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Embracing Complexity: Reimagining Design for Health Education

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Abstract: Design for health (D4H) has emerged as its own context for practice, with a corresponding rise in universities offering courses and activities that implement D4H projects in various ways. For the most part, these tend to expose design students to health-related contexts and problems or facilitate interdisciplinary collaborative opportunities. This paper presents an overview of 10 years of D4H curriculum interventions in undergraduate and postgraduate teaching. This culminated in the justification and development of a four-paper D4H minor as a strategic offering within a Bachelor of Design programme. The paper presents the theoretical and practical underpinnings of the D4H minor, shows how the new minor supports the staircasing of student learning and provides examples of student work from the first cohorts. The D4H minor positions “design for health” as a strategic curriculum innovation to help students apply creative, practical, problem-solving skills to complex problems.

Keywords: Design for Health; Design Education; Curriculum Development; Creative Practice for impact

1. Introduction

Design and health have a long history of ‘working together’. Yet this has been more transactional in nature, with design frequently engaged to solve isolated problems or brought in at the end of projects, rather than contributing to broader strategic or systemic health outcomes (Groeneveld et al. 2018; Noel 2017, Reay et al. 2019, Khoo et al. 2025). More recently, design for health (D4H) has emerged as its own context for practice, with practitioners and researchers attempting to create more meaningful engagement between the two disciplines. As a consequence, universities have responded with a rise of courses and activities that implement D4H projects in a variety of ways (Table 1). For the most part, these are through individual projects or a postgraduate offering. Such activities are not new. For example, the Royal College of Art’s programme on inclusive design for an ageing population was established in 1991 (and the Helen Hamlyn Centre established in 1999), which resulted in a steady growth of interest in socially inclusive design in the United Kingdom (Gheerawo,



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2016). However, the increase of D4H seems to represent a more specific refocusing, with key texts published to support and develop the discipline, and its practice and research (e.g., Jones, 2013; Tseklevs & Cooper, 2017; Ku & Lupton, 2022; Craig et al., 2023).

Despite the large number of reported projects and activities on institutional websites, there is a notable lack of reporting on curricula-based D4H activities in the published literature, with most studies providing descriptive accounts of courses or projects. These, mostly driven by design schools, are the focus of this paper. Within design programmes, projects tended to give design students exposure to new contexts and problems, and/or create interdisciplinary collaborative opportunities.

Table 1 Examples of University Design for Health activity (not an exhaustive list).

Institution / Programme	Link
Aalto University	https://www.aalto.fi/en/aalto-health-platform/hw-architecture-and-design
Carnegie Mellon University	https://www.design.cmu.edu/about-our-programs/masters-degrees
Glasgow School of Art	https://www.gsa.ac.uk/postgraduate-research-programmes/master-of-research
Hong Kong Polytechnic University	https://www.polyu.edu.hk/sd/study/rpg/phd/
Monash University	https://www.monash.edu/mada/design-health-collab
National University of Singapore	https://cde.nus.edu.sg/edic/projects/innovating-for-better-healthcare/
OCAD University	https://healthdesignstudio.ca/
Parsons New School	https://www.newschool.edu/parsons/mfa-transdisciplinary-design/
RMIT	https://healthlab.edu.au/
Royal College of Art	https://www.rca.ac.uk/study/programme-finder/ageing-health-inclusive-design/
Stanford d.school	https://dschool.stanford.edu/study/elective-courses/systems-design-for-health-2
TU Delft	https://www.tudelft.nl/en/ide/education/ide-masters-programmes/specialisation-medesign
UAL London College of Communication	https://www.arts.ac.uk/subjects/business-and-management-and-science/postgraduate/ma-service-design-lcc
University of Auckland	https://courseoutline.auckland.ac.nz/dco/course/DESIGN/230/1205
University of Cambridge	https://www-edc.eng.cam.ac.uk/
University of Melbourne	https://study.unimelb.edu.au/find/courses/graduate/specialist-certificate-in-design-for-health-and-wellbeing/

1.1 Projects that exposed students to healthcare contexts and problems

Across several programmes, students were placed in unfamiliar health and wellbeing settings to build empathy, understand complexity, and develop practical design capability. At Edinburgh College of Art, the Designing Alternatives course introduced third-year students to disability through the social model, encouraging them to consider how designers and visual communicators can engage with disability issues; many students brought lived experience from their own lives or networks (Gieben-Gamal & Matosn, 2017). At the University of Dundee, Vallentine et al. (2017) described a strategic framework and the 'Social Digital' project that combined design thinking and hands-on making with person-centred methods and community collaboration; the final-year projects addressed ageing, different forms of disability (cognitive, physical, communicative), and wider health services. Hannan et al. (2019) reported communication design students working with rest home residents to co-create mini-publications, learning co-design, participatory research, storytelling, and publication design through direct interaction. Zitkus et al. (2020) presented a first-year product design project focused on improving in-patient sleep by redesigning elements that contribute to night-time ward noise; students engaged with end users, learned to translate background knowledge in unfamiliar clinical contexts, collaborated with different stakeholder groups, and designed with implementable solutions in mind, all helping to gain confidence to tackle complex, real-world projects. Donovan et al. (2022) described a communication design intervention as a low-stakes incubator for mental health clinicians, which produced pilotable health promotion ideas while improving students' health literacy and their ability to work with uncertainty.

1.2 Projects that created interdisciplinary and transdisciplinary collaboration

Although fewer courses explicitly paired design students with peers from other disciplines, those that did demonstrated clear benefits in shared understanding and effective teamwork. Malcolm et al. (2019) outlined collaborative activities between design and medical students in clinical environments to identify ways to improve patient experience. Embedding design in healthcare education helped challenge disciplinary assumptions and made space for students' ideas to influence change, provided there was genuine commitment from both students and educators. Educators in both design and health adapted their roles to co-create a shared vision, manage logistics, and model empathy; conditions that made the collaboration productive and motivating. Günay (2025) detailed a 14-week course for a mixed cohort, beginning with five weeks of theoretical groundwork followed by a process-focused practical project. This this course, students valued the applied, cross-disciplinary approach, which helped combine different perspectives and supported empathy and self-awareness. Westermeyer and Villalobos (2017) described an interdisciplinary "design week" involving design and public health students in user-centred, participatory workshops to identify challenges faced by health professionals and develop product solutions. Students responded positively to the opportunity for interdisciplinary teamwork and noted how it broadened their knowledge. Collectively, these examples indicate that when programmes prioritise authentic collaboration across disciplines, they help students build a shared

language and respect, learn how to operate in complex clinical systems, and gain insight into what is needed (practically) for impact. Skills and dispositions are also reinforced when research-informed teaching introduces real healthcare problems, simulated environments, and stakeholder engagement.

2. The need for a more structured and holistic approach to integrating design into health practice

Noël (2017) suggests the partnership between health and design is problematic due to designers failing to be educated to take a systematic approach to tasks with little accountability. Design solutions are seldom implemented or measured and those commissioning design projects often view design as making things look professional (Noël, 2017). Finally, design solutions are often conceived and crafted without designer input (Noël, 2017). They suggest curricula should provide graduates with appropriate interdisciplinary knowledge and skills, and the ability to work with accountability using evidence-based approaches. Furthermore, graduates should have the capacity for empathy as well and ‘the right disposition’ to understand the complex nuances of the health context (Noël, 2017). However, for students of design, ‘Design’ for health may appear to be little different from design undertaken in any other context. It is important that they be given an opportunity to appreciate that the complexity of health means that design approaches successfully used elsewhere often don’t work. This means, single project experiences are unlikely to provide substantive learning experiences for students to gain sufficient insight into, or appreciate, the complexity of health, and especially healthcare organisations.

This paper documents the development and delivery of a new minor curriculum as part of an undergraduate programme in the School of Art + Design, at Auckland University of Technology. The D4H minor is available for students enrolled in the Bachelor of Design, or Bachelor of Visual Arts, as well as any other student across the university as either a minor, or as individual elective courses as part of their undergraduate degree (subject to requirements).

2.1 First Steps – From Design for Health Research into Learning and Teaching Opportunities

The context of the development of new curricula comes from a transdisciplinary D4H research team based at AUT's School of Art + Design. This group has led the development of D4H research in New Zealand through a wide range of activities since 2013. Initially, this was through the establishment of a postgraduate D4H pathway as part of the Master of Design at AUT, to develop and support research projects focused on design that has a positive impact on people's health and wellbeing. Research projects aim to be transdisciplinary in nature, through engagement and collaboration with end-users, clinical experts, healthcare professionals, and researchers from other disciplines to share and test ideas, and develop unique solutions (see <https://www.goodhealthdesign.com/postgraduate-students>).

Following the success of the postgraduate offering and recognising that most design students had limited exposure to health contexts, several initiatives were established to introduce undergraduate students to the D4H context and broaden their perspectives on the

potential for design to better prepare them to transition into postgraduate research. These included a 12-week visual information design course, which aimed to provide students with a more person-centred, empathetic approach to design (Potter et al., 2018). In the course, small student teams were assigned two projects from 12 separate projects commissioned by a clinician, health advocate, or health researcher affiliated with a hospital-based design lab. Students had limited to no experience in health, and for many, this was their first 'live' project. They were asked to design compelling information visualisation solutions to real-world information design problems using a mix of media. While it would have been ideal for students to work directly with end users, this was outside the scope of the project; however, students were exposed to clinicians, the hospital design lab, and D4H practitioners. Students valued the real-world learning and the need for empathy in design. They also perceived that designing for healthcare was significant and were able to see how healthcare was continually changing, as well as how designers should be integrated into healthcare to work alongside healthcare professionals in developing solutions for communicating health-related topics (Potter et al., 2018).

Building from this experience, final-year design students from all design disciplines were presented with an opportunity to join an integrated, collaborative, and interdisciplinary design project in partnership with a hospital industry partner (Reay et al., 2021). Initially, a small number of students participated in small groups on a project to rethink the future of a new healthcare facility being built on the hospital campus (Reay et al., 2021). Students worked collaboratively with key stakeholders. While students described the project as one of their best learning experiences, the design process was a rollercoaster of uncertainty and unknowns. The project demonstrated the value of such initiatives in generating new possibilities for healthcare and helping healthcare organisations think differently about what might be possible. In subsequent years, with larger cohorts, students worked on projects to welcome visitors to a new healthcare facility that was part of the larger campus, as well as a regional dental service for children¹.

In addition to more formal learning opportunities through courses and assessments, the Good Health Design team also facilitated two internship-based learning opportunities, providing students with opportunities to engage in authentic, real-world experiences within a D4H context (Khoo et al., 2025). Work-Integrated Learning (WIL) internships provide an opportunity for final-year communication design and digital design students to apply their learning beyond the classroom environment and work on a real-world project (60+ hours) in a design studio or consultancy, reflecting on their competencies in a professional context. Summer Studentships (SS) provide students considering further postgraduate study with an opportunity to work alongside staff and gain introductory research experience. Normally, this consists of ten weeks of full-time activity (350+ hours) over the summer period. While facilitating real-world experiences can be challenging for staff (e.g., building and maintaining connections and relationships with healthcare staff, appropriate project selection, managing expectations, advocating for the value of design, etc.), design students are able to work on meaningful design projects within the rich and complex healthcare context. They were able to consider the value and impact of their design practice, better preparing them to navigate challenging contexts and deliver design solutions to complex issues (Khoo et al., 2025).

¹ see <https://www.goodhealthdesign.com/project/integrated-studio-2020> and <https://www.goodhealthdesign.com/project/integrated-studio-2021>)

3. A New Design for Health Minor

A restructuring of the Bachelor of Design provided an opportunity to build on the above work and offer students new opportunities in D4H. The new design major consisted of core courses (120 points) that cover fundamental design principles and processes, a chosen major (120 points) or the area of design specialisation and a flexible component (120 points) that may consist of two minors (60 points each); or a minor (60 points) and elective courses (60 points); or a second major (<https://www.aut.ac.nz/courses/bachelor-of-design-te-tohu-paetahi-mo-te-hoahoa>). Generally, students enrol in a major program of study and then choose minors (or electives) most relevant to their future aspirations.

Creating a minor in D4H presented an important opportunity for undergraduate students to engage with complex social and health issues and to work with leading researchers and external partners. The minor enables students to work in multidisciplinary teams to learn new design methods and processes that enable them to work effectively in complex situations with the intention of improving health and wellbeing in contemporary society. Students are encouraged to bring to the minor knowledge of and develop expertise in their major discipline (and vice versa).

The D4H minor responds to an increase in demand for design researchers across healthcare, third sector organisations, healthcare industry and government. It recognises that health and healthcare challenges cannot be addressed by any one discipline; the expertise in D4H is lacking in New Zealand and is in its infancy globally. The minor builds on a opportunity to support a shift toward new ways of thinking with regard to innovation in healthcare and how health and wellbeing are conceptualised. It acknowledges that current models are not sustainable, and transformation requires collaborative design processes with community members at the centre, as well as interprofessional collaboration between health professionals, designers, and other stakeholders across service sectors. It presents an opportunity to grow the workforce of designers working in health-related settings. Additionally, there is an opportunity for other students outside of design (e.g., Health Science students) to take a D4H minor (or elective courses) to explore the use of co-design processes in creating programmes and tools for future-focused practice. Finally, the undergraduate minor supports a D4H journey from undergraduate to postgraduate for students in both design and health (e.g., the MDes D4H pathway). Currently, each paper has one cohort of students enrolled (approx. 24-30 students).

The overarching premise of the minor proposes that people live in a complex world. Tomorrow's health and wellbeing will be driven by those who can apply creative, practical, problem-solving skills to complex problems. The D4H minor offers a fresh perspective through collaborative and cooperative tools, skills and mindsets, and an opportunity to design for positive social impact and lead transformative change in health and wellbeing. The minor consists of four (15-point) courses that, when taken as a complete minor, span years one to three of an undergraduate journey (each course can be taken as a standalone elective offering) (Figure 1). The minor staircases content from course to course based on a previously developed D4H framework (Figure 2) to support the development of successful D4H collaborations (Nakarada-Kordic et al., 2020) as follows.

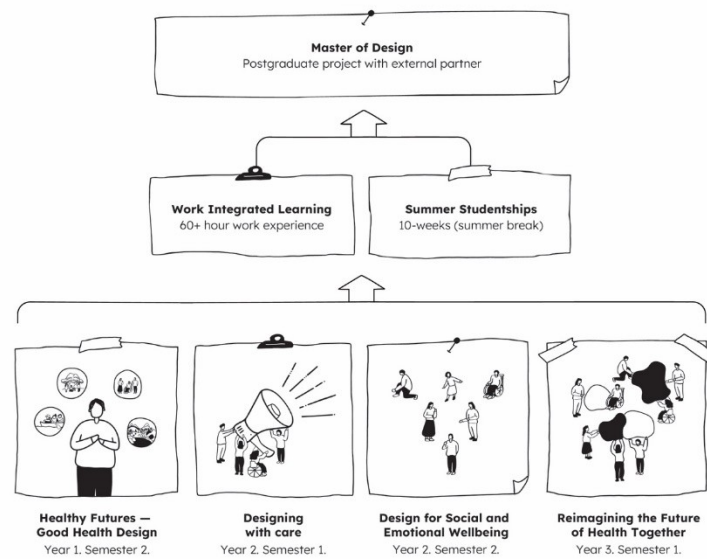


Figure 1 Staircasing of the four Design for Health minor courses, which form the foundation of work experience and summer studentship opportunities, followed by ‘live’ projects at the postgraduate level.

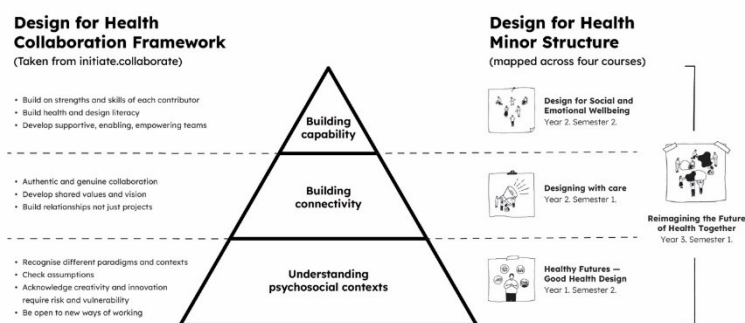


Figure 2 How the Design for Health collaboration framework from Nakarada-Kordic et al. (2020) was used to structure the four courses.

At the foundational level, ‘understanding psychosocial contexts’ recognises that D4H is centred on empathising with patients, families and service providers by actively involving them to empower their wellbeing and improve services. To work effectively, collaborators must recognise differing paradigms and contexts, and embrace the uncertainty of creative work, being open to new directions, taking informed risks, and adopting new ways of working. Once this is established, ‘building connectivity’ focuses on the need for authentic, transdisciplinary collaborations that build shared values across disciplines to effectively tackle problems with flexible, future-focused responses, while prioritising long-term relationships. Finally, ‘building capability’ recognises that successful collaborations bring together diverse expertise and mindsets and recognise that no single discipline holds all the answers. From this, a focus on clear expectations, building shared literacy, respect, trust, and empowering teamwork helps align differing perspectives, allowing everyone to contribute meaningfully.

In addition to the framework outlined by Nakarada-Kordic et al., (2020), the first three courses are structured to focus more specifically on considering health and wellbeing from the perspective of individuals and whānau (loosely translated from Te Reo Māori to mean family and wider family grouping) (course 1), to communities (course 2), and then finally at the structural levels of society (course 3). The final course (course 4) brings together learning from the first courses through an integrated project that builds on the preceding three. Course learning content comprises a mix of workshops, lectures, guest speakers from outside the design field, and field trips to various healthcare settings and contexts. An overview of each course, including examples of briefs and student work follows.

3.1 Course 1. Healthy Futures - Good Health Design

The first course positions students and introduces them to how 21st-century health care has become one of the most complex, expensive, and challenging work environments. The course examines the disconnect between how the healthcare system operates and what people may actually need. Students are introduced to the social, historical and cultural aspects of health and wellbeing, and how to work in new contexts. Specific challenges and opportunities in relation to the D4H field are examined, including how D4H has become a space for richly creative new ways of thinking, being, and doing. The course situates learning at the individual/whānau level and asks, “How are individuals impacted?” In this, the focus is on examining experiences and events at face value, yet recognising that these are influenced by factors at higher levels, such as the community and social levels. These higher levels shape an individual's or whānau experiences and events, and should therefore also be considered when attempting to gain a comprehensive understanding of the situation. The assessment for the course invites students to reflect on three key learning experiences in the course and present this as a Record of Learning, and design a Critical Wellbeing Artefact that responds to a need or issue related to health and wellbeing, accompanied by a 500-word supporting statement about the concept and what it is trying to achieve. For example, something personally meaningful, something that affects their whānau or community, or a broader issue that students feel passionate about addressing.

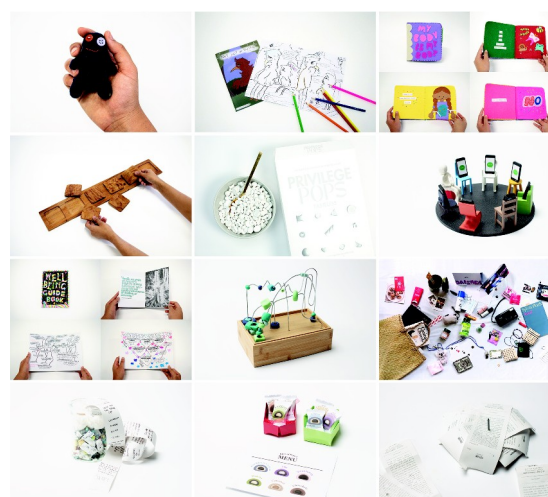


Figure 3 Examples of student work from course 1. The critical artefact should promote an interaction or exchange (e.g., emotional, relational, informational, or experiential). It should also reflect and apply the learning, insights, and experiences students gained throughout the course.

3.2 Course 2. Designing with care

This course explores what it means to design ethically, how to be valued as a D4H thinker and advocate for design and the user. Students are asked to reflect on their motivation and how to open up to others' perspectives and ways of thinking to challenge existing assumptions and reframe their points of view. They explore how D4H thinking tools and approaches can help them empathise with end users to address underlying issues of inequality, vulnerability, and inaccessibility. The course situates learning at the community level and advocates for the notion that solutions exist within communities. The course focuses on how community actions and experiences reflect the wider context. This is reflected in the behaviours, outcomes and experiences of individuals (e.g., a community disenfranchised by land loses lives in a context of economic deprivation and generational harm that creates experiences of poverty and trauma amongst families and individuals). The assessment for the course invites students to work in groups to design a creative tool or activity to unpack a context, design and develop a tool or activity to engage people in the discovery phases of the design research process. This is framed as an important part of co-design approaches, where activities are designed to address power imbalances and empower people to participate and contribute in ways that are appropriate and meaningful to them.



Figure 4 Examples of student work from course 2. Students work in groups to research. Designing with Care is all about working with people. When working with people, both the tools used and the way they are engaged are crucial to how they are safely supported in expressing their vulnerabilities and needs

3.3 Course 3. Design for Social and Emotional Wellbeing

This course explores how design can be used to implement research to achieve tangible outcomes. Students are asked to consider what it means to live in a complex world. They explore how to harness community strengths and capabilities through co-design and co-creation approaches and practices, aiming to accelerate the restoration of community wellbeing structures. Holistic and systems-thinking approaches are examined to consider how to engage in cross-disciplinary collaboration. This is underpinned by the potential of collective leadership and social governance models to examine how to best apply creative and collaborative skills and approaches to lead change in the health and wellbeing space. This course is grounded in the notion that privilege builds power, and that structural factors in society result from the organisation of power and resources by the system created by institutions (i.e., law, businesses, government, etc) within an economy. The assessment for the course invites students to consider how they might contribute to solving today's and future complex problems, by 'seeing' through a systems thinking lens to create an artefact, campaign, story or intervention to draw attention to the need to challenge a dominant

stereotype or stigma related to an individual's/community's vulnerabilities as a consequence of their interactions with societal systems, and make this visible (e.g., to those influencing policy) to prompt change.

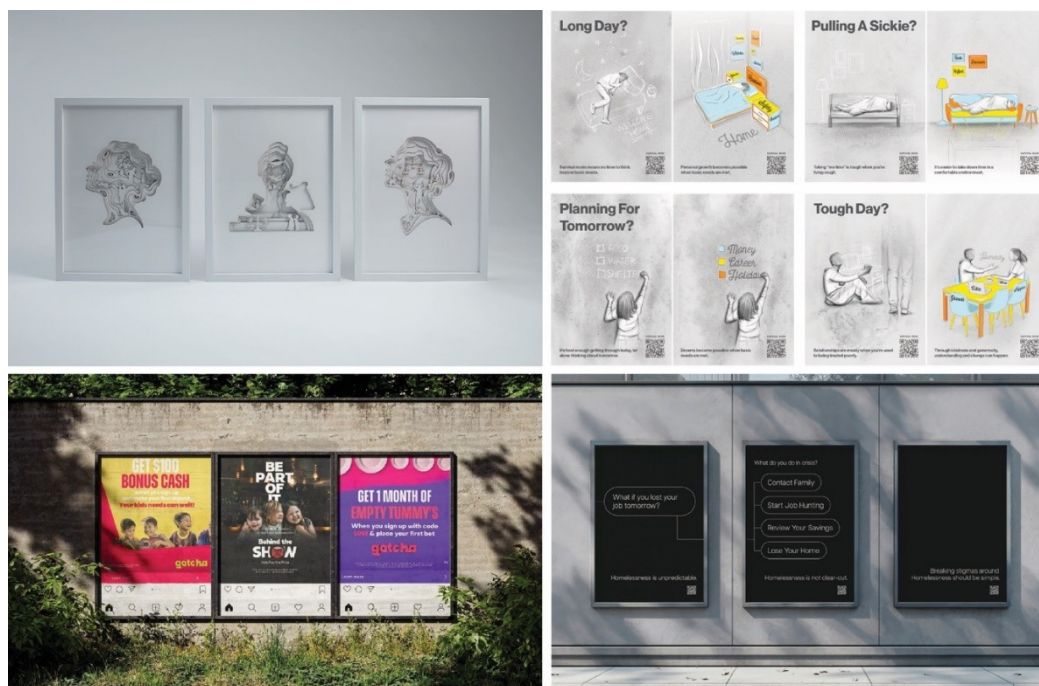


Figure 5 Examples of student work from course 3. We live in complex social systems. Students are asked to focus on the different structural factors (political, economic, environmental, cultural, physical and historical) that contribute to and have flow-on effects that impact communities and the individuals/ whānau within communities. Solutions ask viewers to consider how the impacts of things that may affect wellbeing ripple across the different levels of a system and that everyone has vulnerabilities, and these can be amplified or reinforced through their interactions with systems.

3.4 Course 4. Reimagining the future of health together

The final course looks to the future and builds on the learning from the previous three courses, asking: How do we challenge and push against those structures and processes commonly taken for granted to make different outcomes possible? The course proposes that the future of healthcare lies in applying creative, innovative solutions to a wide range of problems and opportunities. Given that global health and wellbeing are characterised by complex, constantly evolving, and often unpredictable challenges, new ways of thinking will be required, with no single discipline or practice holding the key to solving these challenges. To help students think into the future, the course is structured using a series of speculative design workshops loosely based on work by Dunne and Raby (2013), and others. In an era shaped by climate change, urbanisation, digital interconnectedness, and shifting cultural values, the concept of "home" is rapidly evolving. Traditional notions of home as a physical space are being increasingly challenged by transient lifestyles, virtual living, and the sharing of resources. Students are invited to reimagine what "home" might mean in future contexts, envisioning alternative ways of living, being, and belonging.

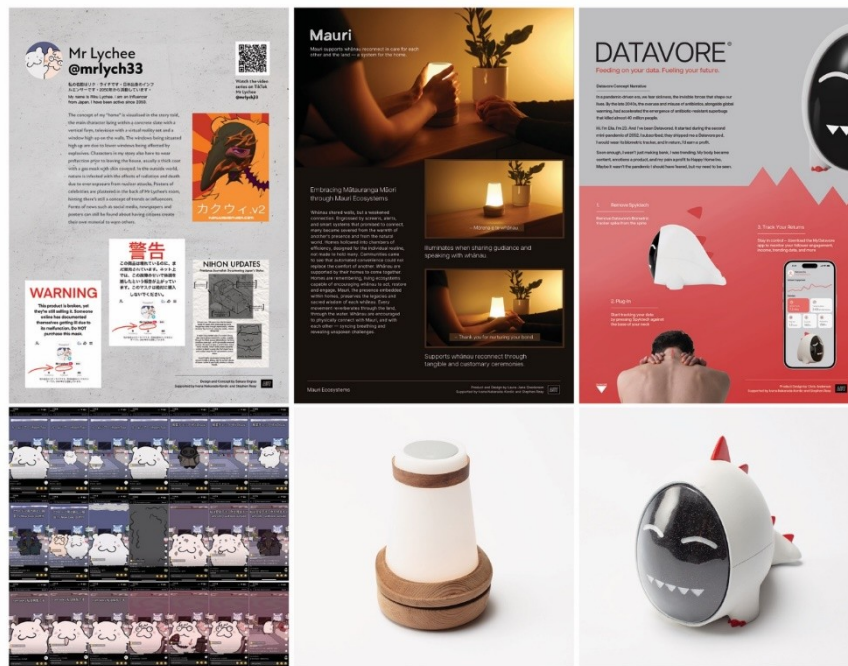


Figure 6 Examples of student work from course 4, where students were invited to create a speculative design proposal that reimagines the concept of home in the year 2050, exploring how advancements in technology, environmental shifts, and societal changes might reshape the spaces we inhabit, the connections we foster, and the meaning of "belonging."

4. Reflection and Discussion

There is a growing need to bring design into healthcare, and new approaches are critical in a world of diminishing resources (Jones, 2013; Tseklevs & Cooper, 2017; Ku & Lupton, 2022; Craig et.al., 2023). While design in the context of health has a long history, as an academic discipline it is still in its infancy (Reay et al., 2019; Craig et.al., 2023). How designers and health professionals bring design into healthcare is still evolving. This course presents how the authors responded to a unique opportunity to develop and deliver new curriculum in this interdisciplinary field. The curriculum development explored in this course positions that tomorrow's health and wellbeing will be driven by those who can apply creative, practical, problem-solving skills to complex problems. D4H offers a fresh perspective through collaborative and cooperative tools, skills and mindsets (Craig et.al., 2023).

The D4H minor builds on several years of curriculum development. However, most opportunities for students have been one-off, via single projects or courses. For interested or focused students, it has been possible to 'stitch' together a design for a health journey from undergraduate study to postgraduate. As such, the D4H minor offers a clearer and more structured pathway for students, providing a more comprehensive learning journey. In doing so, students are better equipped to navigate 'live' D4H projects at the postgraduate level.

At the time of writing, the D4H minor has been running for three years. This means that a single cohort had completed all courses. Initially, the number of enrolments was low, but this has quickly grown. Most students come from the School of Art and Design, with a small

number of students from across the university (e.g., psychology, public health, health science) who have enrolled in single course as electives. It has been challenging to communicate the value proposition of the minor, particularly the richness and diversity of experiences it offers. Anecdotally, we hear that the D4H minor is perceived by prospective students as ‘design for hospitals’; as such, we have worked to reposition it as learning how to work creatively with people for social change. Over the first three years, the interest has grown and enrolments are building steadily.

The minor positions ‘design for health’ as a strategic curriculum innovation that embeds research-informed, real-world healthcare challenges across the programme to develop students’ empathy, systems awareness, and collaborative capability. Pedagogically, it applies people-centred methods and interdisciplinary collaboration, exposure to various health settings and contexts, and iterative making to help students mobilise knowledge and innovations that reside within communities.

By intentionally bringing design into healthcare’s often complex, risk-averse systems, this minor prepares students to operate with courage, empathy, and humility. This means balancing organisational constraints with design intent while collaborating across disciplines (Jones, 2013; Tsekleves & Cooper, 2017; Ku & Lupton, 2022; Craig et.al., 2023). Through people-centred methods, evidence-informed making, and exposure to real governance and decision-making contexts, students develop design literacy within healthcare, learn to navigate top-down structures and biomedical norms, and practice safe-to-learn experimentation. In doing so, they are equipped not only to deliver tangible improvements to patient, whānau, and clinician experiences, but also to contribute to longer-term cultural change.

Our hope is that formalising this undergraduate pathway will help legitimise D4H as a relevant career and better position graduates to navigate often challenging and complex health and wellbeing contexts.

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