
Case Study

Embedding digital health education into pre-registration health degrees



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This case study focuses on providing insights into the follow key questions about innovation in assessment:

1. **Context:** Provide a brief background about your institution, your learners and assessors.
2. **Purpose:** Explain the rationale for your innovation in assessment – what problems or challenges were you attempting to address through your approach?
3. **Design:** What are some smart design principles you used to maximise the success of your assessment innovation? (Consider any international guidelines i.e. AMC standards)
4. **Implementation:** What challenges did you face in implementing the new approach? How did you maximise a smooth transition and take up of the new approach?
5. **Evaluation:** How did you evaluate the success of your assessment innovation? On reflection, what if anything would you do differently if you knew what you now know?
6. **Future focus:** What are your next steps and what are you working on now to further improve your system of assessment?

CONTEXT

The University of Sydney is Australia's first University, established over 160 years ago. A highly complex organisation, the University relies on a variety of highly skilled experts in education, research and professional services. It comprises four faculties (Medicine and Health, Science, Engineering, and Arts and Social Sciences) and over 25 Schools.

The Faculty of Medicine and Health (FMH) brings together the areas of dentistry, medicine, medical sciences, nursing and midwifery, pharmacy, health sciences and public health to facilitate a multidisciplinary approach to solving modern day healthcare problems. By integrating the best minds and resources from seven schools, nine clinical schools, and a large number of disciplines and research bodies, FMH is designed to harness collaboration and translate research into education and clinical practice.

The Faculty's education vision is to fully equip students with the leadership capabilities, clinical skills and human understanding required to make a genuine difference to the lives of individuals and communities. The University offers the largest range of health courses of any Australian university, giving students a variety of ways to pursue their passion for health.

Established in early 2020, the Discipline of Biomedical Informatics and Digital Health (BIDH) aims to pursue a future in which health data and information are seamlessly integrated into biomedical discovery and the continuous improvement of health and healthcare. To deliver on this mission, they build on the existing capabilities of the University by facilitating multi-disciplinary collaboration across faculties and the Digital Health and Informatics Network, as well as with state and local health organisations and leading international groups in biomedical informatics.

PURPOSE

BIDH's education mission is to ensure that all pre-registration students in FMH graduate with foundational data literacy and practical digital health skills drawn from current practice; to provide pathways through to specialisation in areas of biomedical informatics and applied digital health; and to continually develop and engage with leaders in the health sector.

For pre-registration courses in medicine, dentistry, nursing, pharmacy, and allied health, FMH aims to graduate health professionals who have data literacy built into the foundations of their learning and are equipped with the skills and experience needed to understand and apply current and future digital health technologies.

In 2017, 77 course outlines in dentistry, oral health, medicine, nursing, and physiotherapy were reviewed by researchers to determine the extent to which digital health was represented in curricula. There was no evidence of a standardised approach to digital health teaching across these degrees at the University, providing strong rationale for development of a faculty-wide approach to digital health education.

DESIGN

Guided by a eHealth capability framework

In work led by Professor Tim Shaw, a literature review, focus groups with key stakeholders, and a Delphi study were used to develop an eHealth capability framework for health professionals.¹ The framework includes 4 overarching domains and 40 performance cues, with each statement in the framework reflecting an expected capability among entry-level clinical positions. This framework is currently being used to guide the University's curriculum development and redesign.

Adoption of a multi-disciplinary approach

In October 2019, a Digital Health Education Strategy Working Party was formed, led by A/Professor Melissa Baysari, with the aim of developing and implementing a strategy for embedding digital health education into the University's health professional degrees. The Working Party has members from the 10 health disciplines in FMH including dentistry, pharmacy, nursing, medicine, physiotherapy, speech pathology, occupational therapy, exercise and sports science, medical imaging, and rehabilitation counselling.

Creation of sub-working groups to maximise interest and minimise workload

To facilitate achievement of the Working Party aim, members were asked to self-nominate into 1 or 2 sub-groups, each with a unique objective. Members could indicate what area or task was of interest and aligned with their educational priorities. The work of these sub-groups is ongoing and includes:

1. **Audit of digital health teaching:** consultation with academics in each FMH school is underway to identify all teaching content that is relevant to digital health. This content is being mapped to the eHealth capability framework. This will allow re-usable digital health content to be identified and highlight gaps in digital health knowledge and performance elements not covered by current teaching in FMH. To date, 6 of the 10 health disciplines in the Faculty have been audited and mapped. Next steps include creating a core set of resources that can be used across FMH. An individualised approach will then be used to tailor content and design to each health discipline's needs.
2. **Audit of student access to electronic medical records (eMRs) during clinical placements:** Few studies have explored student access to eMRs in health disciplines outside of medicine and nursing, and even fewer have examined the Australian context. As a research project, the Working Party have surveyed and interviewed students to

¹ Brunner M, McGregor D, Keep M, et al. An eHealth Capabilities Framework for Graduates and Health Professionals: Mixed-Methods Study. *J Med Internet Res.* 2018;20(5):e10229.

understand experiences and perceptions of eMR access during clinical placements, including perceived benefits and risks, barriers to access, skill and confidence in using eMRs, quality of eMR training, and additional support needed. Data from surveys and interviews are currently being analysed. Findings will be used to guide eMR-focused curriculum content and will be disseminated to health service partners to inform clinical placement policies and procedures.

3. **Identification of a simulated eMR for teaching:** Consultation with simulation leads in the 10 health disciplines across FMH was undertaken to determine what eMR features and functions are required in a simulated eMR to support teaching. This allowed identification of 12 education requirements, 16 data requirements and 7 features/functions for the simulated eMR. The next step includes identifying or modifying an academic eMR to meet these needs.

IMPLEMENTATION

Interviews performed with academics at the University of Sydney in 2017 revealed four key barriers to embedding digital health teaching in to health professional degrees: perceived irrelevance; students' inexperience as clinicians; educators' inexperience with eHealth; and practical challenges such as a crowded curriculum. Mitigation has involved working closely with unit coordinators to identify current content and with each discipline to ensure material is relevant, that educators do not see it as a burden, capabilities can be integrated well with existing units, and the changes are valued by the disciplines. Adopting a multi-disciplinary approach has ensured that all groups are heard and represented.

Educators responsible for teaching across FMH schools may not have the capacity to teach digital health in existing units. Beyond BIDH academics engaging directly with people teaching in units across pre-registration courses, BIDH will offer professional development to FMH academics to support upskilling where digital health teaching may not be their strength.

EVALUATION

No formal evaluation of the learning has taken place yet, but anecdotally, there is now widespread acknowledgement among academics of the importance of digital health education across all health disciplines. A formal project for evaluation is planned post integration of educational content from 2022 onwards.

FUTURE FOCUS

Digital health changes quickly in the health sector. The University will implement an ongoing process for updating the capability framework and the operationalisation of its education strategy. To mitigate the impact of a changing environment, FMH will maintain the Working Party for ongoing development and review of digital health teaching, including the simulated eMR.

Education research projects including work on delivering simulated EMRs in education will be presented at conferences and published in medical education and health informatics journals. BIDH seeks to communicate research projects or key elements of the strategy as they are implemented, taking advantage of the Digital Health Informatics Network, which includes nearly 900 members from the university, health sector, and interested public.

