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4–6 DECEMBER

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CONFERENCE PROCEEDINGS

34TH INTERNATIONAL CONFERENCE OF INNOVATION, PRACTICE AND RESEARCH IN THE USE OF EDUCATIONAL TECHNOLOGIES IN TERTIARY EDUCATION

A Community of Inquiry approach to learning design in a community-engaged learning program

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The Medicine in Context (MiC) program is the flagship community-engaged learning and teaching program at the Western Sydney University School of Medicine. MiC students attend placements at community organisations, General Practice clinics and face-to-face tutorials and lectures for two five-week blocks. Responding to students' lack of engagement and preference for more flexible delivery modes, a blended learning approach using the Community of Inquiry framework to guide the design has been gradually introduced since 2014. The MiC webpage was revised to simplify access to key information and resources. Five lectures were transformed into online modules and one workshop was converted into a flipped classroom. Multi-media open educational resources were added to replace some reading materials. Online "Weekly Study Guide" scaffolds, paces and aligns students' self-directed learning with MiC learning outcomes. Moving program evaluation and some assessments to an online platform enables more timely feedback. These developments have resulted in novel, engaging learning activities. Preliminary evaluation indicates students' greater engagement with the MiC program and deeper levels of learning indicated by increased levels of reflection and the demonstration of MiC learning outcomes being satisfied.

Introduction

Western Sydney University School of Medicine embeds community-engaged learning components in its five-year undergraduate medical (MBBS) curriculum. The flagship community-engaged learning and teaching program, called Medicine in Context (MiC), was co-designed by the School and a wide range of community partners to meet the specific needs of the Greater Western Sydney community (McCarthy et al., 2010). Although sharing the same social accountability principles as other medical schools' community engagement programs (Mahoney, Boileau, Floridis, Abi-Abdallah, & Lee, 2014; Preston, Larkins, Taylor, & Judd, 2016; Thandi, Forrest, & Williamson, 2016), the embedding of the MiC program in its local context makes it quite unique.

The MiC program is delivered in the third year. MiC students are fully immersed in community organisations (two to three days/week) and general practice (GP) clinics (one to two days/week) with face-to-face tutorials and lectures (one day/week) for two five-week blocks to learn about social determinants of health and how medical professionals collaborate with community-based service providers. Since MiC students are immersed in various peri-urban community organisations and GP clinics which offer different but equally valuable learning opportunities, there is a need to ensure equitable level of students' learning through scaffolding and sharing of experiences. The peri-urban setting, medium-length exposure and diversity in learning opportunities set the MiC program apart from other models such as longitudinal integrated clerkship and rural engagement programs (Mahoney et al., 2014; Preston et al., 2016) and short bursts of community engagement (Thandi et al., 2016).

The MiC program began in 2009 and for the first five years was delivered utilising face-to-face and paper-based teaching, learning and assessment. The program's learning management system (LMS) site content was limited to the provision of the program guide, lecture slides and reading materials.

In 2014, a review of the MiC program was conducted by the program convenor. This review revealed a range of significant issues that needed to be addressed with the objective of improving levels of student engagement. The process of improving the learning environment was driven by the following questions:

1. How can the MiC program be designed to improve levels of student engagement?
2. Which theoretical framework can assist in the analysis of the MiC program and provide a guide for improvements in learning design? The objective of

designing more structured learning opportunities was pursued and the Community of Inquiry (CoI) model (Garrison, Anderson, & Archer, 1999; Lipman, 1991) was adopted as the theoretical framework to guide learning design improvements. This paper outlines these changes and the preliminary results from the evaluation of the new design of the program.

Method

A review of the MiC program was conducted using the yearly review of student feedback data. The subsequent comprehensive analyses of qualitative and quantitative data were conducted for the 2011-2013 data. Additional information was sought from the student placement supervisors, the MiC general practice senior lecturer and the MiC administrative officer. The data from these sources revealed the following areas that needed attention:

- The Learning Management System (LMS) website was navigationally incoherent
- Issues with students' engagement during the placements and face-to-face sessions
- Absence of scaffolding in learning activities that engage students in community and general practice placements
- Lack of alignment between self-directed placement learning activities and the program's learning outcomes
- Lecture delivery method not meeting students' expectations of flexible delivery modes
- Under-utilisation of online learning and teaching facilities available in the University

As part of a multi-faceted strategy to address these needs, a blended learning approach, guided by the CoI model, was gradually adopted during 2014-2016.

Community of Inquiry model

Lipman defined a Community of Inquiry (CoI) as a rigorous, democratic and reflective form of discussion built up over time with the same group of learners (Lipman, 1991). Lipman's ideas were expanded and applied to online learning by Garrison et al. (1999) who provided a conceptual framework and a tool for the use of computer-mediated communication in supporting educational experiences.

The objective of a CoI is to create a learning environment in which the three presences (social, cognitive and teaching) interact to provide a deep and meaningful learning experience. Social presence is defined as the ability of learners to identify with the community (Akyol, Garrison, & Ozden, 2009). Cognitive presence represents the process of the construction of meaning through reflection (Akyol, Vaughan, & Garrison, 2011) and teaching presence refers to directing and facilitating learners to realise and process the meaning of learning outcomes (deNoyelles, Zydney, & Chen, 2014; Garrison & Kanuka, 2004; Mills et al., 2016).

Previous work has already been carried out in the use of the CoI framework as a guide in the development of higher education learning environments (Vaughan, 2010) and the objective of this project was to redesign a community-engaged component of the medical degree (MiC) in which face-to-face, blended and online components could be combined to form an inquiry-based learning environment (Mills et al., 2016).

The CoI model should not be used mechanistically during the design process; rather, it should be used as a heuristic tool to inform curriculum design and relevant delivery modes (Vaughan, 2010). All of the elements outlined in this paper intersect with one or more of the presences in the model.

How was the MiC program redesigned?

Online study modules

A number of face-to-face lectures posed some technical challenges due to the structure of the third year curriculum. Third year students rotate through MiC blocks in four batches each year. This means all lectures need to be delivered four times. Most of the lecturers are community service providers and their work commitments often preclude them from delivering four sessions, even with back-up speakers. The provision of video recordings was able to cover for some of these absences but the students suggested that fully online delivery would give them more flexibility in their learning patterns. In order to support student engagement with the complex domains of the program, five face-to-face lectures were converted to fully online resources. This included video lectures by the unit coordinator, screencasts and interactive weekly study guides designed using the Learning Activity Management System (LAMS).

Open educational resources

Past students complained about the large amount of reading materials for the program. As part of the revision of reading materials, some readings were replaced with multi-media open educational resources (mainly from YouTube©) to serve as triggers for reflection and self-directed learning. Examples included resources on global health, gender and social inequality.

Website improvement

The previous MiC Blackboard© site created confusion due to a lack of navigational coherence. A series of changes were implemented to modify the site. Each website item and folder was given a concise description of the content and when students needed to access them. Adaptive release (timed release of content) was extensively used to focus students' attention at different points in the program; these limits were released at the end of each

program block for review and exam preparation. Permanent links to reading materials were provided to facilitate copyright monitoring by the library. Additionally, the newly developed resources were made available through the website.

Weekly study guides

Third year MiC students are prepared for self-directed learning during the first and second years through the problem-based learning curriculum. However, students find this transition challenging during their first clinical year and community placements. Some students rushed their community-based learning and superficially recounted their experiences thereby missing any meaningful experiences with community engagement. This attitude led to comments such as *"I could have learned all there is to know about aged care in 3 days, so a 5-week placement was a waste of time"*. There was also an indication that students saw the GP placements as completely unrelated to their community placements, whereas the intention was for them to see the GPs' role in the community vis-à-vis other community-based service providers.

In order to address these issues, a set of weekly study guides was developed using LAMS. Each week's guide consists of the topic of the week, questions to be discussed in tutorial sessions and a checklist of learning activities that students are expected to complete within that week.

There are five topics for the five-week block and, since the students are required to attend two blocks, a spiral learning approach was used where the same topics are repeated in more depth in the second block. The weekly tasks and questions are designed to synthesise the community and GP placement learning by asking students to compare and contrast the two placements or translate one social determinant of health into the two contexts. Students' answers are discussed and marked in the tutorials and these marks form part of the students' final marks for the MiC program.

This design enabled students to share and build their understanding based on other students' experiences. These guides are released each week, thereby assisting students to focus their attention and giving them ideas so as to optimally capitalise on their experiences.

Flipped classroom

Another request from students was to have more case-based interactive activities rather than content-focused lectures. A pilot was developed by converting a workshop on Gender and Health into a flipped classroom. The basic concepts of gender and sexuality, and the epidemiology of gender-related health issues were provided as online lectures. Three practitioners were interviewed about pertinent gender-related issues in their practice and research. In the face-to-face session, students in small groups rotate through five stations with a video clip each (from open educational resources) to illustrate a clinical or social case, and worked with a facilitator through some questions about the case. This approach was chosen to balance between students' preference for practical exercises and their need for learning the basic concepts.

Application of the CoI model and guides for practitioners

All of the elements outlined above intersect with one or more of the presences in the model (see table 1). For example, the modification of the navigational arrangement of the MiC section on the LMS is an example of the development of teacher presence. The weekly study guides, however, fall into the categories of cognitive and teacher presence. As an example of cognitive presence, their aim was to scaffold the learning experience to enable students to frame what are often complex domains of knowledge and experience. The framing mechanisms or questions in each of the weekly study guides are examples of teaching presence.

Table 1: Learning design elements related to presences in the CoI model

Learning design element	CoI presence
Online study modules	Cognitive and teacher presence
Open educational resources	Cognitive presence
Website improvement	Teacher presence
Weekly study guides	Cognitive and teacher presence
Flipped classroom	Cognitive, teacher and social presence

There is a range of components that constitute the MiC program. Learning opportunities that students experience are varied and the teaching elements that make up the program need to complement this complexity by providing students with opportunities for structured reflection (weekly study guides and flipped classrooms) and ongoing, program-wide support. In complex knowledge domains such as the MiC program, the use of the CoI can:

- assist practitioners to balance the overall learning design of programs;
- ensure the role of the teacher is maintained in learning environments that require a high level of self-regulation and;
- encourage student-led enquiry in engaging and stimulating learning environments.

The learning design of the MiC program aimed to engage the three presences identified in the CoI framework. The use of technology underpinned the delivery of the program and the combination of learning designers working in conjunction with the academic unit coordinator aligns well with the conference theme of collaborative practice.

Online program evaluation

Past paper-based evaluation created a very large administrative load that led to data entry errors and inability to promptly analyse the data. At times the delay was more than six months, which prohibited early identification and solution of problems. To solve this problem, all evaluations were moved to an online version using Survey Monkey©. Apart from a marked decrease in person-time required for data management, the evaluation data is now available for review by the Program Convenor by the end of the last clinical attachment day. This enables follow-ups to start as early as the next working day.

Marking and feedback of final assignment

Past essays were submitted through Turnitin© to check for plagiarism, then printed out and marked as hard copies. Feedback to students was only available by scanning the marked hard copies and emailing them to individual students. This process was time-consuming and created a long delay between assignment submission and feedback provision. In addition, a review of markers' standard was prohibited due to the amount of manual work required. From 2015, the marking has been conducted using the Turnitin© GradeMark function which enables marks and feedback to be released to students in two weeks. The electronic data format enables the Program Convenor to randomly check marks across the 4-5 markers to ensure consistency and fairness.

Results

The percentage of weekly tasks completed in each group ranges from 72% to 94%. This indicates that student engagement in the weekly tasks is high and this level of engagement can be contrasted against the lower levels of engagement that were evident prior to the introduction of the blended learning weekly study guides component. Anecdotal feedback from tutors suggests that students are making connections between the learning that they experience in community settings and patients in the hospital environment.

This greater level of engagement in the weekly tasks is significant because it indicates that teaching presence in the form of structured tasks is contributing to the development of cognitive presence which, in turn, is promoting tutorial sessions that allow students to explore the deep connections between health and the community.

Next steps

A content analysis of the qualitative data from the weekly tutorial responses is being analysed. This will also be paired with a thematic analysis of tutor feedback on student engagement and participation during the tutorial sessions.

Conclusion

A blended learning approach using the CoI model to guide the review and development of the MiC curriculum was implemented to address students' concerns and feedback in a community-engaged learning program. This approach has enriched the classical combination of placements and face-to-face sessions and provided structured learning environments for complex practice and knowledge domains such as MiC. Initial evidence from tutors suggests that the goals of the MiC program - connections between health and the wider community - are being met more adequately during tutorial sessions and student responses to weekly tasks. A similar approach could be considered by other educators in courses or programs in scaffolding diverse learning experiences that need to be shared and reflected by groups of students.

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Please cite as: Marjadi, B., Dave, K. & Mason, G.A. Community of Inquiry approach to learning design in a community-engaged learning program. In H. Partridge, K. Davis, & J. Thomas. (Eds.), *Me, Us, IT! Proceedings ASCILITE2017: 34th International Conference on Innovation, Practice and Research in the Use of Educational Technologies in Tertiary Education* (pp. 142-146).

Note: All published papers are refereed, having undergone a double-blind peer-review process.