Auckland Plan 2050: A narrative experience of a Social Design project in Aotearoa New Zealand

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Abstract: This paper describes a Social Design student's project conducted during 12 weeks in a Communication Design degree in Aotearoa New Zealand. The project employed a studio-driven educational structure that integrates social, technical and cognitive dimensions of knowledge construction. In this sense, the aim of this paper is to present our experience in order to shed light about Social Design as a context for studio activities in Design teaching. The brief employed a pragmatic framework to problem-solving to develop design outcomes capable of impacting local and global society. As a result, there was increased student engagement within the paper, a fact associated with the process of designing under real-world settings, that produced strategic platforms for collaboration and cultural diversity.

Keywords: auckland plan 2050; design education; social design; design-based research

1. Introduction

Social Design is often described as a concept that uses design to benefit the environment, and our communities, challenging the traditional framework of designing. It holds the "unique power of design toward serving the greater good" (Tromp, 2013, p. 12). In the last ten years, there has been an increased interest in social design (Melles, de Vere, & Misic, 2011; Tromp, Hekkert, & Verbeek, 2011; Rizzo, Deserti, & Cobanli, 2018; Nasadowski, 2015; Chen, Cheng, Hummels, & Koskinen, 2016), and in how designers can influence and create public awareness about environmental and community issues.

Papanek's and Fuller's pioneer work Designing for the Real World, first published in 1972, positioned social design in relation to social problems and in a critique of the dominant market-oriented culture. Their position was deepened by the 2008 financial crash that opened opportunities for designers to find alternatives in Non-Governmental Organisations (NGOs) and the public sector. Since then, social design has been promoting a change of paradigm "towards a wider and more complex social and human-centred agenda" (Souleles,

2017, p. 928). More than ever, design faces the needs of a constantly growing world population and the challenge of living in a harmonic balance with nature and its resources.

Winograd (2006), Baynes (2010), and Souleles (2017) all remind of the importance of social design competencies and skills for design graduates. Souleles (2017) advances that design education should "allow graduates to deal successfully with the challenge of design for social change, [that] entails the adoption of a variety of strategies that at their core are human-centred" (p. 927). The Professional Association for Design (AIGA) published a report on the 21st of August, 2017 as a result of the AIGA Conference Why design education should pay attention to trends that details key ideas for a profound transformation in design education, moving from an industrial model to the emergent social conditions. This new model predicted a different scenario where designers' skills were reconsidered in the ambit of schools and universities, requiring a fine adjustment on the set of competencies and abilities for a professionally relevant designer.

Sangasubana (2011) argues that social design employs a range of skills that expand the designer's essential competencies, including identifying the relationships between people and the environment. As a result, design briefs should cater to projects that go beyond aesthetics and seek new forms of problem-solving. Accordingly, these skills prescribe an approach that requires knowledge in strategy, planning, prototyping, and testing. Besides, Armstrong, Bailey, Julier, and Kimbell (2014) place social design in education in an interplay between entrepreneurship and social activism. A paradigm shift requires education models to address responsible designers who can innovate and use visual technologies to address social problems that are wicked by nature and are far more complex and interdisciplinary (Chen et al., 2016). Additionally, this new designer will face a new social complexity, populated by virtual societies in sophisticated layers of technology that will create the demand for a designer that is not a passive consumer of information but an active developer of content and experiences.

The ubiquitousness of mobile usage by university students already show their relevance in studio-driven practices. Accordingly, technology prompts opportunities and questions about its usefulness and advantages in design education. These devices can also offer great opportunities for the design-studio classroom promoting collaboration and increasing student engagement (Wankel, 2011; Moran, Seaman, & Tinti-Kane, 2011; Bor, 2014).

According to Kurt (2010) and Costley (2014), technological tools applied to studio education can create meaningful experiences that increase student engagement and improve critical thinking and problem-solving skills. Also, the integration of media and design tools promoted by technological resources including devices (hardware), apps (algorithms), and platform (web) reinforce the problem-solving character of the designer (Bonnardel & Zenasni, 2010) and brings new applications and uses of design practice.

Thus, this paper discusses how social design and technology have been implemented in the studio-driven classroom. It details the methodological framework where this project is situated, including the student's brief, methods, and tools observed inside the execution of

the student's projects. It aims to narrate an experience and the chronology of studio-driven activities that generated perceptions from lecturers and students.

2. Methodology of the Project

The methodology used in this project is defined under Design-based Research (DBR) and refers to methodology used by researchers in learning environments. It is mainly concerned with the "...design of educational materials (e.g., computer tools, learning activities, or a professional development program) [that ...] is interwoven with the testing or development of a theory" (Bakker & Van Eerde, 2015, p. 2). DBR has its origins in the 1960s as a movement from designers and researchers that aimed to create methodological practices to observe the academic rigour and develop an independent scholarly discipline (Christensen & West, 2017). It brought scholarly attention to the methods used in design studies to extract theories. Margolin (2010) argued that putting design methods under academic scrutiny could improve the quality of practitioner's practices and design outcomes.

Many thinkers (Getenet, 2019; Zinger, Naranjo, Amador, Gilbertson, & Warschauer, 2017; Brown, Taylor, & Ponambalum, 2016; Ebaeguin, 2014) note that this methodology can improve the quality of the outcomes in education practices. Christensen and West (2017, pp. 12-13) argue that DBR is design-driven, situated, iterative, collaborative, theory-driven, practical, and productive. Wang and Hannafin (2005) define it as "a systematic but flexible methodology [that can] improve educational practices through iterative analysis, design, development, and implementation" (p. 6). The main difference of this framework is that pedagogical approaches can be amended along with the ideation and testing of design solutions, leading to "contextually-sensitive design principles and theories" (Bakker & Van Eerde, 2015, p. 6).

In this paper, we refer to DBR as the group of instruments and tools used for specific research in accordance with the parameters of social science. Using a pragmatic framework through traditional forms of qualitative and quantitative research, DBR was implemented as a framework that allowed dynamic adjustments of components during the process. The studio-driven classroom operated in the form of collaboration that brought research and practice together operating in real-world settings. This approach enhanced students to engage with research, where there was "no strict separation between theory development and theory testing" (Markauskaite, Freebody, & Irwin, 2010, p. 39). It promoted an environment where theory was researched through practice, and where research-informed practice as much as practice-informed research.

3. The student's brief

The brief Auckland Plan 2050: Promoting and researching a design plan for a growing city was initiated as a response to a hypothetical research question: How design outcomes can contribute to increasing the awareness of a problem in the real world, extracted by the categories defined by the Auckland Plan 2050?

The project asked students to research a human-centred model and a collaborative design process that enabled them to delineate specific problems and challenges towards several design solutions based on Auckland Plan 2050, a Council's long-term spatial plan for Auckland city in New Zealand.

Auckland Plan 2050 (2018) is an open-access digital document developed by the Auckland Council that comprises issues, opportunities, and developmental strategies taking sustainable actions for a growing city (document is accessible at https://tinyurl.com/y8zz3r6x). According to the Auckland Plan 2050 (2018), this document is a "streamlined spatial plan with a simple structure and clear links between outcomes, directions and measures. It shows how Auckland is expected to grow and change during the next 30 years" (p. 5). The plan provides "a pathway for Auckland's future physical development [... and] a framework to prioritise and coordinate the required supporting infrastructure" (Auckland Plan 2050, 2017, p. 6). It considers Auckland's (the largest city in New Zealand) key six main areas of actions that includes strategic points and opportunities for social change for Auckland until 2050. These are the areas the plan aims to promote and improve:

- Community interaction and participation
- Māori identity and wellbeing
- Housing and urban places
- Transport and access
- Environment and cultural heritage
- Opportunity and prosperity for all Aucklanders

The brief asked students to investigate, define, and develop design outcomes to promote awareness, facilitate a process and/or promote a change of attitude using one of the six main action areas of the plan. Students were divided into groups and were required to identify a potential problem and opportunity for design solutions relating to a specific social issue. Aiming to provide an opportunity for reflection and interest of students (and accessibility of data), we established the university students themselves as the target audience and encouraged a personal reflection regarding their own responsibility and relationship with the project.

3.1 Guiding principles of the student's project

Working in groups of four or five members, students created interpersonal relationships based on the Auckland Plan 2050's (2018) guiding Māori principles of Atawhai — Kindness, generosity; Kotahi — Strength in diversity; Auaha — Creativity, innovation; Pono — Integrity; Taonga tuku iho — Future generations. These principles were defined in the online document, encouraged as driven forces for the project, and used as a lens through which we looked at the designer's outcomes, teaching pedagogies, conversations, and group dynamics. The brief recognised the importance of Mātauranga Māori traditional knowledge and values as a "way of being and engaging in the world [using] kawa (cultural practices) and tikanga (cultural principles) to critique, examine, analyse and understand the world" (Kia Eke Panuku,

n.d., p. 1). Using the concept in its simplest form, classes were initiated with the sharing of kai (food) as a symbolic gesture to indicate care and reciprocity between group members and lecturers. In these sessions, we discussed aspects of community behaviour and respect between students working in collaborative projects.

We also discussed ongoing considerations of non-Western epistemologies, including how to embrace cultural backgrounds, navigating language barriers, and other ways of thinking and behaving. Many AUT South Campus students live in Manukau region (one of the poorest areas of Auckland where the campus is located) and more than 60% of the classroom was composed by diverse cultural backgrounds, including Māori, Samoan, Tongan, Japanese, Singaporean, Vietnamese, Sri Lankan, Chinese, Filipino, Brazilian, Fijian Indian, and South African. In consideration with these ideas, we discussed the importance of design solutions to encompass a positive and productive relationship with Auckland's Māori and wider society and to recognise Te Tiriti o Waitangi / the Treaty of Waitangi. It's important to note, that during this assignment, we are aware of the complexity of whakapapa and Mātauranga Māori traditional knowledge and values. In alignment with that, we invited the AUT Te Ara Poutama lecturer Dr Robert Pouwhare, a tohunga (spiritual leader) from Ngāi Tūhoe (a Māori iwi in the North of New Zealand) to introduce students to some Māori concepts and discuss some aspects of the students' projects. Robert Pouwhare discussed the history and principles of the Treaty of Waitangi, also giving guidance and knowledge to specific Māori sites and stories in the Auckland region.

3.2 Design framework

In this paper, the design framework operated under a problem-solving model that was supported by a mixed-method approach. To conduct the research and identify design opportunities inside one of the six areas of development in the Auckland Plan 2050 (2018), students followed a pragmatic approach, that according to Powel (2001) aims to facilitate human problem-solving.
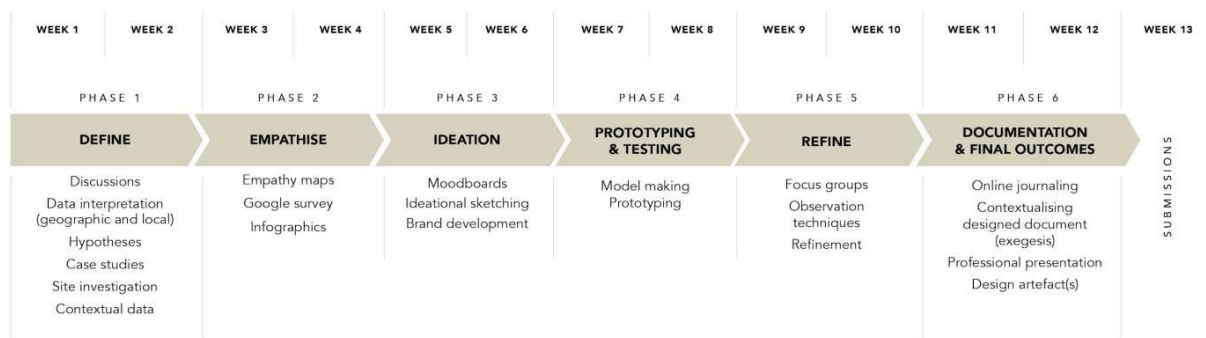
Students were asked to solve real-world problems, considering the practicality of the solution in relation to the user. The focus was on 'what works' as the truth regarding the research questions under investigation (Teddlie & Tashakkori, 2003). The pragmatic principles are well aligned with the analysis of problem- solving and the ability of design to "look for meaningful problems, frame them into appropriate contexts, and design a process for developing and implementing a solution" (Irwin, 2015, p. 92). The pragmatic principle is often associated with the use of mixed methods and convergent design described by Creswell (2014) where only the combination of qualitative and quantitative data can provide the big picture in social research. Usually, it refers to a process of research where qualitative and quantitative data gathering are carried out separately in parallel and then compared to create the convergence.

The pragmatic view offered a chance to use mixed methods to explore a range of perspectives, alternatives methods, combining different worldviews, and philosophical

treatises. The advantages of mixed methods allowed a bridge between the quantitative and qualitative approaches and the result was a more practical outcome in terms of reach and impact, while it provided a richer platform of exploration. Accordingly, the quantitative approach exercised a rational dimension by informed design decisions, while providing subjective qualitative responses from interviews and focal groups.

3.3 Chronology of the studio-driven activities

Design education and the studio-driven approach exemplifies experiential learning. The studio culture values creativity and collaboration, where the knowledge is produced instead of disseminated. By this means, the studio-driven activities created a dialogue between the research data, the making, and contextualising theory. During the teaching classes, lessons encouraged intersections between the methods developed every week. These lessons and development of the project evolved from beginning to end through six consecutive two weekly phases (Figure 1):

WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11	WEEK 12	WEEK 13
PHASE 1		PHASE 2		PHASE 3		PHASE 4		PHASE 5		PHASE 6		
DEFINE		EMPATHISE		IDEATION		PROTOTYPING & TESTING		REFINE		DOCUMENTATION & FINAL OUTCOMES		SUBMISSIONS
Discussions Data interpretation (geographic and local) Hypotheses Case studies Site investigation Contextual data		Empathy maps Google survey Infographics		Moodboards Ideational sketching Brand development		Model making Prototyping		Focus groups Observation techniques Refinement		Online journaling Contextualising designed document (exegesis) Professional presentation Design artefact(s)		

Figure 1   Chronology of weekly lessons and phases conducted during the twelve-week period until submission.

Phase 1: Define (weeks 1-2)

In the first two weeks, students discussed the role of research within practice, the importance of social projects in design, ethical conduct, and different aspects of the brief. Using the Auckland Plan 2050 (2018), students decoded regional maps and infographics, and interpreted geographic and local data about different regions in Auckland, understanding the issues and opportunities from the existing documentation. Students also created hypotheses of problems within the context of their chosen theme, indicating potential design opportunities for their individual briefs. Within the process of defining their arena of research, students documented existing case studies, including site investigation, competitors, and contextual data.

Phase 2: Empathise (weeks 3-4)

This second phase allowed students to deepen their understanding about the needs, thoughts, and feelings of the demographics. This stage was conducted throughout empathy maps and re-framing and defining the problem in human-centric ways. Using google survey,

students tested their hypothesis through surveying a minimum of 100 university students that branched out from not only questions about statistical data (relating to a particular group such ageing, gender, and economic backgrounds), but also potential media platforms that could be used for the final design solutions. During this process, students took notes and documented their perceptions about the users and their environment to generate qualitative data and insights about the profile of their audience. Outcomes of quantitative and qualitative research were compiled and translated into a designed infographic containing the findings collected during the empathy maps and questionnaire process.

Phase 3: Ideation (weeks 5-6)

During the process of ideation, students utilised moodboards as a process of inspiration and communication as "triggers for idea generation and providing anchors for structuring mental representations" (McDonagh & Denton, 2005, p.3). A visual collection of imagery operated as functioned environments for indwelling and as communicative devices for discussions with other designers. During this process of moodboarding, the designs started to gather increasingly explicit form and the directional idea around the concepts started to develop and to be discussed among other designers. These developmental stages were followed by ideational sketching and stages of brand development towards a range of possible designed materials. These processes of ideation occurred as free as possible and encouraged divergent and convergent thinking towards a collection of ideas and led to three possible design solutions to be converted to prototypes.

Phase 4: Prototyping and testing (weeks 7-8)

During this phase, students were encouraged to operate in the process of model-making and prototyping. This stage operated through engagement with materials, reflection, and discovery-in-action (Schön, 1983). A process of "move testing" allowed students to experiment with design solutions in a free manner "…in order to see what happens: tak[ing] action in order to produce an intended change" (Schön, 1983, p. 146). This phase was highly encouraged in activities in the classroom where exploration with material operates as active participants and interactors with the maker and the making in the creative process (Carter, 2004). Before the final execution and presentation, students had to provide a final prototype to be tested and refined for the next stage. AR technology, design mock-ups, and signage prototypes were some of the methods used by students in order to indicate the testing of some of their ideas.

Phase 5: Refine (weeks 9-10)

Towards the end of the process, students produced outcomes to be tested in focus groups. They organised five to six selected university students to discuss aspects of the generated design outcomes. These tests indicated the usability of the product, the elements, and principles of design investigated (brand solutions, colour, typography, etc), the communicative approach and technical aspects of the project. During a method of conversation and documentation, students allowed the audience to engage with the design

products and give their insights, while also asking questions and observing their interactions without intervention. Observation techniques allowed them to reflect on patterns of engagement and spontaneous reactions towards the work. During the sessions, students documented the process and reflected towards the refinement of the existing prototypes.

PHASE 6: DOCUMENTATION AND FINAL OUTCOMES OF RESEARCH (WEEKS 11-12)
During this phase, students were required to analyse the process and contextualise the research. This phase was conducted over the process of documentation through a contextualising designed document (exegesis), online journal (blog), professional presentation, and the design artefact(s).

3.4 Contextualising Documentation

One of the deliverables of the paper included a final 3,000 word designed publication outlining the trajectory of the research. The document had a traditional exegesis format and included a brief description of the contextual background, data collection, ideation, tests, and commentary of practice using the APA reference system. Exegesis is a document often described as a model for practice-led research documentation forming a specific structure and navigating between objective analysis and personal reflexivity (Hamilton & Jaaniste, 2010). The academic criteria of a written exegesis not only prepared students for postgraduate pathway, but also allowed students to discuss personal perspectives, and situate concepts and creative practice. They were able to understand the relevance of the project for a specific target audience, and to themselves as emergent designers and researchers. The importance of their personal experiences was outlined in their Positioning of researcher chapter, where students reflected in their personal relationships, and the relevance of the research for them as designers, and an integral part of the social context.

The exegesis as a contextualising document created an empathetic relationship with the process of social design. It allowed a reflexive method, that provided personal insights, giving students certain awareness of their social responsibility as designers and their relationship to the local area.

In the conciliation of personalised language and objective analysis of data, an online blog operated as an information repository and sites for the reflection and collection of research elements. Working as a journal, these platforms are "not precious, self-conscious object[s], but interactive device[s]" (Gray & Malins, 2004, p. 59). The online platform allowed free note-taking and included work in progress, discussions conducted during classes, homework, and also a reflexive analysis of their experiences, their thoughts in order to identify a connection between the creative voice and the objective broader field of the research. Such platforms supported a reflection in action during the process of making (Rodgers, Green, & McGown, 2000; Schön, 1983), afforded convenient ways to keep track of an ongoing archive between all members of the group that was shared, and allowed an active synthesis of information.

Although a personal analysis of the experience was important in the emergence of social awareness and process of conducting research, a professional presentation to the Auckland Council asked them to act as professional designers and present the final outcomes of the project in a professional and concise manner.

3.5 The design artefact(s)

The design outcomes produced by students materialised the solutions envisioned through the research. It indicated a balance between originality, quality of design outcomes, and adherence to professional standards. Students were encouraged to select at least one technological design approach (e.g. app design, Augmented Reality (AR), or Virtual Reality technology) and one traditional printed media (e.g. publication, posters, or brochures) to demonstrate a solution to a problem within the parameters of the brief. This approach aimed to provide an opportunity for designers to explore the intersections between mediums and find multidisciplinary opportunities in design, in specific to new technologies and applications.

The final projects ranged in explorations with branding, app design, packaging, wayfinding, photographic, and social media campaigns. These outcomes were responses derived within the topics indicated in Auckland Plan 2050 (2018), such as food waste, Māori cultural sites, mental illness, and transportation as described in four detailed design artefacts.

ZERO

The design outcomes resulted in a mobile app, a food waste kit, and a social media campaign to bring awareness about food waste in the Auckland area. The app asked users to keep track of the weekly expenses, savings over a period, and create shopping lists and recipes that avoided waste. The platform provided recipe ideas for different households according to their food preferences and weekly shopping budget. Personalised recipes were implemented into the app, so users were able to set up their meal preferences such as portion size, price, and dietary requirements by using a filter function.
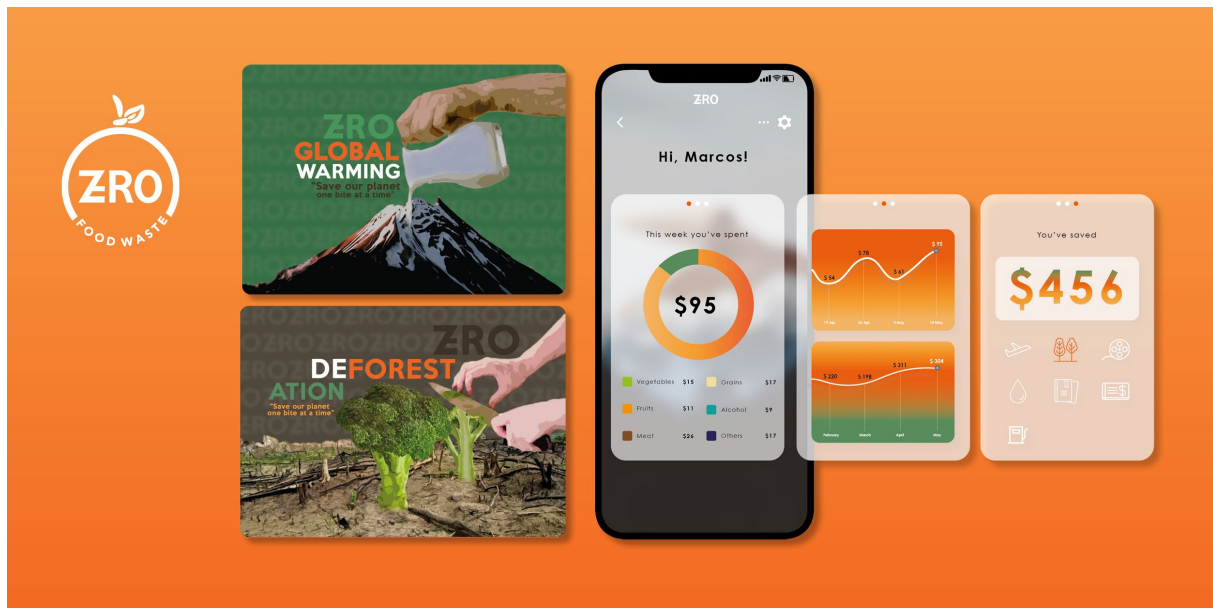
Figure 2   Postcard and app designs for Zero.

Auaha

The project resulted in an eco-friendly wayfinding systems that promoted Māori cultural sights in the Auckland area. The design prototypes a pilot project for an implementation of a AR signage system in Mt Eden (Maungawhau) — a Māori site with rich history, but little cultural awareness. Each of the signage included a series of illustrations, written descriptions of the story, and QR quotes that directed the users to voice recordings about the location in both English and Māori.
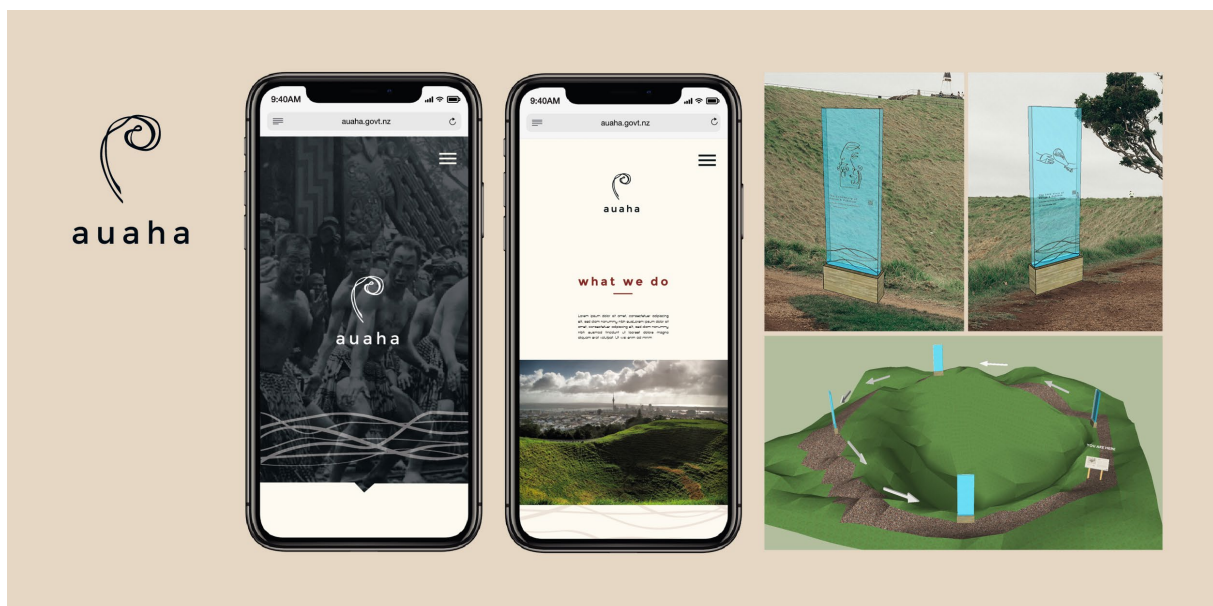

Figure 3   App design and signage system designs for Auaha.

MYORA

The design artefact created for this project was called 'Chill Pack' and provided various designed elements to contribute to the wellbeing of university students. The elements inside the packaging (candle, tea, stress ball, sleep mask, and recipe book) focused towards the five senses and promoted relaxation and positive mental state. A booklet had some instructions about mindful sensory activities to reduce stress and improve wellbeing. The project included AR posters with QR codes that users will be able to scan that will direct them to the website.
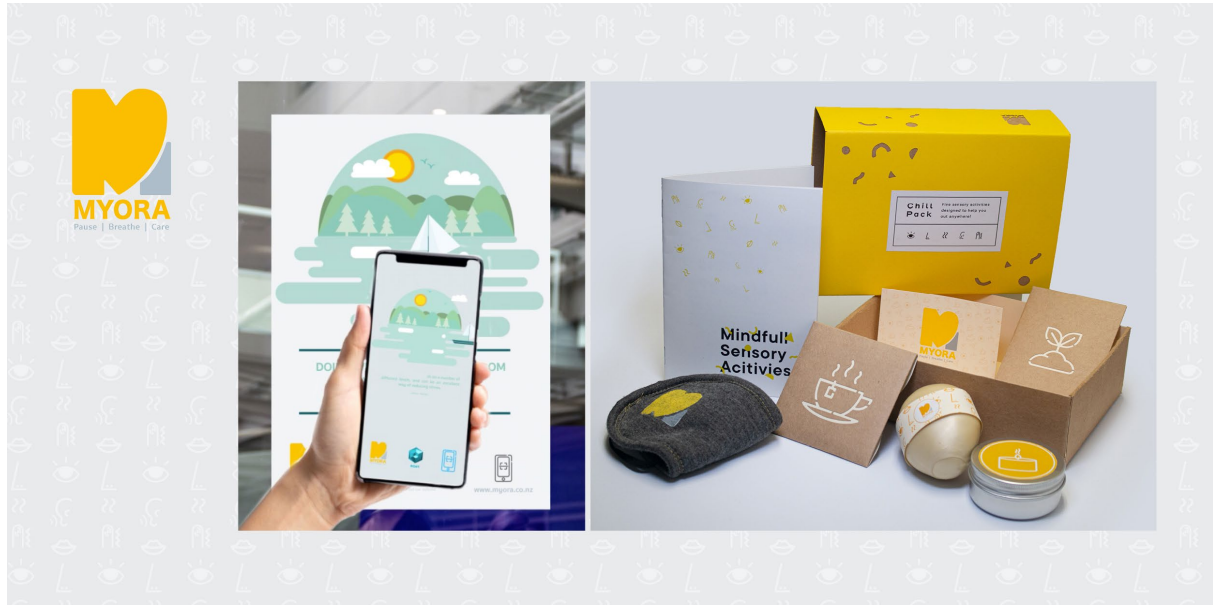

Figure 4   AR poster design and 'Chill Pack' for Myora.

WALK UP

Using gamification design and AR technology, this project encouraged students to walk as a form of transportation in the Auckland area. In the app, users were able to create individual profiles, track their journey, 'scan' the urban space to collect bonuses, gain achievements, and document their reduction of carbon footprint while walking. The platform offered promotions during the walking journey, promoting business opportunities and partnerships with local stores.
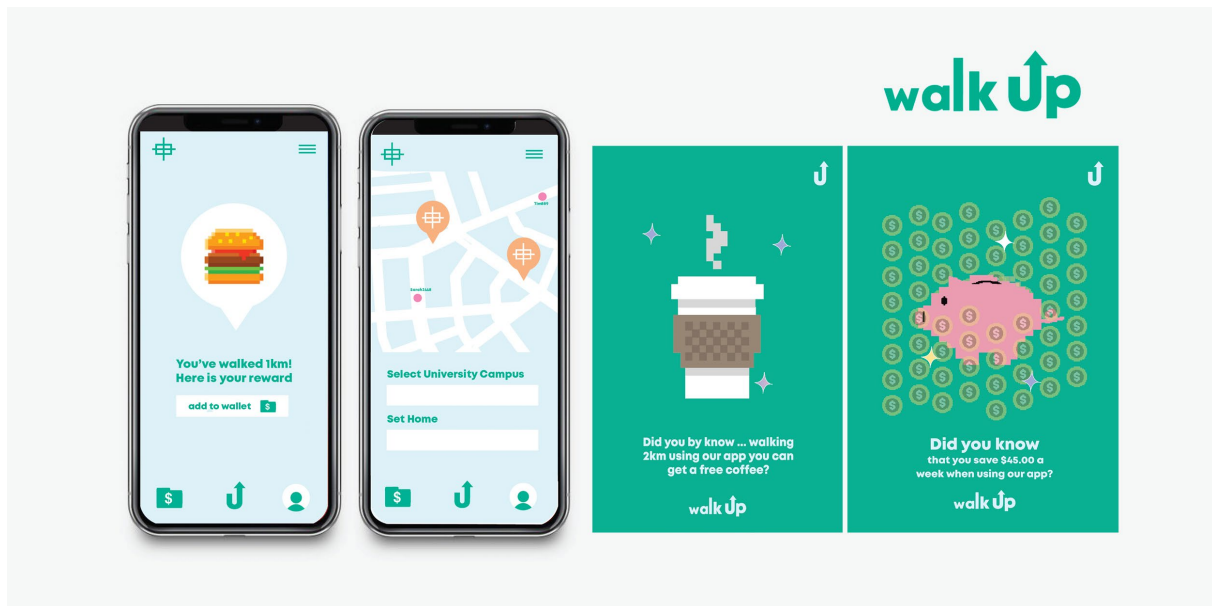
Figure 5   AR app design and poster designs for Walk up.

4. Results

In this article, we have discussed several methods and conceptual ideas conducted during the implementation of a student brief. Thus, this study manifested three overarching results:

1. It provided a methodology for studio-driven education that navigated outside the service provider towards a social design approach.
2. It encouraged collaboration and community practices as a mechanism of social design process, providing a platform for cultural diversity and improving student's engagement with the project.
3. It provided opportunities to use social media and emergent technologies as iterative and communication process in classroom activities.

4.1 The studio and social design approach

The use of social design responds to changes in the design paradigm, moving the focus from the form and function of a product to assume social and environmental responsibility. In this brief, social design strategies offered a rich opportunity for lecturers to promote authentic studio-driven experiences filled by real-world context and critical reflection. The Auckland Plan 2050 project asked students to engage and develop skills that went beyond the basic conventions of graphic design and respond to social problems. It connected students to local issues with the purpose to develop problem-solving abilities that mixed different perspectives and tools. It presented social design as a meaningful repository of design skills, that provided a pragmatic problem-solving framework with both qualitative and quantitative views combined in a practical solution. They investigated, defined and understood a problem, then gather and analyse relevant data to create a solution for an audience (Herrington,

Reeves, & Oliver, 2010).

In this project, the lecturer's primary role was not to give the solutions for the project. Instead, s/he aimed to help the students to develop understanding through a range of forms of inquiry, action, reflection, and conversation. The process was aimed to increase the chances of discovery and new approaches for a problem. The classroom offered a platform for students to learn fundamental design and professional skills, allied with the ability to collaborate, to practice empathy, negotiate multiple worldviews, and to accurately gather, record, and evaluate diverse information. At the same time, they had to get in contact with alternative epistemologies: first to the Māori values of the Auckland Plan 2050 (2018) and later to different approaches respective of their cultural backgrounds.

4.2 Collaboration and cultural assumptions

Working in collaboration, groups were formed by a mix of students that went beyond their common everyday relationships, simulating a commercial and professional environment. The distribution of skills was levelled up to accommodate diversity of ideas, in order to distribute capabilities amongst group members. In one way, this dynamism provided constructive relationships between students (who were not familiar with each other) while also creating an unproductive experience for others. In general, group work provided a unique synergy between different values and worldviews, allowing students to understand the complexity and productive and enriching nature of participation and collaboration in studio practices.

In the group dynamics, conflicts were particularly noticed in groups where cultural backgrounds were diverse, and tutors had to intervene to help students to find the right balance between cultural voices. These issues were mainly associated with different ways to negotiate, the collective versus the individual. Lecturers promoted group conversations to find a common ground where individual tasks should be handled by members of the team to achieve group goals and maintain collective interest and professionalism. There was a need to discuss and align differences to promote a positive cultural and ethnic perspective in the classroom, including understanding, responsibility, and respect for cultural differences, including negotiation of ideas, professional, and ethical attitudes in the workplace.

Interestingly, the Social Impact Design Summit Conference in February 2012 pointed out that social designers working globally have to be sensitive within cultures and "have a mandate to tread sensitively within the cultures to which they're providing services, or they will create the perception, if not the reality, of saddling a community with ineffective or inappropriate developing tools" (in Lasky, 2013, p. 22). A cultural perspective has extremely geographic relevance considering AUT South students belong to unprecedented migratory movements in South Auckland area. In this context, the United Nations' Sustainable Development Goals (SDGs) (2015) provides a framework for global competence to exercise world citizenship that prepares students to live and be successful in multicultural and multi-ethnic societies in a globalised world.

Therefore, the project was envisioned to offer students a chance to think about global

competences and provide guidelines of action in design education which takes in consideration new world views, interactions between cultures and issues of local, global, and cultural significance, preserving an open and effective interaction across cultures.

4.3 Emerging technologies and social media in design education

The use of mobile devices has prompted opportunities for students and lecturers to work with AR technology and social media in communication strategies, prototyping, testing, development of their design projects, and data collection. The use of online platforms added a plus to the projects since students brought new forms of communication and design to their projects. The ubiquitousness of students with online platforms improved engagement and curiosity in the studio-driven space. Social media platforms were one of the approaches utilised in the collection of data, exploration, and also in the implementation of design outcomes that included the use of platforms such as Facebook, Snapchat and Instagram and emerging technologies such as AR (AR Spark Studio and Roar AR) and Virtual Reality (VR).

Social media has improved the response time between lecturers and students and allowed all members of the group to see and share posts regarding to the project development. Social Media facilitated collaboration, communication, and engagement between students in the exchange of knowledge and iteration process. Also, the contextual development of ideas operated in an iterative process of a shareable Google Drive and Microsoft Teams (including an online word document for the exegesis), so all members of the group (including lecturers) had access to the development of ideas and ideation process in real-time.

The use of AR technology also allowed explorations in the design process which operated beyond stabilised formulas. Using free AR technology, students considered prototyping and testing formats for their final designs. This new form of technology also presented limitations in the level of interactivity and usability of such platforms. This meant that design decisions evolved according to the technical aspects of the media, through processes of iteration, testing, and development. This process indicated a more volatile design process that presented challenges and opportunities of emerging technology as an education platform for the design process.

4.4 Engagement and feedback

There was an increase in student engagement with the project that was documented in their feedback. Working in groups, a required attendance between group members provided the highest presence rate compared to the same paper in previous years. In a qualitative feedback session, participants responded that higher attendance was due to the group work dynamics, that required them to be present in the majority of the classes; and the nature and progressive structure of the classes that employed an evolving process of design in real- world scenarios. Another reason pointed to by the students was the fact that the studio- driven and the group work required an environment of collaboration, where each student had to contribute to tasks they felt more capable of, optimising the process and

increasing the quality of outcomes. Students felt that the project was rich because it went beyond merely commercial purposes and revealed personal relationships, reflection, and social voice, giving them an advantage towards a unique position in the industry in relation to others.

5. Conclusion

The brief detailed in this paper reminded us of Papanek's (1985) ideas about design's shift to environmental and social. He compared the design activity to the composition of a magnificent poem, the making of a mural, the painting of a masterpiece, or the creation of a concerto. He also noticed the importance of design in everyday life, from organising our habitat, preparing food, supporting a team in a baseball game.

Our aim with this paper was to share an experience where studio provided a platform where to apply design dynamics to social-driven and localised problems. In Papanek's vision, design is in the core of human activity and it could forge strategies and shape objects to impact the world and how our existence is balanced with nature. In this sense, this project considered models where the designer's basic skills are constituted under the human-centred paradigm. The studio-driven space as a core pedagogic component of design teaching, was a sui generis product of experiential and transformative learning practices, that were based on reflection and making. This educational practice was a formative experience where students experienced a constructivist approach to build understanding about ways to solve problems and generate purposeful outcomes.

6. References

Armstrong, L., Bailey, J., Julier, G., & Kimbell, L. (2014). *Social Design Futures: HEI Research and the AHRC.* University of Brighton and Victoria and Albert Museum. Retrieved from https://tinyurl.com/yaagk6wz

Auckland Plan 2050 (2018). *Auckland Plan 2050*. Auckland Council Te Kaunihera o Tamaki Makaurau. Retrieved from https://tinyurl.com/ybn983vr

Bakker, A., & Van Eerde, D. (2015). An introduction to design-based research with an example from statistics education. In A., Bilkner-Ahsbahs (Eds.), *Approaches to qualitative research in mathematics education* (pp. 429-466). Springer, Dordrecht.

Baynes, K. (2010). Models of Change: The future of design education. *Design and Technology Education: An International Journal*, 15(3).

Bonnardel, N., & Zenasni, F. (2010). The impact of technology on creativity in design: an enhancement? *Creativity and Innovation Management*, 19(2), 180-191.

Bor, S. E. (2014). Teaching social media journalism: Challenges and opportunities for future curriculum design. *Journalism & Mass Communication Educator*, 69(3), 243-255.

Brown, A. L. (1992). Design experiments: Theoretical and methodological challenges in creating complex interventions in classroom settings. *The Journal of the Learning Sciences*, 2(2), 141-178.

Brown, C., Taylor, C., & Ponambalum, L. (2016). Using design-based research to improve the lesson study approach to professional development in Camden (London). *London Review of Education*, 14(2), 4-24.

Caplan, S. E. (2006). Relations among loneliness, social anxiety, and problematic Internet use. CyberPsychology & Behavior, 10(2), 234-242.

Carter, P. (2004). Material Thinking: The Theory and Practice of Creative Research. Carlton, Australia: Melbourne University Press.

Chen, D. S., Cheng, L. L., Hummels, C., & Koskinen, I. (2016). Social design: An introduction. International Journal of Design, 10(1), 1-5.

Christensen, K., & West, R. E. (2017). The development of design-based research. Foundations of Learning and Instructional Design Technology. Retrieved from https://tinyurl.com/y79jy74y

Collins, A. (1992). Toward a design science of education. In New directions in educational technology (pp. 15-22). Springer, Berlin, Heidelberg.

Costley, K. C. (2014). The Positive Effects of Technology on Teaching and Student Learning [Online Submission]. Retrieved from https://eric.ed.gov/?id=ED554557

Creswell, J. W. (2014). A concise introduction to mixed methods research. SAGE publications. Denzin, N. (2012). Triangulation 2.0. Journal of Mixed Methods Research, 6, 80-88.

Ebaeguin, M. (2014). Parallelisms between lesson study and design-based research. Contemporary Approaches to Research in Mathematics, Science, Health and Environmental Education, 1, 1-7.

Getenet, S. (2019). Using design-based research to bring partnership between researchers and practitioners. Educational Research, 61(4), 482-494.

Gray, C., & Malins, J. P. (2004). Visualizing research: A guide to the research process in art and design. Surrey, England: Ashgate Publishing.

Hamilton, J., & Jaaniste, L. (2010). A connective model for the practice-led research exegesis: An analysis of content and structure. Journal of Writing in Creative Practice, 3(1), 31-44.

Herrington, J., Reeves, T. C., & Oliver, R. (2010). A guide to authentic e-learning. New York: Routledge.

Irwin, T. (2015, Jan-Feb). Redesigning a design program: How Carnegie Mellon University is developing a design curriculum for the 21st century. Solutions, 6(1), 91-100.

Jerald, J. (2015). The VR book: Human-centered design for virtual reality. Morgan & Claypool

Kia Eke Panuku, n.d. Mātauranga Māori: Voices from the Kia Eke Panuku team — Leading the Change. Retrieved from https://tinyurl.com/ybw7zkpv

Kurt, S. (2010). Technology use in elementary education in Turkey: A case study. New Horizons in Education, 58(1), 65-76

Lasky, J. (2013). Design and social impact: A cross-sectoral agenda for design education, research, and practice [White paper]. White paper based on the Social Impact Design Summit at the Rockefeller Foundation. Retrieved from https://tinyurl.com/y96ogpxw

Mackenzie, N., & Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. Issues in educational research, 16(2), 193-205.

Margolin, V. (2015). Social design: From utopia to the good society. In M. Bruinsma & I. van Zijl (Eds). Design for the good society (pp. 28-42). Utrecht, the Netherlands: Stichting Utrecht Biennale.

McDonagh, D., & Denton, H. (2005). Exploring the degree to which individual students share a common perception of specific mood boards: Observations relating to teaching, learning and team-based design. Design Studies, 26(1), 35-53.

Melles, G., de Vere, I., & Misic, V. (2011). Socially responsible design: thinking beyond the triple bottom line to socially responsive and sustainable product design. CoDesign, 7(3-4), 143-154.

Moran, M., Seaman, J., & Tinti-Kane, H. (2011). Teaching, Learning, and Sharing: How Today's Higher Education Faculty Use Social Media. Babson Survey Research Group.

Nasadowski, B. (2015). Design and Social Impact: A Cross-Sectoral Agenda for Design Education,

Research, and Practice by Julie Lasky. *Design and Culture*, 7(1), 133-135, DOI: 10.2752/175470715X 14153615623880

OECD. (2018). *Preparing our youth for an inclusive and sustainable world.* The OECD PISA global competence framework.

OECD PISA. (2012). *Sustainable Development Goals.* Retrieved from https://tinyurl.com/ph4ntgn

Papanek, V., & Fuller, R. B. (1972). Design for the real world. London: Thames and Hudson. Powell, T. C. 2001. Competitive advantage: logical and philosophical considerations. *Strategic Management Journal*, 22(9): 875–88.

Ryan, P. M. (1995). The Reed dictionary of modern Māori. Auckland, New Zealand, Reed. Rizzo, F., Deserti, A., & Cobanli, O. N. U. R. (Nov, 2018). From Social Design to Design for Social Innovation. Paper presented at the Design for Social Innovation Symposium, Auckland New Zealand.

Rodgers, P. A., Green, G., & McGown, A. (2000). Using concept sketches to track design progress. *Design Studies*, 21(5), 451–464.

Sangasubana, N. (2011). How to conduct ethnographic research. *The Qualitative Report*, 16(2), 567-573.

Schön, D. (1983). *The reflective practitioner: How professionals think in action.* New York, NY: Basic Books.

Shavelson, R. J., Hubner, J. J., & Stanton, G. C. (1976). Self-concept: Validation of construct interpretations. *Review of Educational Research*, 46, 407-441.

Schleicher, A. (2018). Educating Learners for Their Future, Not Our Past. *ECNU Review of Education*, 1(1), 58-75.

Smith, R. T. (2014). *Phenomenology and experiential learning as an approach to teaching studio in architecture.* PhD thesis, Architecture, Building and Planning, The University of Melbourne.

Souleles, N. (2017). Design for social change and design education: Social challenges versus teacher-centred pedagogies. *The Design Journal*, 20(sup1), S927-S936.

Teddlie, C., & Tashakkori, A. (2003). Major issues and controversies in the use of mixed methods in the social and behavioral sciences. *Handbook of mixed methods in social & behavioral research*, 3-50.

The Professional Association for Design AIGA (2017) *Why design education should pay attention to trends?* Retrieved from: https://tinyurl.com/y73zhnko

Tromp, N., Hekkert, P., & Verbeek, P. P. (2011). Design for socially responsible behavior: a classification of influence based on intended user experience. *Design issues*, 27(3), 3-19.

Tromp, N. (2013). *Social Design: How products and services can help us act in ways that benefit society. Doctoral thesis.* Delft University of Technology. Delft, Netherlands

Vannucci, A., Flannery, K. M., & Ohannessian, C. M. (2017). Social media use and anxiety in emerging adults. *Journal of affective disorders*, 207, 163-166.

Wang, F., & Hannafin, M. J. (2005). Design-based research and technology-enhanced learning environments. *Educational Technology Research and Development*, 53(4), 5-23.

Wankel, C. (Ed.). (2011). *Teaching arts and science with the new social media.* Emerald Group Publishing Limited.

Winograd, T. (2006). Designing a new foundation for design. *Communications of the ACM*, 49(5), 71-74.

Woods, H. C., & Scott, H. (2016). # Sleepyteens: Social media use in adolescence is associated with poor sleep quality, anxiety, depression and low self-esteem. *Journal of adolescence,* 51, 41-49.

Zinger, D., Naranjo, A., Amador, I., Gilbertson, N., & Warschauer, M. (2017). A Design-Based Research Approach to Improving Professional Development and Teacher Knowledge: The Case of the

Smithsonian Learning Lab. *Contemporary Issues in Technology and Teacher Education*, 17(3), 388-410.

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