Designing a digital application

To promote physical activity amongst the Samoan population in New Zealand

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Designing a digital application

A 90 - point thesis submitted to Victoria Univeristy of Wellington in partial of the requirements for the degree of Master of Design Innovation in Industrial Design

By Tanielu Pio

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School of Design

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I dedicate this research to my family who have passed whilst I have been on this journey

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Keywords: Obesity, Interactive Design, Samoan community, Pacific Methodology, Product Design

This research addresses the problem that many Samoan people face in New Zealand. Obesity is described as an excessively high amount of body fat to the extent that health is adversely affected (Ministry of Health, 2019). Obesity is related to significant health problems, considerable health costs, and increased risk of early death in the New Zealand population (Wilson, Wilson & Russell, 2001). In New Zealand, the Samoan community has been impacted the most from the vast variety of the Pacific population. There is an ongoing study that the reason for Samoans having a high percentage of people suffering from obesity could possibly be linked to a genetic disorder (Sundborn et al., 2010). Scientists discovered that there is a possible reason for Samoans to be obese which explained why 80 percent of Samoan men and 91 of Samoan women were overweight or obese, although it was not the dominant factor (Sundborn et al., 2010).

This design research aims to create an interactive activity tracking app that will help engage and raise awareness of obesity, creating a solution to a healthy lifestyle tailored to the Samoan community. Being able to create such an app to enable physical activity must have the essential tools in order for the app to be functional and effective. The design model for this app is based on four themes: the five elements of interaction design, self determination theory, design narrative, and the Pacific methodology of Tafatolu. Based on these four themes, a digital application for the promotion of physical exercise will be designed and tested with users. Final results will help to expand the knowledge on digital design and user experience for the Samoan population in New Zealand.

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Thesis Overview

Samoa people - The cultural history in New Zealand

Samoa is located in the “Heart” of the South Pacific, many believed to be called the “Navigation Island” as many talented Navigators were originally from Samoa (Finney, 1988). In New Zealand, Samoans are the largest Pacific ethnic group to migrate here. In 2013 they remained the largest Pacific ethnic group at 48.7 percent of the Pacific population – 144,138 people (Stats NZ, 2014). Additionally Stats NZ indicates a vast number of other Pacific groups such as -

Cook Island Maoris – 61,839 people (20.9 percent of the Pacific people population).
Tongans – 60, 333 people (20.4 percent).
Niuean – 23, 883 people (8.1 percent).

This illustrates the volume of hardship Pacific people had to overcome to migrate to New Zealand as many believed New Zealand is the Land of Opportunities and The land of milk and honey. My parents sacrificed a lot to allow my brothers and I to thrive for a better life than they had back in the Islands. New Zealand has given my family the opportunity to thrive and flourish, for instance by enabling members to be successful and become a police officer, a qualified nurse, and others the opportunity for Tertiary Education success.

Food Culture

In Samoa, I grew up in an environment where sacrifices had to be made just to feed a family. Today in New Zealand, I am in an environment filled with shops, takeaways, and dairies possibly walking distance from my home. These drastic changes have turned Samoans to be known to be overweight (Shovic, 1994, pp 541). Culturally, food plays a big role in “ALL” family and social events, it is usually the “focal point” to an event, often without limit. A large amount of food provided by the hosting family indicates prosperity or high rank in society. On special occasions, food is usually served according to a person’s rank, with the most important people being served first. Guests are expected to eat something so they do not offend their hosts (Shovic, 1994).

Obesity

Obesity is described as an excessively high amount of body fat to the extent that health is adversely affected (Ministry of Health, 2019). Obesity is related to significant health problems, considerable health costs, and increased risk of early death in the New Zealand population (Wilson, Wilson & Russell, 2001). In New Zealand, the Samoan community has been impacted the most from the vast variety in the Pacific population. There is an ongoing study that the reason for Samoans having a high percentage of people suffering from obesity could possibly be linked to a genetic disorder. Scientists researched that there is a possible reason for Samoans to be obese which it explained why 80 percent of Samoan men and 91 of Samoan women were overweight or obese, although it was not the dominant factor (Sundborn et al., 2010).

An obesity gene this genetic variation is linked to with a 35 percent higher chance of obesity. The mutation is also more common among Samoans than Africans, Europeans or East Asians (Sundborn et al., 2010). Many researchers believe the gene plays a major role amongst Pacific Islanders but lifestyle factors such as diet and exercise are still important to help minimize the chances for obesity to worsen (Shovic, 1994).

Literature Review

In order to understand how we might address obesity, I conducted two literature reviews of current interventions designed to change people’s nutrition. The three tables below describe the designs, methods, and findings of twelve papers. Each of these readings can give further idea of how other researchers planned out an intervention programme for obesity. This was to widen the knowledge of what possible pathways this thesis could lead to. One of the gaps identified in the literature, is that there is no current research about interventions or products designed specifically for the Samoan population in New Zealand. Since this research is all about giving back to my community (Samoan Community), this research is aiming to address this gap. Therefore, the following will aim to generate a prototype and test it with the Samoan community to provoke or engage ideas for designing digital applications aiming to decrease obesity levels.

Obesity Interventions

Reading	Pigeot, Baranowski & De Henauw, 2015.	Thomas, 2016.	Alfonzo et al., 2014.	Paul et al., n.d.
Design	Design through research - 6 countries involved	Design through research - social Marketing	Design through research - environmental (Connection between the design of the built environment and walking between the design of the built environment and obesity) (Between walking and obesity and income in urban settings in China)	Design through research - Cognitive behaviour
Methods	Programme of intervention (Dietary needs) that helps the reduction of overweight children	Looking into several behavioural aspects that could assist in the outcome	Six neighbourhoods with different built environment characteristics, located in the Chinese cities - data on walking and physical activity and obesity levels	128 patients on a bariatric surgery waiting list are randomly assigned to the control or treatment condition - 10 sessions to see if any body-related issues have decreased
Population	Young children aged 2 to 9.9 years	Female 'Family' Female 'Late' Male 'Family' Male 'Late' Male 'Pre-Family' Female 'Pre-Family'	Urban population based on the cities being selected (22 million)	Patients on a waiting list
Results and testing	Intervention programme delivered in schools and communities over a 2 year period - results gradually to improve	The research went on for a year - people who pledged to do the programme seemed to be healthier and living better	Respondents who believed their neighbourhood's built environment was less convenient for walking actually spent more time walking.	Results - tend for more improvements

Based on this literature review (Pigeot, Baranowski & De Henauw, 2015; Thomas, 2016; Alfonzo et al., 2014; Paul et al., n.d.), the value of the journey and the changes within the individual are key in this research. It is about finding the “Why” (purpose) and turning it into action. These interventions can show that there is not only one way to provide solutions and that design practice could enable the improvements of existing interventions. The following paragraphs will expend on the different themes and readings.

There are many intervention Programmes in Schools and Communities

Pigeot, Baranowski, & De Henauw (2015) introduced an intervention programme in schools and communities in eight European nations (Sweden, Germany, Hungary, Italy, Cyprus, Spain, Belgium, and Estonia). They recruited over 16, 228 children between 2 and 9.9 years by using schools and kindergartens over a two year period. The objectives were to identify factors for overweight and obesity in children, explain the actual status of dietary and lifestyle habits of children in Europe, generate a programme for health promotion and prevention of overweight and obesity in kindergarten and primary school, evaluate its effectiveness and propose guidelines for researchers and policymakers to help draw up a plan for effective and efficient prevention of overweight in children. The work of Baranowski, & De Henauw (2015) illustrates the importance of evaluation, which I will need to explore as well for the different strategies that I can implement in my app for example, ease of use and simple navigation design.

Using Social Media to gain people’s attention

Thomas (2016) used social media to gain people’s attention to the awareness of obesity. Due to the many of the Samoan people who have no intention nor the knowledge of trying to prevent this (Thomas, 2016). This is a notable opportunity for me to acquire a lot of people’s interest about obesity, and use social media as a platform to generate content material in a way that raises awareness about obesity in Samoan communities.

Urban design recreating areas to increase the mobility of people

Alfonzo, Guo, Lin, & Day, (2014) was set in China, where they look into the environment of 6 different neighbourhoods in one big city and one provincial capital city and calculate how much of the people spent their time walking. This was an interesting way to motivate people to exercise, however, the researchers looked into urban areas to create new urban designs that will help people walk around more often. This could be an opportunity for me to allow social media to be used as a tool to help assist my users to stay focused and motivated. By doing this, adding a social tab within the app that can be a beacon for all communication through all social media apps.

Bariatric surgery has proven to be an effective intervention for obesity

According to Paul et al. (2015), Bariatric surgery is an effective intervention for obesity, about 20-30% of patients who are about to go under surgery experience adverse outcomes. From this paper, Bariatric surgery aims to be effective against pre-operative cognitive behavioural therapy (aimed at eating disorders, behavioural issues, and psychological distress), and the patients are assessed before and after the surgery. The results showed that the surgery may and may have not been as effective, however, despite this many of these patients are less-compliant after the surgery. Based on their findings there is a need to still provide support around behaviour - such as physical activity.

Obesity design

Reading	Vittrup & McClure, 2018.	Thomas & Janusek, 2018.	Owens et al., 1999.	Giles-Corti et al., 2003.
Design	Design through research	Design through research	Design through testing	Design through research and testing
Methods	Parents and caregivers completed a survey online or on paper about the eating and exercise habits within their respected families	BMI, percent body fat, waist circumference, and blood pressure were measured to assess cardiovascular risk - measures of obesity prevention behaviours were physical activity. Engaged in physical activity. Wore an accelerometer	A volunteer sample of 74 obese children 7-11 years of age, accepted random assignments to physical activity or control groups. The assignment was a 4-month intervention programme. Before and after the programme they were measured for VAT, TFM, %BF, daily activity, and cardiovascular fitness.	A social-ecological study design to examine individuals, social environment and physical environment factors relating to leisure-time physical activity
Population	Children 3 to 10 years	20 females 14 - 18 years of age	74 obese children ages 7-11 years old	Households were randomly selected - approximately 200 households using a skip pattern - each household selected they will select one representative to interview

Results and testing	Results many parents and children were overweight - most incorrectly labeled their overweight and obese children being of healthy weight (lack of knowledge)	The majority did not meet recommended physical activity levels. Most reported unhealthy eating behaviours with higher saturated fat intake correlating with higher percent body fat	This study showed that during physical training obese children: 1) were capable of participating in a substantial amount of high-intensity physical training over a 4-month period; 2) accumulated significantly less VAT as compared with nonexercising controls. 3) experienced other beneficial changes in total and regional body composition.	Overall, 33.5% (out of 588) of those surveyed/interviewed were either overweight or obese
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Based on this literature review (Vittrup & McClure, 2018; Thomas & Janusek, 2018; Owens et al., 1999; Giles-Corti et al., 2003), a few of the researchers encountered some failures which means I will expect some failures of my own. Despite this, failures will lead to learning and growth. From this it will expand on the knowledge on that specific research which will then help the next research pursuing the same problem. Nothing is perfect on the first try and that goes with the saying 'perfection takes time', not everything goes to plan however it is about the journey of getting there which is important. The following paragraphs will expand on the reading and the themes that occur.

Online survey for families - evaluating eating and exercise habits

Vittrup & McClure (2018) used an online survey which indicates the eating and exercising habits within their families. I could possibly use this in a way to get first-hand information of my target audience, getting more of a deep understanding of their way of life. However, this may cause some false information, Vittrup & McClure (2018) found that parents/caregivers can label their overweight and obese children being of healthy weight.

Accelerometer used to measure physical activity

In this reading by Thomas, & Janusek (2018), female participants aged between 14 - 18 years old are being measured and assessed for cardiovascular risk. An accelerometer was given to each participant to measure their physical activity as the primary focus was obesity prevention. Introducing a physical compartment alongside a digital compartment may additionally allow for extra control and the ability for individuals to assess their progress. It would be interesting to discover how a physical interface would possibly be designed for the Samoan population.

Physical activity benefits and building confidence

Owens, Gutin, Allison, Riggs, Ferguson, Litaker, & Thompson, (1999), conducted a research where a volunteer group of children accepted random assessments to be selected into physical activity or a control group. The 4-month physical activity allows the researchers to examine the children through a moderate training regime. Most of the children discovered the benefits of physical activity and helped them build their confidence. In regards to my app, I want my user’s to feel motivation throughout their process of an active life-style. This is the main motivation for what I want to achieve in this research. Helping those who need it the most, building their confidence so that they look better, feel better, and live better.

The effects of television on physical activity engagement

This paper by Giles-Corti et al. 2003 conducted an ecological study - A study that compares large groups of people instead of individuals for differences in matters such as cancer rates. The groups can fluctuate by region (for example, city, county, or country). Groups can be immigrants (compared with people who are native to the country) or people with unique types of jobs. (NCI Dictionary of Cancer Terms, 2011). In the same way, this paper designed an ecological study to evaluate the different households to gain an understanding of why people tend to stay obese and overweight and the cause of this was due to watching television for more than 3 hours per day (Giles-Corti et al., 2003). I want to tend to my target audience to be active, to experience being active more often rather than being inside, allowing the process of physical activity to take effect.

Designing Protoypes

Reading	Buchenau & Suri, 2000, August.	Walter, & Spool, 2011.	Chen et al., 2017.	Årsand et al., 2012.
Design	Design through research Prototyping	Design through research Designing for human needs - for interface (interaction)	Design through prototyping Design through research Survey	Design through design Design through research Prototyping
Methods	Experience prototyping - looking over different aspects of prototyping	Designing for human needs - the missing part to interface design	Explore new app design features and additional resources or tools that will help guide the development of apps used in dietetic practice and patient care.	Leverage existing societal trends in ICT adoption and incorporate the relevant technologies (eg: mobile phones, glucose meters) Focus on important chronic diseases self-management parameters Optimize the PHA for usability Apply techniques that will prove effective at improving self-reported health status and clinical outcomes Design solutions that are possible to implement on a large scale and that may have the potential to be cost-effective for society

Population	Three different projects explain three types of experience prototyping Understanding existing user experiences and context Exploring and evaluating design ideas Communicating ideas to an audience	User For user experience - based on the Maslow's pyramid, interface design tends to miss "pleasurable" as this is one main focal point when designing for human needs	381 dietitian responded to the survey and five themes were identified	15 children (aged 9-15 years) with T1DM and their parents
Results and testing	Experience Prototyping should be used established and well - supported more within design practice	Understanding the needs of our user's is a key to connect with them emotionally which will tend to lead to a "pleasurable" experience	<p>Food and nutrition experts wanted access to believable apps, suggesting that dietetic associations should have greater involvement in looking at (again) and supporting/recommending apps - dietary counseling</p> <p>Improvements to the usability of apps, relating to their ease of use and design, as self-monitoring of dietary behaviours - using existing nutrition apps were deemed to be burdensome</p> <p>Apps providing food and nutrition expert-orientated support - people who can (make faster and more efficient) the dietary test/evaluation process, allow food and nutrition experts to spend more time developing patient goals, etc.</p> <p>Apps that could integrate into their work system to enhance the quality of the dietitian-patient relationship</p>	<p>11 parents of children with T1DM received messages for 11 weeks - really needed info especially those whose children were first diagnosed.</p> <p>The parents were positive about the system and mentioned that they would like to continue using it - they enjoyed the pop-up reminder effect of SMS messages in a busy everyday life.</p> <p>Some thought the messages were intrusive arriving too often and at inconvenient times.</p>

Based on this literature review (Buchenau & Suri, 2000, August; Walter, & Spool, 2011; Chen et al., 2017; Årsand et al., 2012), these readings have one thing in common which is each of their prototypes has many ways of improving or upgrading their own feature to better benefit their chosen audience. My research isn't only to indicate what my problems are but it is also a way for me to see if there are any improvements in the long run. This is also followed by a few paragraphs expanding the knowledge of each reading and identity themes that occur.

Experience Prototyping

Walter & Spool (2011) describes Experience Prototyping as a form of prototyping that enables design team members, and clients to gain a first-hand appreciation of current or future circumstances through active engagement with prototypes. This paper continues to describe different forms of experience prototyping (understanding existing experiences, exploring ideas and communicating design concepts). Walter & Spool (2011), in his book, Designing Emotions, looks into the concept of "Emotional Design" and human needs, for this to be met, an interface needs to be functional, reliable and usable, and pleasurable. Walter (2011) refers to Maslow's pyramid of needs and notes that in interface design one piece is often missing; Pleasurable experiences allow the user to feel more comfortable when interacting with the interface.

Seeking new app features for dietitians and patient care

Chen et al. (2017) explored new app features and additional services for dietitians and patient care. 381 dietitians responded to a survey, giving new ideas for features. This allows the researchers/ developers to create a new functional health app that integrates the feedback that they have received.

For example one of the feedback they received stated: "Apps that could integrate into their work system to enhance the quality of the dietitian-patient relationship" (Chen et al., 2017). This type of feedback in this project has received the sort of information I need when designing an app to raise awareness about the obesity levels in the Samoan community, as the feedback suggests integrating their work system to enhance the relationship between dietitian and patient. I want to integrate the interactive design and app to tailor to the Samoan population.

Creating an app for a mobile device or a glucose meter

Årsand et al., (2012) created an app on a mobile device or a glucose meter where a system is created to help inform parents of the children who are newly diagnosed with Type 1 Diabetes. The system sends an SMS message/reminders of information and reports they need to ease their process of caring for their child(ren). The constant reminders allow the parents to stay on track of the different procedures when caring for a diabetic child. In regards to my app and how this will help, this constant reminder is a feature that allows my user to stay focused on their goals. Since Samoans are family orientated this reminder can help parents of the user to let them know they care and that they will do anything to make sure they succeed in their goals.

To conclude my literature reviews none of these studies looked at specifically the Samoan population. Therefore, I will focus on designing an app that tracks and promotes physical activity while embedding learning from the literature such as:

Integrate the proper features for an activity tracking app such as Calendar, Goals, Social Media (spread awareness), and track physical activity.

The app interface to be functional, reliable, usable, and pleasurable.

Have a creative way to track consumer's progress to their goals.

To imbed these four themes (Self-determination theory, The 5 dimension of interaction design and Design narrative) in my design.

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Theme one: The Self-determination theory

Self Determination Theory (SDT) is a theory where individuals are able to take control (with support, however no longer controlled from others) of their own goals and aspirations where they can have the power to act and improve. By offering this authority it permits the individual to be more engaged with their goals (Cherry, 2020). Allowing self-determination to take place, individuals need to experience the following order in order to obtain psychological growth (Cherry, 2020).

Competence - Gain mastery of tasks and learn different skills. People will feel more successful if they learn the skills they need for a particular task/activity (Cherry, 2020).

Application: Allowing my users to create their own success based on the goals they've set. This enables them to complete their own goals based on their level of fitness or depending on how motivated they are. This generates a good platform for newcomers to a fitness journey because it is important to note that if people are too challenged or too overwhelmed they may get frustrated and give up.

Connection or Relatedness - People need a sense of belonging and attachment to others (Cherry, 2020).

Application: Connecting my app to the values of the Samoan population is through the colours and illustrations. I believe if I can use Samoan illustrations to demonstrate certain features in the app, I can achieve the connection and relatedness needed to occupy and engage with a user.

Autonomy - People feeling in control of their own behaviours and goals. The sense of direct action will result in real change and that plays a major part in helping people feel self-determined (Cherry, 2020).

Application: Enabling my user to do at utmost anything they can to feel like they are in control of their journey is all that my app is for, giving them full control over what they need to stay connected with friends and family. Creating their own goals, connecting to Social Media, which will then allow them to interact with friends and family, creating their own social group where they are able to see what their own peers are doing. This generates a cycle where no one is left unnoticed and they will always keep each other motivated.

Different Elements of Motivation

According to Deci & Ryan (2008) many historical and modern theories of motivation have treated motivation particularly as a unitary concept, focussing on the general amount of motivation that people have for specific behaviours or activities, SDT started by differentiating types of motivation. The initial concept used to be that the type or quality of a person's motivation would be more important than the total amount of motivation for predicting many essential outcomes such as psychological health and well-being, positive performance, creative problem solving, and deep or conceptual learning. Furthermore, the most central difference in SDT is between autonomous motivation and controlled motivation. Autonomous motivation is defined as engaging in a behavior due to the fact it is perceived to be consistent with intrinsic goals or results and emanates from the self. In different words, the behavior is self-determined (Hagger et al., 2014). When people are autonomously motivated, they experience volition, or a self-endorsement of their actions (Deci & Ryan, 2008). Controlled motivation consists of external regulation - a type of motivation where an individual acts out of the desire for external rewards or worry of punishment. When people are controlled, they experience pressure to think, feel, or behave in specific ways (Self-Determination Theory of Motivation: Why Intrinsic Motivation Matters, n.d.) Both autonomous and controlled motivation energize and direct behavior, and they stand in contrast to amotivation, which refers to a lack of intention and motivation (Deci & Ryan, 2008).

Theme two: The 5 dimensions of interaction design

The 5 Dimensions of interaction design is a useful model to recognize what interaction design involves. It was first introduced by Gillian Crampton Smith, an interaction design academic, first introduced the concept of four dimensions of interaction design language, to which Kevin Silver, senior interaction designer at IDEXX Laboratories, added the fifth (Interaction Design Foundation, 2019).

1D: Words - Meaning the words that have a function in interaction, like button labels. They should communicate information to users, but not too much to overwhelm the user (Interaction Design Foundation, 2019).

Since Interaction design is the communication/interaction between the product and the users, Texts/words have a vast function in it. A perfectly used word can be as powerful as a sword. So giving the proper word at the right area would make the user's interaction smoother and easier (Devazya, July 12, 2019).

2D: Visual representations - This relates to graphical elements such as images, typography and icon users interact with. These are usually associated with the words used to connect the information to users (Interaction Design Foundation, 2019).

All the visual elements other than texts that resource in the interaction between the user and the product. Can use Imagery, iconography, graphical representations, etc: for higher communication and use typography for better visible hierarchy — all these forms of visual representations come below the 2nd dimension of Interaction design. Sometimes, Visual illustration can be more effective as texts (Devazya, July 12, 2019). For example, certain iconography I can implement Samoan illustration to give it more of a connection to the Samoan community.

3D: Physical objects or space - To what physical objects do users interact with the product? And what kind of space can the user be able to interact with the product? (Interaction Design Foundation, 2019).

The 3rd dimension includes the medium through which the user interacts with the product. It could be Mobile/tablet screen, computer mouse or keyboard, joystick, etc: Understand the medium and design things that are effortlessly workable with them. For example, when a user is undertaking a

task using the mouse, we can show hover action to give a clickable feel, however, when it comes to touch screen, there is no chance for a hover action. We need to find some other solution to make it appear clickable (Devazya, July 12, 2019). This allows for a better flow through an app to engage the user more which will eventually stimulate more focus on their goals and achievements.

4D: Time - This is referred to as media that changes with time can be through animation, videos, and sounds. Motion and sounds play a crucial role in giving visual and audio feedback to users' interaction (Interaction Design Foundation, 2019).

Media that adjusts over time like animations, videos, sound, etc: These sorts of elements constantly assist the user to interact with the product in an exciting way. We can use animation in a success message with a satisfactory sound while finishing a task. That would provide the user with a high-quality feel on that experience. But never make the users wait too long to complete these animations. Another best use of time is the development bar animation where we can see the progress of a precise process/operation (Devazya, July 12, 2019). In this case for my app, a development bar animation is replaced by a plant growth development, a creative way to show a plant growing by the goals completed by the user. This gives the user a pleasant visual representation of a flower full bloom when they have achieved all their goals.

5D: Behaviour - This includes the mechanism of the product. Digitally, how do users perform actions on the website? Physically, how do users operate the product and how did the product make you feel? (Interaction Design Foundation, 2019).

This includes the mechanism of the product. Digitally, how do users perform actions on the website? Physically, how do users operate the product and how did the product make you feel? (Interaction Design Foundation, 2019).

Action, reactions, and presentations despite this in simple words, the actual behaviour of an application. Showcasing a success message with a summary when completing a task, swipe actions, etc: all come under the 5th dimension. Creating a behaviour that is easily adaptable and understandable to the users (Devazya, July 12, 2019). For instance, my app correlates to how the users perform when completing their goals. Each

small step completed is represented by the small growth of their flower.

Theme three - Design Narrative

The narrative tends to have a number of functions within an individual, culture, and society (Childs, Zhao & Grigg, 2013). According to Childs, Zhao & Grigg (2013) narrative is said to be linked to imagination and creativity, as it is not a literal representation of what something is physically but however, rather than what it means to be. This is backed up by Tully (2012) where he states the story allows us to make sense of and construct meaning around our needs. In design, the term narrative may also be used in a broad sense to bring not solely a story of characters over time however to consist of the entire setting of a proposed or designed object – such as the 'feel' of the object, its qualities, provenance, and the persona and situation, profile and understanding of potential users (Childs, Zhao & Grigg, 2013). For the designer, the story allows the construction of empathy, emotion, and connection. It connects both the designer and the object which enables more opportunities to push the design of an object even further. Within a designed object it gives depth and attractiveness that objects without such an understanding and development may lack.

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Methodology

Interaction Designers utilise all five dimensions to consider how a user will interact/react to what they are creating. Specifically, I will use the Industrial model making to conduct design experiments with physical objects that attach to a user (watch/Jewellery) and a digital app. Creating such a model will determine whether I can educate individuals about healthy nutrition, encourage them to change dietary preferences through physical product design, and promote the prevention of obesity in the Samoan population in New Zealand. This research will take a Human Centred Design approach, this means it is an application to system development and design that intends to create an interactive design more functional by using a system that applies human ergonomics and usability knowledge and techniques (Giacomin, 2014). In addition, this research includes a Pacific methodology of Tafatolu. Tafatolu is a Pacific research method that has three sides valuable to any research. A contemporary academic approach to research, cultural approach, and the self approach that represents the researcher's perspective and position on the research (Palaa-mo, 2019). The Tafatolu method is applied to this research, to promote physical activity amongst young Samoan adults (contemporary academic approach), fused with a Samoan narrative about growth (cultural approach) and creativity from a designer perspective (self approach) to integrate both a digital design and Design narrative to generate an activity tracking app which helps promote physical activity.

Focus groups

For this research, my focus group or my target audience are young Samoan adults aged 18-25 years old. The reason why I chose this particular year group is that exercise tends to be more serious and active, and during adolescence/adulthood they're extremely vulnerable to weight gain (Poobalan, Aucott, Clarke & Smith, 2012). Using my connection through University and also being within this year-group, I've sent out a recruitment document that states whoever wants to be or interested in being a part of my research will be the participants that I will test my prototype with.

User testing

Testing products, with representative users, is one of the most important aspects of creating a functional suitable design for that user. Therefore, it seems logical that young Samoan adults will be included in the user testing since this app

is specifically focused on them. The user testing group was given a prototype of the app and asked to use it while 'thinking aloud', followed by a semi-structured interview. The participants were asked to 'think aloud', which gives an opportunity to gain a glimpse into their experience while using the app. The process of the user testing is shown below.

User Testing Protocol:

1. Introduce the research topic
2. Information sheet and consent form
3. Ask questions - eg: what kind of physical exercise do you do?

Theme 1 : The Self-determination theory

Competence - How competent do you feel using the app? How can this app help you improve your physical exercise over time?

Relatedness - how related do you feel to this app? Why? Is there anything I can do to make this app more relatable to you?

Autonomy - how much control and autonomy can this app provide? Why and how?

Theme 2: 5 elements of interaction design

Words: Ask questions about different words may be more useful or effective and words that I currently ask them if there's any improvement.

2D: Visual representations: Progress visualisation (plant) - what does it mean to you? How did you find the user interface? What can be improved? Why?

3D: Physical objects or space: How would you use the app in your current physical space? How comfortable are you to use it in your daily life in different spaces? Where do you see yourself using it? Would you integrate another device with it? What might be? And why?

4D: Time: How do you find the progress visualisation? Is there anything else that can support you in your exercise over time?

5D: Behaviour:

How will you use this app in the future? How will you behave with it on a regular basis?

- observations

Do you use any apps for physical exercise? If so, what do you like about them? What do you don't like about them? Why? How can they be improved

on your opinion?

Introducing the scenario “imagine that you are using this app to promote exercise in your daily life” - Can you try to use this app while ‘thinking aloud’ (say aloud what you are thinking so I can learn more about your experience using the app?)

Give them a scenario (the plant progression)

Theme 3: Design Narrative

Ask them about their physical activity and ask them how it feels and what happened during that time period.

What was their motivation?

What is the story of this app?

Theme 4: Tafatolu

Promoting physical activity amongst young Samoan adults (contemporary academic approach) - How does this app help you engage with physical activity?

How do you think it can help others in the samoan community?

Samoan narrative about growth (cultural approach)

Explain the narrative of your design

What do you think about this narrative? Is there a different narrative you might feel resonated with?

Creativity from a designer perspective (self approach) - observations and reflections from the user testing.

Talanoa being used for user-testing

The following table inspired by (View of A Pasifika research methodology: Talaloto | Waikato Journal of Education, n.d.) summaries the different stages of talanoa being used in my user testing. Each process will have a rationale or a comment behind each stage. It all begins with a face-to-face conversation where the meeting establishes the interest of the participants and to see if they are interested in being a part of the research. Then follows up with a more in depth discussion about the information which will include the information sheet, consent form and also questions. The table illustrates the process of talanoa and builds the talanoa to gather more knowledge and information to be passed on to the study.

Stage	Process	Rational/comment
Initial contact	Meeting face to face with the participants During this meeting: Explaining the research; What their role is in the research; Answer any questions they have	Even though emailing or phoning would be acceptable for a meet up, the first contact needs to be face-to-face as a sign of respect and appreciation
Sending of the formal letter of recruitment, information and consent form	Briefly go over the information sheet and consent form. Answer any questions they might have.	It is important for the participants to read over the forms in good depth to make sure they fully understand on what there role is It is also crucial that they understand the research question and be able to ask questions as this will create an interesting bond between myself and the participants. This bond will help me to understand their lived experiences of physical activity.
Organising groups	As soon as I've had a few people have reached out to me to be apart of the user testing session Then I will contact and figure out a schedule to see what days and times they are available to be start testing	This is important to create a schedule so that you know and your participants know where and what time everything is going. This shows your organisation skills and also prevents clashes with times of the participants' classes.
Beginning of the user testing	Step 1: Talanoa begins When all the participants have arrived and greeted them all, talanoa will be used to set the scene. Allow the participants to be comfortable. The talanoa can be about anything and make sure I initiate the talanoa.	Talanoa is a form of conservation (face-to-face) between one person and another or in a collective group. It is held whoever is hosting or in an agreed location. This does not require bringing food or refreshments however, a small thank you gift would be appropriate to show appreciation and respects.

	<p>Step 2: Testing begins - Talanoa</p> <p>This is where the topic/ research question will be introduced and let the participants to be more familiar with the topic and encourage them about it</p> <p>Let the participants know what will be happening for the testing, this is to ensure no confusion when the testing of the app begins</p>	<p>The questions will be written in such a way it will prompt sharing and generate open discussion (open questions)</p>
	<p>Step 3: During Talanoa</p> <p>This is where the participants are given the chance to operate the app and have a look and observe what this app does and how it operates. The participants will be asked if they can use their devices to operate the app.</p> <p>This also may need more prompt to encourage the participants to share more or if needed to redirect back on track.</p>	<p>Questions will be written and given to the participants - the questions should encourage more sharing and comment (open questions).</p> <p>Being prepared to have a flexible time frame, talano may take up more than expected. Pacific people may get emotional, this is quite natural because this is an indication of feelings.</p>
	<p>Step 4: Talanoa - User testing is completed</p> <p>Once the testing is finished and the talanoa has given you all the information needed. Thank the participant, answer any more questions and say goodbye</p>	<p>Always important to thank participants for being able to free up time in their busy schedule.</p>
After Talanoa	Offer gifts of appreciation	To signify how you value the participants contribution to the study

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Narrative

Many interactive games or apps also have a story or a theme that goes with this interactive game or app. According to Ryan (2009) a narrative game, the story is meant to enhance the gameplay. In this case, my app is meant to enhance the interaction between the app and the user creating their own story. There is a Samoan proverb, O le upega tautau, 'ae fagota, if at first, you don't succeed try, try, and try again (Proverbs, 2010). To make an exemplar out of this and how it is relevant, this proverb can be interpreted in many ways but how I see it, this proverb is explaining the narrative of growth within a person. Growth, the act or process, or a manner of growing; development; gradual increase (Dictionary, n.d) but in this sense growth as in becoming another person, a better version of themselves. This is what I want to achieve with my app. The main outcome is becoming a better version yourself but the real important part is the journey you took to get there. The importance of the journey is much more than a movement from one place to another, it is about growth and learning on your way to your end goal and it also has the potential to teach people about themselves.

Talanoa Methodology being used for design testing

With the narrative integrating with a phrase that connects both Samoan people and cultural values. I have included a Pacific method that will assist in pushing my design even further. The method I would be introducing into my design is Talanoa, Talanoa embodies means for oral communication for Tokelauan, Fijian, Tongan and Samoan people (Tunufa'i, 2016) and according to Vaiioleti (2016) Talanoa can be referred to a conversation, a talk, an exchange of ideas or thinking whether formal or informal. It is always carried out face to face conversation. Despite this meaning from multiple Pacific Islands, I tend to use an understanding that will relate to my target audience, in Samoa talanoa is an historic practice of multi-level and multi-layered crucial discussions and free conversations. It additionally includes the way that community, business, and leaders acquire information from the community, which they then use to make decisions about civil, church, and national matters (Vaiioleti, 2016). As I am testing my product with my participants the act of talanoa will be used to evaluate my participants on a level that will help them understand the design purpose for this app.

The ideology of Tāvā being applied in the app

Talanoa is being used to be a catalyst for testing purposes however, the testing cannot function without a test prototype to be tested on. This term 'Tāvā' is associated with a Tongan translation of time and space. It is believed that all Pacific cultures are thought to walk forward into the past and walk backward to the future (Mahina & Ka'ili, 2006). My own understanding with this term is as we walk into an unknown future (walking backward) we still see what has happened in our past (walking to the past) where both the unknown future and the actual past are constantly fused and diffused in the ever-changing and conflicting present. We tend to change our future by what we learn from our past and reflect it in our present. This is something I have complemented into my app, I want to help young Samoan adults to achieve their physical goals. In relation to my design, the app represents the past. Even though it is a digital app it represents the past by having the users use my app in the first place - the reflection of their past. The interfaces of the app or the elements of the app represent the present, the elements of the app (goals and plan setting) help the user to see their goals into action, evaluating their progress and seeing the changes within themselves. The completion of their goals represents the future, as they complete each of their goals and see the physical changes that will make them realise that their future is going to be beneficial for them.

There is a Samoan proverb,
O le upega tautau, 'ae
fagota, if at first, you don't
succeed try, try, and try
again

(Proverbs, 2010)

App iterations - First iterations

Colour Scheme

Figure 1. Fresh tv logo (Maori Television, n.d.).

When I first started to plan a design for my app, I decided to see what kind of colour scheme that will be well suited for my app and my target audience. The colours were inspired by Figure 1. I wanted to work with colours that complement the Pacific, so I chose to go with warm colours (yellow, orange, red). This helped me to solidify a base for my design which enables me to create more elements of the app that will complement the colour scheme that I am working with.

Design development - Figma prototype

Figure 2. Prototype. Goals (Image by Tanielu Pio)

These are the first two screens that I have developed which will be the screens for creating your own weekly monthly and yearly goals. This section is responsible for enabling the user to type down the goals they want to achieve weekly, monthly, and yearly.

Figure 3. Prototype. Goals 2 (image by Tanielu Pio)

Figure 4. Prototype. Goals 3 (image by Tanielu Pio).

After each of the goals has been put in the app, it will display the goals on a chart. Figure 4 shows you the chart near the bottom, and the goals being displayed on top of the chart so that the users still see their goals which are also a constant reminder. The chart plays a huge role in the goal section, as it reveals the progression of how far or near the users are into completing a goal. It's aesthetically pleasing to see the chart being displayed this way. With the graphs it is a way to assist the users ability to correctly visualise how they stack against themselves as they reflect on their progress. The graph shows two colours one being their previous progress and the other being the present.

Figure 5. Prototype. Goals 3 (image by Tanielu Pio).

As shown in figure 5 (left screen) there is a banner showing notification of a badge being earned and the screens next to it shows the badges that the users are able to earn or have earned and this is a way to reward the users for their hard work. Different badges are earned by completing different challenges or different goals in the app, this enables the users to keep them motivated not allow boredom to occur when using the app. However, I feel like the badges could be improved in some way that will be even more effective and simple.

Figure 6. Prototype. Goals 4 (image by Tanielu Pio)

Figure 6 is illustrating how you will plan out your day, week and month with the 'Activity' tab. This is like another planner tab where you will be able to list down the things you have planned for the day, this will help you stay organised during the day and also for the week. This activity tab is a way for the user to make sure they will never feel like they have to rush their day and reduce the chances of forgetting events during the week.

App iteration - Second iteration

Figure 7. Figma prototype 2. My Goals (image by Tanielu Pio)

The second iteration of my app is where I started to seek and develop new ideas on my app, began by changing around the colour scheme and decided to settle with colours that associate with the function of my app. This the first screen where you first come across the app due to this there is nothing to show for as this is part of the first stages of using the app.

Figure 8. Figma prototype 2. My Goals (image by Tanielu Pio)

Figure 8 I still kept the function of where you list down your weekly, monthly and yearly goals. This is followed up by a loading screen, where you plant a seed (Goals being planted) this just shows a creative way to visualise the work that the user is about to do, the planting of the seed is the planting of a new beginning (Journey).

Figure 9. Figma prototype 2. My Goals (image by Tanielu Pio)

Figure 9 is showcasing the purpose of why the previous loading screen is the planting of the seed because this is where you will grow your own flower, the flower represents the goals you have completed to get the flower to bloom in the end. It is a testament to your hard work.

Figure 10. Figma prototype 2. My Goals, Activity Planner (image by Tanielu Pio)

As you can see in Figure 10, this is where the user will find their goals that have been listed down for their weekly, monthly and yearly goals. This is also followed by the Activity tab, this is customisable so depending on how you plan out your day this tab will help you organise your day.

Figure 11. Figma prototype 2. My Calendar (image by Tanielu Pio)

In Figure 11 this is showcasing the 'My Calendar' same function as all calendar apps in all mobile devices, this is just a good way for the user to plan their activity within the app without the hassle of going back and forth between the app and the calendar already installed on their mobile device. This is also accompanied by the activity tab as this will help with the accurate planning and reduce the stress of going back to the home menu.

Figure 12. Figma prototype 2. Social (image by Tanielu Pio)

Figure 12 showing the Social tab where the user is able to connect their social media accounts with the app, this way it'll be easier to invite family and friends. Being able to connect to the main social apps will help the app get more people into this app as there is an opportunity that it will share around.

Figure 13. Figma prototype 2. Social (image by Tanielu Pio)

Since Samoan people are family-orientated this app will help with the communication between them, having this social tab will prevent the lack of communication between the user and their family and friends. Located underneath the photo there are coloured circles (Green, Orange, Red). These colours indicate the level of motivation a specific friend is on. Green means that a friend is on track completing their goals, orange means that a friend is kind off track but is slowly getting there, and red means that a friend is on the verge of quitting and is finding it hard to complete their goals. This is where the user is able to send an 'encouragement' message to that 'red' friend and help them by messaging to see if they want to collaborate and workout together. This indication tool helps all friends and family complete their individual goals together, motivating each other, communicating with each other and helping whoever needs it.

Figure 14. Forest—Stay focused (n.d.).

In addition to creating my app, this first precedent is the Forest app created to help people stay focused on a task. By doing this, a tree is planted and your tree will grow as you are focused on your work. This creates your own lush forest for you to see and this is also another way to reward you with your hardwork and the ability to stay focused. Despite this your tree can also die if you leave the app and stop focusing so this is also another way to ensure that people stay focused and complete their work till the end. I wanted to do something similar to this idea of ‘growing a tree’ to my design, instead of a tree it is a flower. Where each goal completed a flower has blossomed. Compared to this app, my app is different in a way that main purpose is promoting physical activity by using the ability to help users track your progress completing their goals. The goals being divided into weekly, monthly and yearly will help the user to pursue that long term by completing those short term goals first. This creates the engagement between the user and the app which will eventually help motivate the user to achieve that long term goal(s). The idea of the flower compared to the tree growing has similarities however, when a flower is ready to be planted, the user will be able to plant in their garden. This garden is a testament to their hard work and also a reflection of how far they have come in their journey. Whenever the user is feeling that they are struggling or just not motivated to do anything, the garden is there to remind them of those things, the journey and their hard work. Every flower is a trophy of overcoming the difficulties faced in their journey.

Figure 15. The Fabulous (n.d.). Screenshot by Tanielu Pio

Second design precedent is from ‘The Fabulous’, this app promises to help you build healthy habits within 30 days. You answer a few questions about what your typical days are and other behavioural questions. Being able to create a plan for physical activity based on the answers the user gives really excites us and amazed how this app could do all this. With the information given this app somehow provides a user a standard plan to follow to achieve that healthy habit. Despite this, I wonder if my app could help my target audience achieve their physical goals. Allowing the user full control on how they proceed in their physical journey is a way for them to make their own choices instead of having the app decide for you. The ability to take responsibility for your own choices and seeing the results at the end is what is important, merely my app is just to guide the person on that journey, reminding the user to always stay motivated and know that the user has family and friends to fall on whenever they feel like they can’t do it.

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Below is the summary of what each of my participants had to say about the second iteration of the app. There were a few things that came up often in this session which are highlighted in bold lettering. The feedback from the Samoan community will help push my design further and tailor it to their needs. In the next following paragraphs I will introduce some of the constant feedback I received from my session.

Main themes revealed through user testing

Reminders

The very first feedback I received was having a reminder, an alert system or a notification that reminds the users about their goals that they need to achieve by the end of the week (Weekly goals), end of the month or end of the year. The feedback stated that having this reminder will constantly have them going back and forth with the app which meant that they will continually use the app on a daily basis. By applying the reminder or alert system into the app, the users may stay engaged and there is also a stronger chance they will better remember and stay focused on their individual goals. However, they also stated that too many reminders will cause them to feel annoyed and maybe turn off the notifications from the app. The iteration must consider both needs and create a balanced way to keep users focused on their goals without taking too much of their attention. For example, the notifications may be gentle (whether auditory, haptic or visual) and will come up only at certain times during the day.

“... yeah like when I wake up and check my phone that’s the first thing I see and I’m oh okay so that’s what I’m gonna do”

Help menu

The second feedback was implementing a help menu for when the users feel lost or have no idea what each feature of the app functions and operates. Of course as the first stages of using the app there will be an onboarding tutorial on how to use the app, however, a help menu at all times will provide further assistance to users.

Representation of the Samoan culture

Another feedback was importing more features of the Samoan culture, adding more items that represent the Samoan culture. Some felt like there was not enough representation of the Samoan culture embedded into the app. Some

suggested Samoan translations or words that are able to be translated into Samoan.

Visual aesthetic

The font and colours used did not satisfy some of the users. They suggested changing the colour scheme as it may not look appealing to them. Some users found the font to look childish.

Diet section

Some also suggested adding a pedometer and a diet section which will include basic workouts and meal recipes. This may be out of scope for a physical activity app, however, one participant suggested that it’ll be good to have all those apps into one. To reduce the time going back forth between apps and just having it all in one place. So perhaps the next step would be to look at this integration.

Inspiring quotes

One interesting feedback was having inspiring quotes whenever the users are struggling, on track or when they are not motivated at all. These quotes will help stimulate the users to stay motivated or be motivated depending on what the circumstances are. This could also be included into the reminders section and also in the loading screens.

Add inspirational quotes to feel more motivating

Conclusion

When trying to become a better version of you, you begin to think about what that will look like and how you will feel at the end. That better version could be either spiritually, emotionally and also physically. Samoan people have always been spiritually and emotionally stable but the one aspect which my people slowing lack is physical. This research has helped me to understand the health issues that Samoan people have suffered (Sundborn et al., 2010), and this research has provided me a platform where I can show my contribution to allow my people to start working on the physical aspect. To achieve this it always starts at home, it can be by the youngest member in the family or even the oldest. A Samoan family is basically it’s own village where there are elders, parents and children, and from this, one of the

members of the family can easily influence their family to start making changes. Just like a normal Samoan village, everyone has a free passage to speak (Talanoa) and this will start to begin a journey of health. Not only can it be started within a family, it can be expanded out to their local church or community.

As found in this research, when designing a digital app it’s important to consider the users or your targeted audience. By investigating how your users will react and feel (observing their behaviours and listening to their subjective experience) when they use your design, you can understand how to tailor the design for their needs. In doing so, your design could better satisfy the needs of your users, and as a result, the app will fulfill its purpose successfully.

The four themes: The self-determination theory, 5 elements of interaction design, design narrative and Tafatolu helped to specifically identify the design criteria for the app and how the app should look like and function. Defining those themes based on previous research and establishing a design criteria was a good starting point to initiate ideas and designs which were then tested with participants. The themes helped to put an emphasis on motivation, interaction design and the population of Samoan people in New Zealand.

During the users testing, the themes were used to define the inquiry, while the talanoa framework allowed for a more open and fluid conversation about participants’ subjective experiences, opinions, and feelings. I found this approach particularly interesting/useful because talanoa helped the participants to put themselves in a situation where they could visually see themselves accomplish their goals with this app. In doing so this generates a motivational phase in their minds that will possibly be actioned later on in the near future, once you start a conversation about a key idea that interests your participants, even though it may not happen start away but the idea is still there. This is how Talanoa was useful in this section of user-testing, the ability to implant an idea through conversation (Talanoa) that the participant(s) may have put off will generally come back. From there, we had the opportunity to discuss what they needed from the design that could help them sustain their motivation and accomplish their goals.

The results from the talanoa and user testing show the importance of the following six main insights/themes:

Reminders - Reminders that will help users stay motivated.

Help Menu - In case of any difficulty going through the app.

Representation of the Samoan culture - To show more aspects about the Samoan culture (pattern, icons).

Visual aesthetic - Experimenting with fonts and colours that they feel connected too.

Diet section - The ability to have a section that involves basic workouts, diet plans, etc.

Inspiring quotes - For when a user is finding it difficult to maintain motivation, quotes will be sent through reminders and in the app (loading screens).

Some of the limitations of this research include the limited amount of previous research on physical exercise apps for the Samoan population. This limitation presented a difficulty to compare results with research that has the same target audience. However this was also an opportunity to start this conversation. Another limitation was the effect of the CoronaVirus pandemic which kind of delayed my ethics approval which eventually pushed the time to complete research even further out. This limitation added more difficulty to sustain my research plan as there were multiple delays and reshuffles. Future research could expand this conversation by creating new designs and facilitating further discussions, building upon the insights discovered in the user testing and talanoa. Furthermore, a long-term study that explores how people use the app, how it may benefit them in the long run and what could be improved over time could push the design to better accommodate people’s needs and help them achieve their goals.

Final Design

The following are a sequence of detailing images for each step on how to use this app. This also gives an insight on the app visual aspects as well the functionality.

Each screen will be different eg: Loading screens, quotes, Samoan translation, English and Samoan quotes and Help menu. These screens are from the feedback received by the user-testing.

Link to view prototype

<https://www.figma.com/file/k31MlzuAW4DyGT9MQA-AiET/Activity-Tracking-App-2>

Figure 16. Figma prototype 2. Help menu (image by Tanielu Pio)

Figure 17. Figma prototype 2. Screen 1&2 (image by Tanielu Pio)

Figure 18. Figma prototype 2. Screen 3,4 & 5 (image by Tanielu Pio)

Figure 19. Figma prototype 2. Screen 6,7 & 8 (image by Tanielu Pio)

Figure 20. Figma prototype 2. Screen 9,10, 11 & 12 (image by Tanielu Pio)

Figure 21. Figma prototype 2. My Calendar (image by Tanielu Pio)

Figure 22. Figma prototype 2. Social (image by Tanielu Pio)

Figure 23. Figma prototype 2. Social 2 (image by Tanielu Pio)

Figure 24. Figma prototype 2. Diet section (image by Tanielu Pio)

Figure 25. Figma prototype 2. Inspiring quotes & loading screens (image by Tanielu Pio)

Figure 26. Figma prototype 2. English and Samoan quotes (image by Tanielu Pio)

Figure 27 . Figma prototype 2. Samoan translation (image by Tanielu Pio)

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Appendix Item 1

This item includes the Human ethics approval letter, the consent forms, and the information sheets handed to the participants.

This is will also include the feedback I recieved from the user-testing session

Phone 0-4-463 6028
Email judith.loveridge@vuw.ac.nz

TO	Tanielu Pio
FROM	Associate Professor Judith Loveridge, Convenor, Human Ethics Committee
DATE	29 June 2020
PAGES	1
SUBJECT	Ethics Approval Number: 28244 Title: User testing of a digital application designed to promote physical activity amongst the Samoan population in New Zealand

Thank you for your application for ethical approval, which has now been considered by the Human Ethics Committee.

Your application has been approved from the above date and this approval is valid for three years. If your data collection is not completed by this date you should apply to the Human Ethics Committee for an extension to this approval.

Best wishes with the research.

Kind regards,

Judith Loveridge
Convenor, Victoria University of Wellington Human Ethics Committee

CONSENT TO PARTICIPATE IN A MASTER OF DESIGN INNOVATION PROJECT

This consent form will be held for 1 year.

Supervisor: Dana Fridman, School of Design, Victoria University of Wellington.

Researcher: Tanielu Pio, School of Design, Victoria University of Wellington.

- I have read the Information Sheet and the project has been explained to me. My questions have been answered to my satisfaction. I understand that I can ask further questions at any time.
- I agree to take part in user testing session.

I understand that:

- I may withdraw from this study at any point before the study is completed and any information that I have provided will be returned to me or destroyed.
- The identifiable information I have provided will be kept confidential to the researchers and the teacher so they could transcribe it. The identifiable information will be destroyed at July 5th.
- Any information I provide will be kept confidential to the researchers and the supervisor.
- I understand that the results will be used for a design research portfolio.
- My name will not be used in reports, nor will any information that would identify me.
- I would like to receive a copy of the final report and have Yes ☐ No ☐
added my email address below.

Signature of participant: _____

Name of participant: _____

Date: _____

Contact details: _____

Master of Design Innovation

Supervisor: Dana Fridman

INFORMATION SHEET FOR PARTICIPANTS

You are invited to take part in this research. Please read this information before deciding whether or not to take part. If you decide to participate, thank you. If you decide not to participate, thank you for considering this request.

Who am I?

Our names are Dana Fridman (supervisor) and Tanielu Pio (Researcher) and we are academic staff and students in the Master of Design Innovation programme at Victoria University of Wellington. This course will be using industry practices and will be work towards my Master's degree.

What is the aim of the project?

My research question is: **User testing of a digital application designed to promote physical activity amongst the Samoan population in New Zealand.**

The aim for my research is to create an activity tracking app that will help young Samoan adults achieve their physical activity goals. This app is meant to assist you in its best ability to help motivate you and to remind you about your goals and aspirations.

How can you help?

You have been invited to participate because you are under my target audience of this research. If you agree to participate, I will invite you to a user testing where you will receive a prototype of my app and you get to test it to see if it meets the aim of my research. If you agree to take part, these activities will take place wherever you feel comfortable. I will give you a few questions that will help you in evaluate my app, this will help you to give me critical feedback which will surely be used in my final prototype of my app. The session will last about 30 minutes, this will give you time to play around the app and answer the questions. You can withdraw from the study by contacting me at any time before the end of the study. If you withdraw, the information you provided will be destroyed.

What will happen to the information you give?

This research is confidential. This means that the researcher and supervisor named below will be aware of your identity but the research data will be combined into final results and your identity will not be revealed in any reports, presentations, or public documentation.

The information you give will help me iterate more developed versions of my app. Only myself and my supervisor will know about what feedback you gave me. The feedback you give during our user testing session will help where my design lacks and how I am going to improve on. The question sheet will be kept securely and destroyed on the 16th of August.

What will the project produce?

The information from this research will be used for my design research portfolio which will go towards my Masters.

If you accept this invitation, what are your rights as a research participant?

You do not have to accept this invitation if you don't want to. If you do decide to participate, you have the right to:

- choose not to answer any question;
- choose to not have me in the same room;
- withdraw from the study at any time before the end of the study;
- ask any questions about the study at any time;

If you have any questions or problems, who can you contact?

If you have any questions, either now or in the future, please feel free to contact:

Student:

Tanielu Pio
piotani@vuw.ac.nz

Supervisor

Dana Fridman
School of Design
Dana.Fridman@vuw.ac.nz

Human Ethics Committee information

If you have any concerns about the ethical conduct of the research you may contact the Convenor of the Victoria University of Wellington Human Ethics Committee: Dr. Judith Loveridge, email hec@vuw.ac.nz or telephone +64-4-463 6028.

DSDN593 – Research Portfolio

CONSENT TO PARTICIPANT INTERVIEW

This consent form will be held for 3 years.

Researcher: Tanielu Pio, School of Design, Victoria University of Wellington

- I have read the Information Sheet and the project has been explained to me. My questions have been answered to my satisfaction. I understand that I can ask further questions at any time.
- I agree to take part in audio-recorded interview.

I understand that:

- I may withdraw from this study at any point before 30th June, 2020, and any information that I have provided will be returned to me or destroyed.
- The identifiable information I have provided will be destroyed on 5th July, 2020.
- I understand that results will be used for current coursework and that the Supervisor will contact me for future teaching, presentation and/or publication permission.
- I would like to receive a copy of relevant assignments or presentations and have added my email address below. Yes ☐ No ☐

Signature of participant: _____

Name of participant: _____

Date: _____

Contact details: _____

Feedback from the user-testing session

Participant 1

Help menu - Asking for help (provide a contact email)

Reminders - Constant reminders (always being on a mobile device), tends to use the calendar often as well.

Reminders - Sound or an alert system

Understands the creative aspect of the progress visualisation (The plant)

Troubles to find time to pursue his physical activity goals

Does not prefer to integrate another device
Very comfortable to use in their daily lives

Participant 2

Help menu - to help guide through the first stages of the app (tutorial)

More aspects of the Samoan culture - Samoan translation, historic/modern facts

Integrate a smartwatch - Get reminders instead of checking phone

Include meal recipes, basic workouts and adding reminders

Found the progress visualisation (the plant) a creative way to track progress towards goals

Very comfortable to use in their daily lives

The app was easy to navigate through - simple and straightforward

Participant 3

Relates to the home button - Samoan aspect

Healthy eating - Included in the app

Pedometer to be included

The app was easy to navigate through - simple and straightforward

More aspects of the Samoan culture - similar to the home button

Found the progress visualisation (The plant) a creative way to track progress towards goals. "At the end of the day, physicality drives mentality"

Participant 4

Colours did not complement each other

Notifications and Alerts

Can relate to the app because been having trouble to find an app that helps with motivating and tracking physical activity

Change titles to be more specific - Today's report and social (should be another tab for friends).

Change symbols of 'Home' and 'My Calendar' to something fitness related

Change font and colours

Comfortable using the app

Encouraging quotes for each stage
When you're struggling
When you're on track
When you're not motivated at all

Participant 6

Different fonts or use a variety of fonts but not too many fonts to complicate things

Help menu - Troubleshooting purposes

Comfortable using the app and it is eye-friendly

Colour scheme

Integrate with laptop

Participant 8

Layout easy to use and understand

Notifications/Updates to remind about the goals

Diet section

Tutorials for the first stages when using the app
Introduce different languages - change keywords into the language of your choice

Plant to be related to the Samoan culture - Palm tree
Maybe tie in overall health - Spiritual, emotional, mental