Case Study   Teaching digital health

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This case study focuses on providing insights into the follow key questions about innovation in digital health education and training:

1. **Context:** The University of Centre for Online has been active in providing education and training (E&T) in telehealth and digital health over 20years. Students from undergraduate, postgraduate and continuing professional development has been acquiring knowledge and skills in digital health through these courses.

2. **Purpose:** To provide relevant knowledge, skills and competencies in digital health.

3. **Design:** Since the courses were designed within the university, the Australian Qualification Authority guidelines have been closely followed. In relation to digital health and telehealth, guidelines from the Australian Digital health Agency and other relevant organisations have been considered.

4. **Implementation:** Integrating digital health into existing health and medical curriculum has been challenging. 'Start small and upscale gradually' has proven to be a successful approach.

5. **Evaluation:** Evaluation is an important element. Teaching and learning has been continuously evaluated to acquire feedback from both students and teaching staff to improve the quality.

6. **Future focus:** Current digital health teaching programs are expected to be embedded into medical and other relevant health programs more seamlessly in the future.

CONTEXT

Having recognised the need for education and training (E&T) as an important element in the process of integrating digital health into health service delivery, the University of Queensland Centre for Online Health (COH) started offering educational components from the very establishment of Centre in year 2000. Over 20 years, COH has been designing, developing and delivering digital health E&T for undergraduate, postgraduate and professional development levels. Over the years, COH has also been involved in research into the digital health E&T to understand the educational needs of different professional groups, content requirements and mode of delivery. Over 4000 undergraduate and postgraduate students from health and rehabilitations sciences have taken courses in digital health and clinical telehealth. COH's professional development courses in clinical telehealth have been a useful resource for practitioners to acquire necessary knowledge and skills to practice telehealth. In this case study, we will also focus on the integration of an introductory digital health course into UQ's MD program. (Figure one)

Figure 1: Students in Clinical Telehealth practicum

The need for E&T in digital health has been recognised. (1) The integration of digital technologies in healthcare delivery can disrupt the traditional way of care delivery. Systematic E&T training to provide relevant knowledge and skills to health workforce is an essential aspect in the integration of digital health in health systems. A national study carried out in Australia has shown that while medical educators recognise the relevance of digital health E&T in medical education, current medical curricula do not adequately provide relevant knowledge and training to the future medical professionals. (2) The situation is not different in other health professions too. (3)

E&T programs at COH started in year 2000. COH initiated a university program (Graduate certificate, Graduate diploma, Master in e-Healthcare and undergraduate electives) in e-Health to provide relevant education to the students in a variety of disciplines. This program was run at UQ for 10years. Both postgraduate and undergraduate students were offered practical sessions where students had exposure to the digital health practices, and technology. At Masters level, students completed a project based on a practical research project.

In 2010, COH won a competitive grant ($1M) from the Australian Department and Health and Ageing (DoHA) to develop a telehealth curriculum for current and future health professionals. COH developed 2 telehealth courses for university students and so far over 4000 undergraduate and postgraduate courses have taken these courses. The professional development course in telehealth developed for health workers was available online for 5years. This CPD program has been used to educate health workers on telehealth by in Australia and overseas.

The staff from the COH and the Centre for Research in Telerehabilitation have developed an online E&T program to up-skill health practitioners in digital health and the delivery of services via telehealth. This curriculum focuses on the fundamentals of telehealth, technology, service development and implementation, discipline-specific considerations for service delivery and evaluation of telehealth. This program was jointly funded by southern Queensland Rural Health and Faculty of Health and Behavioural Sciences.

COH provides telehealth and digital health E&T to Australian and overseas health workers, including health professionals, health administrators, business executives, health information officers and health policy workers. Over the years COH has also hosted visitors from a number of countries including US, UK, Denmark, Japan, Sri Lanka, India, Malaysia, Indonesia and Pakistan who were keen to learn about telehealth and digital health.

PURPOSE

In 2018 COH conducted a study to understand the medical students' expectation relating to digital health E&T. (4) Study found that the majority of students believe that digital health E&T is an essential element for current and future medicine and should be incorporated into medical curriculum. Backed up by the findings of this study, COH then designed and developed a course titled 'Introduction to Digital Health' for medical students to incorporate into UQ's MD program.

The course aims to introduce students to the fundamental of digital health and give them relevant knowledge and skills to use digital technologies for clinical practice. Course design was based on 4 key fundamentals:

1. patient centred care
2. clinical communication
3. patient safety
4. organisational efficiency

Throughout the course, students were led to question the relevance of digital health to achieve the abovementioned principles.

Using case-based learning, each topic explores how technologies such as telehealth, electronic medical records, remote monitoring, clinical decision support systems, mHealth techniques can be used to improve the quality of patient care.

This course includes two online workshops where students have opportunity to learn practical skills to use of telehealth and electronic medical records (EMR) in clinical practice.

Workshop 1: Telehealth for clinical practice
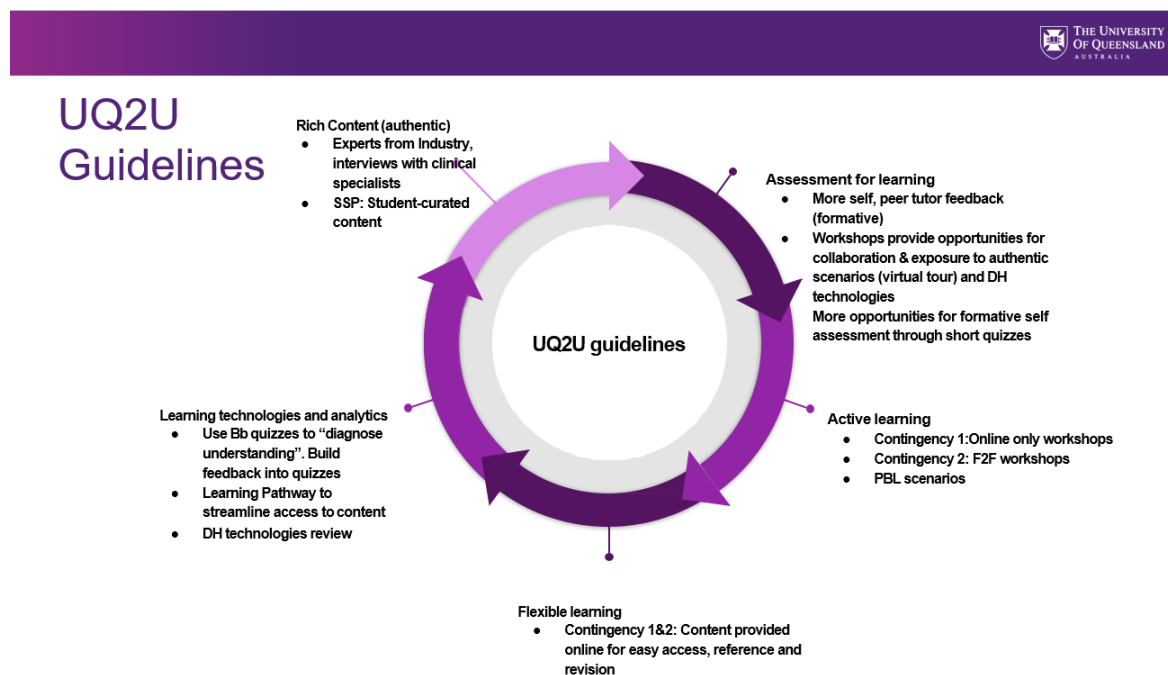
Workshop 2: Clinical use of EMR

Figure 3: Conceptual framework
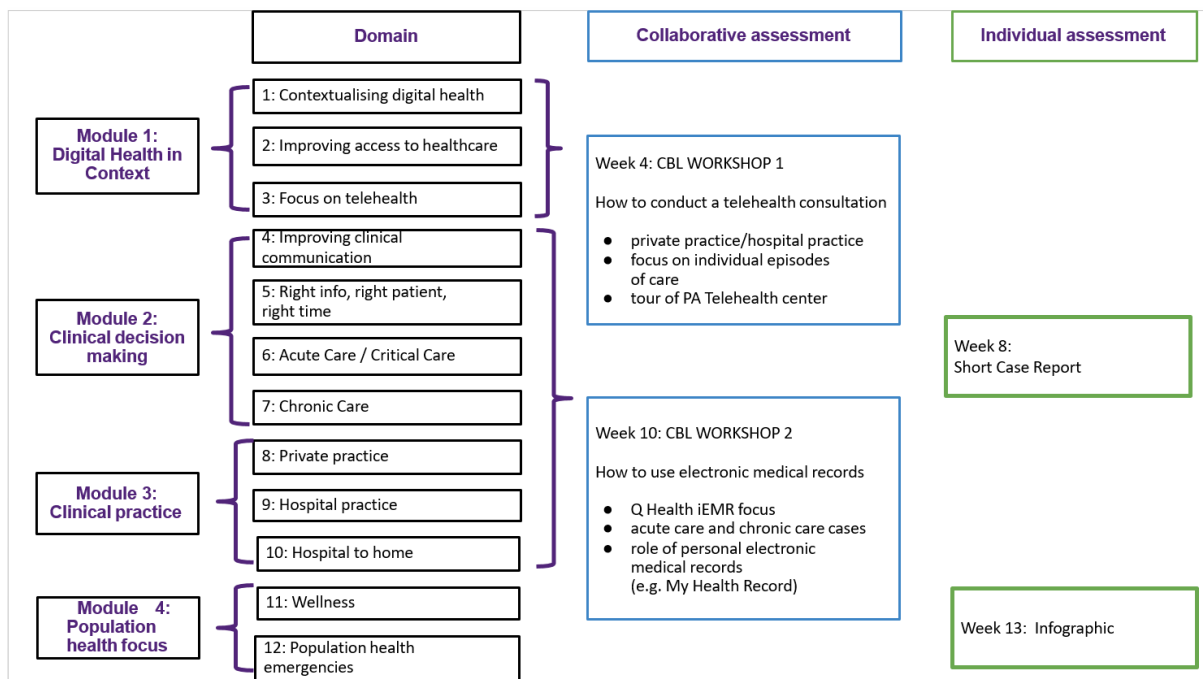
COURSE DESIGN

Figure 2: Course design

IMPLEMENTATION

'Introduction to Digital Health' course was first offered to year 2 medical students in the UQ MD program in 2019. This course is now offered as a selective subject every year in the semester 2. This is a popular selective for year2 students and usually 100 students enrol in this course each semester.

EVALUATION

Surveys conducted by the University have shown high student satisfaction regarding the learning and teaching in these courses. Our graduate exit surveys have shown that a significant number of students find the content is professionally relevant to their careers. (5)

FUTURE FOCUS

Digital health is considered to as an important component in current and future medical practice. It is expected that digital health will be an integral part of the revised curriculum of future MD program at UQ.

UQ is also currently developing a clinical informatics and digital health postgraduate program. It will be an important avenue for health professionals to acquire relevant skills and qualification in this field.

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