Te Papa Hauora Future of Health Disrupt Challenge: an authentic learning and assessment opportunity

DENG, B. <http://orcid.org/0000-0002-0847-2622>, WATERMAN, I. <http://orcid.org/0009-0000-5416-0956> and HOBBS, Matthew <http://orcid.org/0000-0001-8398-7485>

Abstract

Te Papa Hauora, located in Christchurch, Aotearoa New Zealand, serves as a hub for healthcare, research, innovation, and education, with a focus on population health. In partnership with local institutions, including the University of Canterbury, University of Otago, Ara Institute, and Health New Zealand Te Whatu Ora Waitaha Canterbury, Te Papa Hauora fosters interdisciplinary collaboration. The Future of Health Disrupt Challenge, a 48-hour competition hosted by Te Papa Hauora, engaged teams of health and non-health students to tackle real-world challenges in the New Zealand health system. Multidisciplinary teams from fields including, but not limited to, medicine, public health, engineering, finance, and computer science developed innovative solutions to issues such as improving interprofessional collaboration, addressing health equity, and promoting community health and wellbeing. Participants were tasked with identifying a specific problem, analysing causes and impacts, and designing solutions tailored to target populations. The competition incorporated mentoring from health professionals and industry experts, providing participants with valuable feedback. On the second day, teams developed a "social lean canvas" to map out their ideas, culminating in a pitch to judges who evaluated solutions based on feasibility, innovation, and depth of understanding. Proposed solutions included mobile health clinics to address healthcare access for isolated communities and digital tools to promote mental health among adolescents. The challenge emphasised authentic learning and assessment, equipping students with real-world problem-solving and critical-thinking skills. This interdisciplinary, innovation-focused approach holds promise for enhancing healthcare delivery and could serve as a model for other institutions aiming to foster engagement between students, academia, and industry.

Te Papa Hauora is a dynamic hub integrating world-class healthcare, research and innovation, education and industry with a strong emphasis on population health based in Christchurch on the South Island of Aotearoa New Zealand (NZ) (1). Te Papa Hauora is a strategic partnership between Canterbury's major tertiary and health institutions; the University of Canterbury, the University of Otago, Ara Institute of Canterbury and the Health New Zealand Te Whatu Ora Waitaha Canterbury, working together with representatives from Ngāi Tahu, a foundation member and a Māori tribe of the southern region of NZ. With a focus on accelerating economic growth, attracting talent, and promoting community wellbeing, Te Papa Hauora prioritises advocacy and leadership, health research, professional learning and development, and innovation in health (2).

The Future of Health Disrupt Challenge

The Future of Health Disrupt Challenge, hosted by Te Papa Hauora, was an immersive 48-hour competition. Broadly aligned with Te Papa Hauora's priorities, the competition brought together teams of three to five health and non-health students to engage with real-life challenges within NZ health systems and develop innovative solutions. As a form of authentic learning and assessment (3, 4) which has been shown to improve academic achievement and attitudes in social studies courses (5), this competition attracted participants from various disciplines to form multi-disciplinary teams, including medicine, public health, engineering, finance and computer science. It prompted participants to think critically about their experiences and knowledge of the health system, identifying opportunities for innovation and developing potential solutions. In addition, the challenge allowed participants to practise understanding issues and develop ideas, and then communicate those ideas. The 48-hour competition also provided opportunities for participants to network with students from diverse institutions and backgrounds, as well as connect with industry professionals. Early authentic experience in healthcare education can contribute to students' understanding and alignment with patient and community perspectives (6).

How did it work?

A briefing was held four days before the challenge began, during which the three challenge questions were released. First, how can we improve health outcomes through better interprofessional /multidisciplinary interaction? Second, how do we resolve issues around equity in health? Third, how can we develop better ways of promoting health and well-being in the community to encourage healthier populations and reduce long-term pressures on the health system?

On the first day of the challenge, the competition began with identifying a high-level issue related to one of the three proposed challenges. Throughout the challenge, the teams refined their problem, narrowing it down to a specific issue from which an innovative solution could be practically implemented. Initially, teams were asked to map out all the causes, impacts, and effects of the challenge they aimed to address. This step aimed to guide them to think about the challenge's nature, origins, and consequences, thereby deepening their understanding of the selected challenge. Before delving into generating a specific solution, it is crucial to understand the people for whom you are designing the solution and the stakeholders who might be affected by or have influence over its implementation. This process was approached by hypothesising some potential users and shareholders of our solutions and analysing their actual needs and requirements. For example, the authors' team hypothesised a single and middle-aged adult and analysed factors that would hinder the person's healthy food selection in daily life. After that, teams started to brainstorm as many solutions designed for users under different conditions to solve the identified problem. A highlight of the challenge was the 'speed mentoring' session. Teams had the opportunity to refine their solutions with feedback from a diverse group of health professionals and entrepreneurs. Each mentor brought a unique perspective and expertise which challenged the participants to think more critically and creatively about their proposed solutions. The first day of the challenge was wrapped up with teams refining their solutions and designing the structure of delivering their solutions making them convincing enough.

The second day of the competition started with developing an overall picture of solutions using a social lean canvas (a tool to help social entrepreneurs map out and validate the key attributes of their very early stage ventures focusing on both the social impact and the sustainability of a project or venture). The canvas was also created to help participants identify the most compelling and valuable aspects of their solutions, enabling them to quickly capture the judges' attention and more effectively present their ideas in the

subsequent 3-minute pitch. Participants were given time until 3pm to continue developing and refining their solutions, creating slides, and practicing their pitches. Four judges, consisting of health clinicians and research professionals evaluated the team pitches. Their judgements were based on four criteria: i) depth of understanding and validation of the problem, ii) the desirability, viability, and feasibility of the solution, iii) the level of innovation, and iv) the overall quality of the pitch and presentation. Ultimately, the judges announced three winning teams, and the challenge concluded with a celebration of shared success.

What were some of the outcomes?

The participant teams presented a diverse range of solutions to the three proposed challenges. To improve health outcomes through interprofessional and multidisciplinary collaboration, some teams focused on using technological advancements such as an app for adolescents to promote mental health and wellbeing and the development of a digital 'toolkit' for community health providers to share knowledge and best practices with each other. These solutions aimed to make healthcare delivery more efficient and accessible. To address equity in health, teams proposed ways to improve access to primary care services for minorities such as modifying primary care approaches to accommodate cultural backgrounds of immigrant Asian and Pasifika populations or providing healthcare to isolated communities using mobile health clinics. They also proposed adopting international health policies that are appropriate to the context of New Zealand's healthcare system. For instance, a team recommended alleviating the pressure on staffing shortages in hospitals by removing barriers for internationally trained medical professionals to transfer their licence to New Zealand, instead of retraining as is required in many cases. For promoting health and wellbeing in the community and encouraging healthier populations, some teams recommended placing local communities at the centre of healthcare planning and resource allocation. One example included enhancing community-based food supply systems to make healthy food more accessible. Overall, the proposed solutions reflect various interpretations of what an 'innovation' in healthcare could be. Authentic learning and assessments have gained popularity in higher education because educational institutions increasingly recognise that they can leverage assessment as an opportunity for students to engage in activities that are similar to what they might experience in their professional life (4).

In conclusion, the Future of Health Disrupt Challenge not only fostered innovative thinking but also offered a practical framework for addressing real-world health system issues. The benefits of authentic learning opportunities and assessment include equipping students with essential skills for their future professional life, such as communication skills, collaboration skills, critical-thinking and problem-solving skills, self-awareness, and self-confidence (4). By encouraging interdisciplinary collaboration and critical problem-solving, the challenge created a space for future health professionals to develop actionable solutions that can inform policy and practice. This approach is highly adaptable and could be employed by other universities and institutions to cultivate similar innovation-driven environments, promoting engagement between students, academia, and industry for the advancement of health systems globally.

References

1. Te Papa Hauora. Te Papa Hauora—The future of health. Christchurch Health Precinct Christchurch: Te Papa Hauora; 2024 [Available from: https://www.healthprecinct.org.nz/.
2. Te Papa Hauora. Our purpose: Christchurch Health Precinct Christchurch: Te Papa Hauora; 2024 [Available from: https://www.healthprecinct.org.nz/ourpurpose/.
3. Lee J, Campbell S, Choi M, Bae J. Authentic learning in healthcare education: A systematic review. Nurse Educ Today. 2022;119:105596.
4. Sokhanvar Z, Salehi K, Sokhanvar F. Advantages of authentic assessment for improving the learning experience and employability skills of higher education students: A systematic literature review. Studies in Educational Evaluation. 2021;70:101030.
5. Yıldırım R, Ortak Ş. The Effects of Authentic Learning Approach on Academic Achievement and Attitudes in Social Studies Course. International Journal of Psychology and Education Studies. 2021;8:193–208.
6. Yardley S, Littlewood S, Margolis SA, Scherpbier A, Spencer J, Ypinazar V, et al. What has changed in the evidence for early experience? Update of a BEME systematic review. Med Teach. 2010;32(9):740-6.