencing a source	n=16
Confidence in performing and revising a search strategy, such as narrowing the topic, and developing a list of sources	n=14
Improved confidence overall in using library resources	n=15

Discussion

This study examined how an OCL technology, Blackboard Collaborate, was used in the distance education setting to facilitate student knowledge of systematic searching for health literature. Within the online platform, the participants were able to replay lectures, follow instructions, listen to discussions, and undertake their own literature searching to reinforce learning and to foster self-directed learning. The capacity to replay the recordings at their convenience was identified as being highly beneficial and facilitated the learning process. One respondent noted that she "... used the session recording as a sound base for both assignments [and] would have really struggled without them".

Given the participants' lack of experience of online technologies, it was notable that 94% (n =17) rated the ease of use between 'OK' and 'very easy'. Easy-to-navigate instructions on setting up the technology enabled the participants to overcome limited computer skills (Tones et al., 2009), and the "fear of not being intelligent

enough” (Kenny et al., 2007 p. 29). Anecdotal comments such as, “It wasn’t as hard as I thought it would be” were commonplace. Confidence in using the online technology enabled the participants to navigate more complex online systems of online database searching and to locate high-quality journal articles. This reported ability to confidently perform online database searching enabled the participants to actively address the stress that mature-age learners express about “... feeling like an outsider in the learning process” (Kenny et al., 2007 p. 26). The opportunity to undertake individual database searching also highlights the online technology’s flexibility to accommodate learning pedagogies that are premised on active learner interaction and participation. Interestingly, social interaction was highly rated with the capacity to engage with other students and the instructor in real time being seen as important and adding value to the overall student experience. Issues such as reducing isolation, keeping in touch with how others were managing, and maintaining a social connection with one another were reported: “... connection to other students”; “... being able to connect”.

Challenges

Blackboard Collaborate has the potential to deliver educational content informed by learning pedagogies premised on active learner engagement. Nevertheless, the technology is not without its limitations. Because the technology does not afford the immediacy of teacher-student interaction found in a more conventional classroom setting, it poses challenges to both educators and learners. The instructor’s reduced capacity to access learner’s non-verbal communication as cues to gauge understanding means that the primary responsibility for learning shifts to the student (Bigony, 2010). Moreover, the limited real-time, instructor-student interaction may be particularly challenging for students who have had a long absence from academia (Bigony, 2010). Because the exchange of information between the instructor and the student is shaped by the technology, the capacity for the student to seek immediate clarification may be constrained. To address this inherent limitation, session content and instructions must be clear, unambiguous and easy to follow (Karaman, Aydemir, Kucuk, & Yildirim, 2013), which may mean that content preparation takes longer than for the standard face-to-face lecture. In this study, additional preparation time was required.

Conclusion

Blackboard Collaborate can be used to facilitate knowledge in systematic literature searching. It offers a distinctive learning opportunity for mature age students from diverse geographical locations. Furthermore, the technology additionally provides students with an opportunity to engage with one another and multiple instructors in real time; a feature that is not possible in the more traditional distance education delivery format, and which has the potential to enrich adult learning.

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