

1.1 Identification and Exploration of the Need

Motivation and Purpose:

In late October 2016 myself and a group of 16 avid dragon boaters embarked on the 65km Wisemans Dash as part of the Hawkesbury River Canoe Classic.

The significance of hydration for endurance sports and the consequences of poor practice was an important learning throughout the training program. The most common mistake made by competitors was the failure to sip fluids at regular intervals, instead opting to satisfy feelings of thirst by which time the symptoms of dehydration had already commenced.

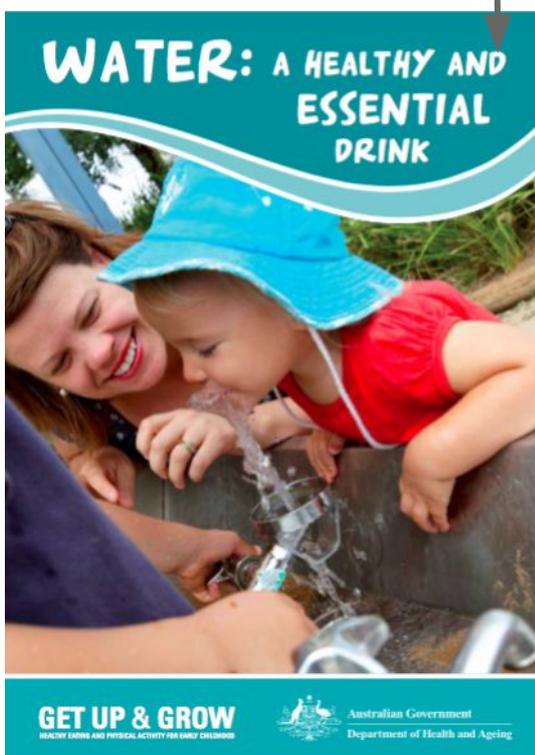
The **aim of my MDP is to minimise the risk of dehydration** via a design that **reminds users to sip fluids on a regular basis**.

Dehydration affects people of all ages. My great-grandfather is nearing 97 years and regularly complains that once you reach his age, water is not much of a priority and remembering to drink is difficult. Many people in his retirement village have dementia and show no sign of dehydration until it is too late and often faint.

Consumption rates vary between individuals and the intention of my MDP is to develop a versatile and easy to use device capable of regulating the amount of water one wants to be reminded to drink.

Secondary Research:

I internet researched to find government posters and statistics in regards to the hydration and dehydration facts in Australia. I found the following poster (above) that emphasise how water is 'a healthy and essential drink'. Made by the Australian Government to advertise 'Get Up & Grow' which is helped by the consumption of water. This shows a **genuine need to remind people of all ages to consume water**.



Target Market:

50% of people do not meet their daily water intake needed (Australian Bureau of Statistics (ABS)) . I would want to target all people who do not meet that requirement and help them to meet it more regularly. Extending that particularly to the elderly and those who exercise excessively making them more susceptible to dehydration and even severe dehydration.

Elderly: Are most likely to suffer from dehydration will rely on my MDP to remind them to consume regularly.



Office Workers: regularly forget to consume water as they work, my MDP will help remind them.

Secondary Research:

“DO AUSTRALIANS DRINK PLENTY OF WATER? The Guidelines also include the recommendation that Australians consume plenty of water. In 2011-12, the average amount of plain water, either tap or bottled, consumed by Australians was 1,064ml. An additional 325 mL of water was consumed from non-discretionary beverages such as tea and coffee. **Plain water contributed around half (50%) of Australians' total beverage consumption.**“

- Australian Bureau of Statistics

Secondary Research:

I internet searched another government poster giving facts of our bodies such as; regularly drinking water maintains a healthy lifestyle and **bodies are 70% water** and through the night we **lose 7%** all to which reinforces the importance of consuming water which gives my MDP a genuine need.

(http://www.aylesburyvaleccg.nhs.uk/avccg_news)



“Drinking water is a difficult thing to remember to do, we get so caught up in life and it’s not until you’re thirsty do you actually drink water”

- **Merv (96 year old)**

Quotes obtained from primary research.

“Whenever I am at work, I’m concentrating on the job I have to complete- not my body. So I rarely consume water at work.”

- **Jason (Office worker)**

Interview: Emily (middle aged)

Q1. Do you constantly drink water throughout the day?

A. “No I always forget although it is a new year's resolution I should fix’

Q2. How would you improve your drinking habits?

A. “Carry a water bottle, get a pretty water bottle, somehow remind myself”

Q3. Would you carry a water bottle that measured how much and reminded you to drink?

A. “Yes I would, that’d be helpful”

Q4. Do you have any other ideas/ opinions that could help my MDP?

A. “Make something simple and easy to use, it’s a very good and possibly life saving idea”

Dehydration: Occurs when you **do not have enough fluids in your body**. You are dehydrated when your body doesn’t have enough water to keep it working properly, this can occur when your body loses too much fluid at once (e.g. excessive sweating) severe dehydration can cause serious problems, such as going to hospital.

Signs and symptoms of dehydration:

- Being thirsty
- Having a dry mouth, lips and tongue
- Having a headache
- Having dark urine and not so much of it
- Being dizzy or lightheaded, particularly when standing up
- Having a fever
- Having a fast heart rate and a low blood pressure

What causes dehydration:

- Strenuous exercise, especially in hot weather
- After severe vomiting or diarrhoea
- After drinking too much alcohol
- Taking certain medicines (diuretics)
- Complication of diabetes
- Having a fever
- Not drinking enough water

Dehydration prevention:

- Drinking enough water each day
- Have extra fluid to replace those lost during hot weather, illness or exercise
- Oral rehydration solutions

(<https://www.healthdirect.gov.au/dehydration>)

How to treat dehydration:

- Drinking more fluids
- 6 teaspoons of sugar with half a teaspoon of salt in 1L of boiled water
- Avoid alcohol and caffeine
- If severe: medical treatment in hospital where fluids are given through an intravenous drip.

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Further Evidence Sourced to Identify Genuine Need:

Charles Darwin University to study heat stress in Far North worker:

“CAIRNS construction hope a new study will give them a reason to wear shorts to work.

Charles Darwin University’s Northern Institute will lead research into heat stress in employees across Australia’s Far North via the newly established Heat Stress Research Partnership...

“The biggest issue is by the time workers realise they’re dehydrated it’s too late.”...

Dr Oppermann hoped research would help develop a better understanding of the incidence of heat stress and practical interventions that can prevent and manage it more effectively.

Cairns Hospital’s Emergency Department treated 185 people for dehydration so far this year.

Director of Emergency Dr Richard Stone said summer always saw an increase in the number of people brought to hospital suffering dehydration.

“We need water to maintain enough blood and other fluids to function properly, and to maintain our blood pressure. Along with fluids, the body also needs electrolytes, which are salts found in the blood, other fluids and cells,” he said.

“In severe cases, dehydration can result in shock, which affects blood flow in the body, and can even result in death.”

- Alicia Nally, The Cairns Post, November 23, 2016 6:00am

<http://www.cairnspost.com.au/lifestyle/charles-darwin-in-university-to-study-heat-stress-in-far-north-workers/news-story/3e31f0077974ed5c00dd01bcb252e0ab>

Primary Research:

- I also conducted an interview with Jason and Merv (middle of previous page) which gave insight to the need that **people don’t intentionally forget** to drink water they’re just busy. Also from talking to people I recorded 2 quotes restating the fact the elderly forget to consume water and **by the time they remember it’s too late** as they are already dehydrated, and for office workers it’s difficult to remember to regularly consume water during the day while busy working. This is why keeping track and remembering their intake would be helpful
- I then conducted a longer interview with another athlete Emily who spoke about how she wants to and **needs to fix her drinking habits** and by having a water bottle attachment that would be very useful. Again adding purpose to my proposed MDP
- I found that **21.4% of adults** do not meet their required intake and only 50% sometimes do. Similarly for **children 1-18**, **51.8%** of them only sometimes meet their specific requirements and 29.7% do not.
- I conducted a simple survey on 50 people ranging in age from 15-90 both male and female. In regard to the amount of water they consume on a day-day basis (shown in tables on the left: , what they believe as dehydration to be and how often they would plan to drink 100mL to help them reach their daily requirement.
- My research also showed that most people would **prefer to be reminded every 30 minutes** (36.8%) to drink a cup of water, then every hour(35.5%), 15 minutes (10.5%), 1.5 hours (7.9%) and so forth.
- The survey also gave results that most people 47.4% do carry water bottles, 28.9% sometimes do and 23.7% rarely do. From these statistics I gathered I can see that it is a practical method having an attachment to the bottle itself as most people usually carry one with them everyday.

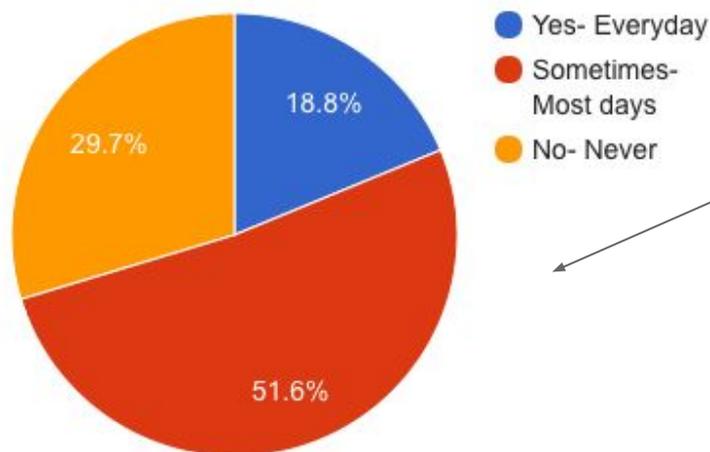
1.2 Design Brief:

To design a product that will help prevent dehydration especially for the elderly and office workers.

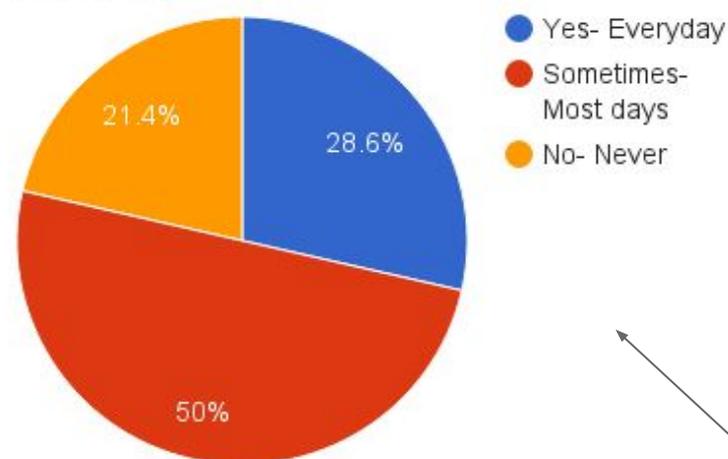
Application of Conclusion:

Through this identification and exploration of the need, I’ve come to the conclusion that yes, everyone is susceptible to dehydration but I think my main direction will be towards the elderly.

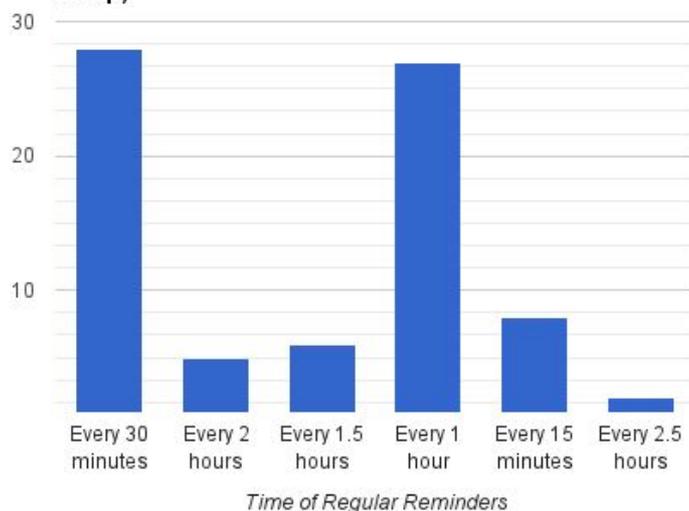
If you are 1-18 years old, observe the amount of water you are to consume daily. Do you meet that total requirement?



If you are 18 and older, observe the amount of water you are to consume daily. Do you meet that total requirement?



To help you meet the daily requirement of water, how often would you plan to drink 100mL of water (1/2 cup)



1.1 Table: Average Daily Water Intake:

<https://www.nrv.gov.au/nutrients/water>

Age (years) Category:	Total Water/day
1-3	1.0L (4 cups)
4-8	1.2L (5 cups)
Boys	
9-13	1.6L (6 cups)
14-18	1.9L (7-8 cups)
Girls	
9-13	1.4L (5-6 cups)
14-18	1.6L (6 cups)
Men	
19-30	2.6L (10 cups)
31-50	2.6L (10 cups)
51-70	2.6L (10 cups)
>70	2.6L (10 cups)
Women	
19-30	2.1L (8 cups)
31-50	2.1L (8 cups)
51-70	2.1L (8 cups)
>70	2.1L (8 cups)

Evauation:

From this both primary research via survey and interview with various people in my proposed target market, combined with secondary research particularly from the Australian Bureau of Statistics, Nutrient Reference Values site and the Cairns Post Article. Along with my motivation and purpose the need for there to be a way to regularly remind people to consume water to help meet their daily requirements has been identified and explored showing a significant purpose which I hope to make my MDP meet.