# Thirst on Campus

## How can tap water be more fully utilized as the healthy and sustainable alternative to sugar-sweetened beverages?

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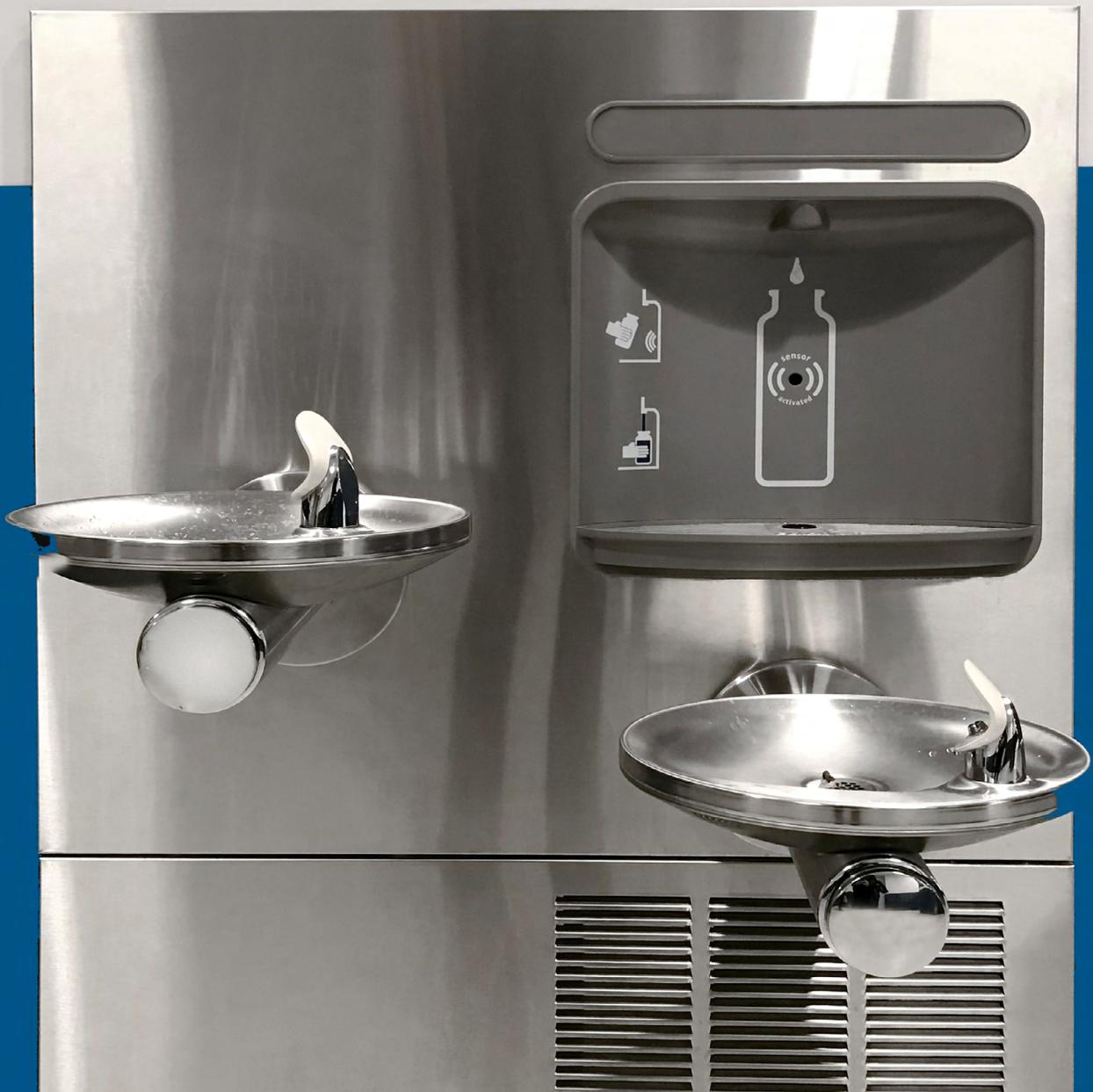
# Disclaimer

This report was prepared in partial fulfillment of the requirements for the Master of Urban and Regional Planning degree in the Department of Urban Planning at the University of California, Los Angeles. It was prepared at the direction of the Department and of the Semel Healthy Campus Initiative Center at UCLA as a planning client. The views expressed herein are those of the authors and not necessarily those of the Department, the UCLA Luskin School of Public Affairs, UCLA as a whole, or the client.

# Acknowledgments

# Key terms and constructs

Below are key terms/constructs that will be important to this research:

<u>Sugar-sweetened beverage (SSB):</u> I will be using CDC's definition of sugar-sweetened beverages that states that sugar-sweetened beverages are, "any liquids that are sweetened with various forms of added sugars like brown sugar, corn sweetener, corn syrup, dextrose, fructose, glucose, high-fructose corn syrup, honey, lactose, malt syrup, maltose, molasses, raw sugar, and sucrose". Some examples include regular non-diet soda, fruit drinks and sports drinks.

<u>Tap water:</u> For this study, tap water is defined as water that is provided through a tap (water distribution system) and intended for human consumption. For example, water from kitchen or bathroom sinks is tap water. Water supplied to toilets and irrigation systems is *not* tap water.

<u>Bottled water:</u> For this study, bottled water will refer to water that was sealed/manufactured from a water company such as Arrowhead or Dasani. This may include individual single-use water bottles or the larger 5-gallon water jugs that are common in many offices. This will *not* include tap water in reusable water bottles.

<u>Hydration Station:</u> a drinking fountain that is specifically designed/retrofitted to allow you to fill up your water bottle. At UCLA, most hydration stations are either operated through a motion sensor or by pressing a button. Goosenecks are also a popular type of hydration station.

<u>Healthy Behavior</u>: For this study, a healthy behavior is an action to maintain, attain or regain good health. In the US, four behaviors are the root cause of a large portion of our chronic disease burden. These behaviors include physical inactivity, poor eating habits, tobacco use and alcohol consumption (American Public Health Association).

<u>Health messaging</u>: For this study, I am defining "health messaging" as any digital or physical sign that promotes its viewers to engage in healthy behaviors. Digital examples may include a daily email to urge you to get up and take an exercise break. Physical examples may be signs posted to encourage people to take the stairs. In both these examples, the promoted healthy behavior is physical activity.

<u>UC - Healthy Beverage Initiative (HBI)</u>: HBI is a UC-wide initiative led by the University of California, San Francisco with the goal to create a healthier beverage environment at each participating campus.

<u>Semel Healthy Campus Initiative Center (SHCI)</u>: SHCI is a campus-wide effort that draws on UCLA's leading research and teaching to find new and innovative ways to promote living well on campus.

<u>Healthy Campus Network (HCN)</u>: HCN is a UC system-wide initiative that promotes innovative ways to reform all dimensions of health.

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# Executive Summary

The growth of sugar-sweetened beverages (SSB) consumption globally has skyrocketed over the past several decades with North America leading with one of the highest per capita consumption rates (Popkin and Hawkes 2016). Consumption of SSBs is one of the major determinants of weight gain among adolescents and young adults. Many Americans do not adjust their total caloric intake when consuming SSBs; therefore, consuming drinks like soda and sweetened ice teas leads to additional calorie intake to one's regular diet (Malik et al. 2006).To work towards healthier diets, we need to shift our drinking habits away from SSBs and towards healthier alternatives, like water. Research has shown that replacing SSBs with water will reduce overall caloric intake (Stookey et al. 2007). More often than not, water is the free, healthy and sustainable alternative to SSBs.

With consumption of SSBs as the primary source of added sugars in the average diet in the United States and as Americans have begun to drink more and more of their calories, the need for healthy beverage promotion and intervention is increasingly pressing. This report addresses the overarching question:

> **How can we create a campus environment that promotes drinking healthily and makes it easier to do so?**

Existing studies rely on beverage intake data to understand patterns of SSB consumption and negative health outcomes, while few focus on the qualitative aspects of beverage consumption and tap water perception. This research seeks to fill the gap in understanding the motivations and barriers to consuming more tap water and less SSBs among college students and working adults.

Recognizing the need to fill this gap and understanding the profound health effects of SSB consumption, the University of California Office of the President – Human Resources has committed to funding the UC-wide Healthy Beverage Initiative (HBI). Led by the University of California, San Francisco, HBI aims to create "healthy beverage zones" that promote tap water as the healthy alternative to sugary beverages on UC campuses. UCLA's Semel Healthy Campus Initiative Center is taking the lead on HBI and supporting this client project that seeks to answer the following two main research questions:

**1** What are student and staff habits, priorities, and decision-making processes with respect to beverage choices?

**2** How do students and staff perceive on-campus health messaging that promotes healthy behaviors?

In order to answer these questions, this report consists primarily of findings from a qualitative research study done on campus with UCLA undergraduate students and staff. Supported and funded by the Semel Healthy Campus Initiative Center (SHCI) through HBI, this study consisted of 9 focus groups (with 81 participants) with three different subgroups: staff (30), undergraduates living on campus (22), and undergraduates living off campus (29). The focus groups were conducted to:

1. Assess student and staff beverage choices
2. Ask open ended questions that promote discussion around motivation for healthy lifestyle choices
3. Understand the barriers to healthy and sustainable drinking choices
4. Identify solutions to help promote healthy beverage consumption among student/staff at a large urban campus
5. Gather insights on effective messaging that promotes healthy behaviors.

By covering both beverage choices and health messaging perception, the results of these focus groups can be used to inform the creation of health messaging that promotes drinking more tap water and less SSBs. After discussing the results and findings from the focus groups, this report provides a set of recommendations for on-campus messaging and other strategies that may promote healthier and more sustainable drinking habits at UCLA.

**The key insights from each study objective are detailed below:**

1. **Habits, priorities, and decision-making processes with respect to beverage choices.**

   a. The **availability** and **convenience** of certain beverages play a significant and important role in beverages decisions and can often **override taste and health preferences**.

   b. One's **physical, social and working environment** can influence you to try new drinks. The university setting provides a unique opportunity for increased **exposure to different types of drinks** in places like dining halls, offices, and events.

   c. Selecting drinks based off of their **caffeine** content to stay awake to work or study is prevalent at UCLA and a significant driver to beverage decision making.

2. **Perception of the taste and safety of tap water compared to bottled water.**

   a. The focus group participants all agreed that any water coming out of a **faucet was tap water.** Things started to get less clear when talking about other water sources like drinking fountains and hydration stations. There is a strong mental distinction between "tap" and "filtered water"—particularly among students. Generally, more students believed that hydration stations were filtered water and *not* tap, while more staff members believed that hydration stations were tap water.

   b. **"Tap" is a loaded word**. Across all focus groups, many participants shared their negative attitudes towards the word "tap".

   c. Reasons for not drinking tap water can be separated into **three main categories**: organoleptic (smell, taste, color or turbidity of water), health/safety concerns and "ick" factors" like mental associations with tap water being dirty.

   d. The **temperature of drinking water is important**, especially when talking about tap water. Many participants shared that they preferred drinking cold water and were more likely to drink tap water if it was cold. Others shared that they preferred drinking warm or hot water.

   e. Creating **cultural norms around drinking tap water** is a powerful way to promote drinking tap water.  Personal networks are an important factor in influencing your perception of tap water.

3. **Definition of "health" when it comes to drinks and perceived barriers and facilitators to making healthy drink choices.**

   a. **Healthy drinks** are natural, hydrating, beneficial to your health, and transparent in their contents/ingredients

   b. **Unhealthy drinks** are artificial, high in sugar, destructive for your health, and addictive

   c. Casual and conversational settings can be an important place for people to **learn information** about healthy foods and drinks. Informal channels like blogs, Buzzfeed and Twitter can also influence one's perception of what drinks are or are not healthy.

   d. Health information about drinks can be confusing. Some drinks may seem healthy and unhealthy at the same time. **Milk, juice and diet soda are particularly confusing.**

4. **Perception of on-campus health messaging that promotes healthy behaviors.**

    a. Participants preferred purely **informational messages over directive messages**, which were received more negatively, particularly among students.

    b. Information that is **shocking** or surprising can have a strong **motivating effect** for behavior change.

    c. Informational messages should use easy-to-understand language and clear images that are put in easily **relatable terms**.

5. **Effects of on-campus health messaging on student and staff lifestyle.**

    a. There were three main reasons why people may not change their behavior despite having pre-existing knowledge on the topic: 1. **social norms** in personal networks are contrary to the message; 2. lack of **repeated exposure** to the topic; 3. perceived **lack of proper substitutes** that enable behavior change.

    b. The campus provides opportunities for new conversations and experiences that can lead to meaningful change in one's personal life. A university campus is an **opportune setting to learn new information and develop new habits** for both students and staff.

6. **Strategies for creating on-campus messaging to promote healthy and sustainable behaviors, specifically reducing SSB intake and promoting tap water consumption.**

    a. Create a "**reusable water bottle culture**" on campus to promote tap water as the healthy alternative to SSBs. Making the healthy and sustainable option the **most convenient choice** is necessary to drive sustained behavior change on campus. Whether talking about tap water or other healthy and sustainable beverages, it is important to make these choices the **path of least resistance**.

    b. Strategies can be separated into three main categories: messaging, programmatic and infrastructural:

        i. **Messages** should be simple, catchy, relatable and contextualized. A variety of messages should be created to address the different barrier to drinking tap water. Recommended messages can be separated into three main categories: planetary health messages, personal health messages and culture shifting messages.

        ii. **Programmatic** elements include promoting tap water through providing free water bottles, incentivizing healthier drink options and igniting a competitive spirit when it comes to healthy and sustainable drink choices.

        iii. **Infrastructural** changes center around making hydration stations the more obvious and appealing choice by installing more stations, revamping existing stations and installing wayfinding signage.

The above key insights for each of the study's objectives informed a set of specific recommendations. As we took a community-based approach for this research, many of these recommendations come directly from student and staff input given during the focus groups. The staff and student ideas that were supported by the findings and in line with the client's goal were selected and are detailed in this report. A selected set of the more strongly recommended strategies are outlined below. A full set of recommendations can be found in the "Recommendations" section.

**Messaging**

1. Create a simple slogan or catchphrase to create "brand" recognition for tap water that does not explicitly use the word "tap". This can unify separate projects/programs on campus working towards the same goal of promoting healthy/sustainable drink choices.

2. Top 5 recommended specific message:
   1. Safety of tap water: bottled water compared to tap water regulation
   2. Compare the environmental impact (carbon footprint, "water footprint") of tap water compared to bottled water and SSBs.
   3. What happens when you recycle plastic bottles?
   4. Compare sugar content in beverages commonly drunk/sold at UCLA
   5. Infographics on selected beverages that are often found to be confusing in relation to health (milk, juice, diet soda)
   *See appendix 8 for sample recommended messages*

**Programmatic**

1. Continue and expand programs that provide free water bottles for UCLA students, faculty and staff

2. Promote alternative healthy beverages through serving them at events, providing samples and featuring them in promotions and sales

**Infrastructural**

1. Install/retrofit hydration stations so that they attract attention rather than being in the background of other beverages like SSBs.

2. When possible, provide cold water and/or ice.

3. Install more hydration stations on campus to improve availability and access

4. Provide maps of where hydration stations are located on campus near areas that sell beverages including vending machines, stores, and cafes.

5. Install directional wayfinding signage to make is easier to identify where hydration stations are. Install blade signs so that passerby can easily identify what the sign is advertising.

This project supports and complements existing ongoing efforts on campus that promote healthier drink choices. HBI, led by SHCI has acted as a hub for the various efforts on campus to promote a healthier drinking environment while the Healthy Campus Network provides the infrastructure to share the results and lessons learned from efforts at UCLA with other UC campuses. By creating a healthier beverage environment, UCLA has the opportunity to improve its community's health while also having a positive impact on our planet's health.

# Introduction

The growth of SSB consumption globally has skyrocketed over the past several decades with North America leading with one of the highest consumption rates (Popkin and Hawkes 2016). Consumption of SSBs is one of the major determinants of weight gain among adolescents and young adults. Many Americans do not adjust their total caloric intake when consuming SSBs; therefore, consuming drinks like soda and sweetened ice teas leads to additional calorie intake to one's regular diets (Malik et al. 2006) To work towards healthier diets, we need to shift our drinking habits away from SSBs and towards healthier alternatives, like water. Research has shown that replacing sugary beverages with water will reduce overall caloric intake (Stookey et al. 2007). More often than not, water is the free, healthy and sustainable alternative to SSBs.

With consumption of SSBs as the primary source of added sugars in the American diet and as Americans have begun to drink more and more of their calories, the need for healthy beverage promotion and intervention becomes increasingly pressing. This report addresses the key question:

## How can we create a campus environment that promotes drinking healthily and makes it easier to do so?

## Prevalence of adults reported drinking SSBs at least once a day



Prevalence of Daily Sugar-sweetened Beverage Intake (≥1 time/day) among US Adults, BRFSS 2013

<20%
20 - <25%
25 - <30%
30 - <35%
≥35%
No Data Available

Source: Behavioral Risk Factor Surveillance System, CDC

*Source: https://www.cdc.gov/nutrition/data-statistics/sugar-sweetened-beverages-intake.html*
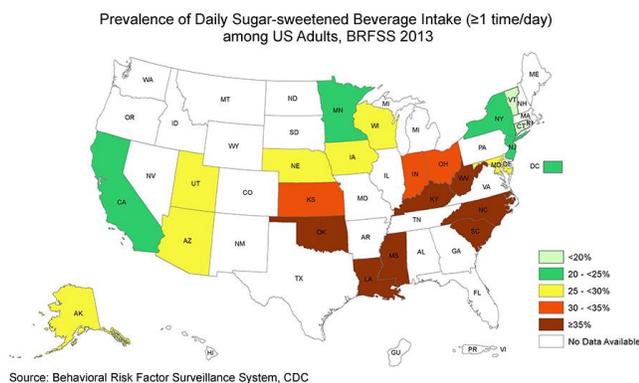
Promoting water as a beverage presents its own unique challenges. At the same time that the thirst for SSBs in the United States grows, so has nationwide mistrust of tap water. In addition to various socioeconomic and cultural factors that influence one's perception of tap water, nationwide public health incidences like the Flint Water Crisis shake up public trust in the safety of tap water.

Understanding that a mistrust of tap water has been linked to an increase in intake of SSBs and bottled water ties tap water perception to SSB consumption (Onufrak et al. 2014).

As individuals decide to drink beverages like soda and bottled water instead of water from their tap (given the tap water is safe to drink), they are not only negatively impacting their own health, but also the health of the environment. Promoting a beverage environment that takes into consideration both personal and planetary health requires promoting *tap* water specifically, rather than bottled water. Not only does bottled water require 2,000 times more energy to produce than tap water, but it is also requires a water inefficient process to produce; the Pacific Institute estimates that that it requires 3 liters of water to produce just 1 liter of bottled water (Pacific Institute 2007). Promoting tap water as the healthy alternative to SSBs requires a multi-layered approach that understands and addresses the barriers to drinking tap water while simultaneously addressing potentially

different barriers to reducing SSB consumption. Understanding the profound health effects of SSB consumption, the University of California Office of the President – Human Resources has committed to funding the UC-wide Healthy Beverage Initiative (HBI). Led by the University of California, San Francisco, HBI aims to create "healthy beverage zones" that promote tap water as the healthy alternative to sugary beverages on UC campuses.

### UCLA's Role & the Semel Healthy Campus Initiative Center

Creating healthy beverage zones on UC campuses presents a unique opportunity to change and influence healthier drinking habits among students, staff and faculty. For many individuals, college is the first time when all eating and drinking choices are made independently (Vilaro et al. 2017). In this transition period from adolescence to adulthood, many students may establish long-term behavioral habits that influence their long-term health outcomes and chronic disease risk. Unfortunately, research shows these long-term habits picked up during college years include a decline in dietary quality (Eaton et al. 2012). While many studies have been done on SSB consumption among children and adolescence, beverage choices among older age groups are not as well understood. Current research does not paint a complete picture of the perception of beverage choices among college students and working adults. Thus, HBI also presents an opportunity to fill this research gap.

Helping fill this gap, SHCI's participation in HBI is in line with the center's goals to support research that will inform policies and programs on and off campus to promote creating a "culture of health." Established in 2013, SHCI is a campus-wide effort that translates UCLA's knowledge, research and resources into new and innovative ways of promoting living well on the UCLA campus.

Envisioned and supported by Jane and Terry Semel, the center's mission is to create a culture of health that promotes "the healthy choice as the easy choice." SHCI is also part of the larger UC-wide Healthy Campus Network (HCN), a campus-coordinating infrastructure that allows different UC campuses to learn from each other's efforts to maximize intra-system learning. Leaders from each campus learn and mentor each other both informally and formally as seen with UCSF's leadership position with the Healthy Beverage Initiative. When considering the UC system as a whole, it is the largest employer in California with over 227,00 faculty and staff. As such, interventions and initiatives done on the system-wide level have the potential for great and widespread impact.



*The Semel Healthy Campus Initiative Center consists of 7 main "pods" or working groups—each focused on a different aspect of health and wellbeing.*

## This Report

This report seeks to answer the following two main research questions:

1. What are student and staff habits, priorities, and decision-making processes with respect to beverage choices?

2. How do student and staff perceive on-campus health messaging that promotes healthy behaviors?

In order to answer these questions, this report consists primarily of findings from a qualitative research study done on campus with UCLA undergraduate students and staff. Supported and funded by SHCI through the Healthy Beverage Initiative, this study consisted of nine focus groups with three different subgroups. The focus groups were conducted to:

1. Assess student and staff beverage choices

2. Ask open ended questions that promote discussion around motivation for healthy lifestyle choices

3. Understand the barriers to healthy and sustainable drinking choices

4. Identify solutions to help promote healthy beverage consumption among student/staff at a large urban campus.

5. Gather insights on effective messaging that promotes healthy behaviors.

By covering both beverage choices and health messaging perception, the results of these focus groups can be used to inform the creation of health messaging that promotes drinking more tap water and less sugary beverages. After discussing the results and findings from the focus groups, this report will provide a set of recommendations for on-campus messaging that may promote healthier and more sustainable drinking habits among UCLA community members.

# Literature Review

## Background

With consumption of sugar-sweetened beverages (SSB) as the primary source of added sugars in the average diet in the United States and as those living in the U.S. have begun to drink more and more of their calories, the need for healthy beverage promotion and intervention becomes increasingly pressing. My research seeks to understand beverage preferences and health messaging perception among UCLA students and staff to create a set of recommendations for SHCI to promote healthier drinking habits on campus, primarily though creating impactful messaging.

For many individuals, college is the first time when all eating and drinking choices are made independently. In this transition period from adolescence to adulthood, many students may establish long-term behavioral habits that influence their long-term health outcomes and chronic disease risk. Establishing healthy and sustainable beverage drinking habits during this time can be important for long-term personal, community, and planetary health.

### Health Effects of Sugar-sweetened Beverages

Sugar-sweetened beverages (SSB) are defined as any sugar-sweetened sodas, fruit drinks, sports drinks, energy drinks, sweetened iced tea, or homemade SSBs such as frescas which contain at least 50 calories per 8-oz serving; 100% fruit juices are *not* considered to be SSBs (Singh et al. 2015). The growth of SSB consumption globally has skyrocketed over the past several decades. North America has one of the highest consumption rates of SSB consumption in terms of calories sold per person per day and volume sold per person per day (Popkin and Hawkes 2016). Consumption of SSBs is one of the major determinants of weight gain among adolescents and young adults, and the primary source of added sugars in the American diet. On average, US adults consume 145 calories from SSBs a day, and 61% of adults living in the West region drink SSBs at least once per day (CDC 2018). One model studying the effects of SSB consumption on morbidity attributed 184,000 deaths globally in 2010 to SSB intake. This represented 5.3% of all diabetes mellitus deaths (Singh et al. 2015). While it is well established that SSBs contribute to weight gain because of their high added-sugar content, evidence also suggests that it may increase risk to type 2 diabetes and cardiovascular disease independent of obesity as a contributor to a high dietary glycemic load (Malik et al. 2010).

The soft drink or soda industry is responsible for a significant portion of SSB consumption globally. From 1997 to 2010, soft drink consumption per capita increased from 9.5 to 11.4 gallons per year. The same study found that just a 1% increase in soft drink consumption was associated with an additional 4.8 per 100 overweight adults (Basu et al. 2013). Consuming SSBs is linked to an overall increase in daily caloric intake—indicating that people do not reduce the amount of food consumed to compensate for the calories in beverages (DiMeglio and Mattes 2000). A study found that when SSBs are replaced with water, overall daily caloric intake was also reduced. Replacing all SSBs with water showed a predicted mean decrease in total energy of 200 calories per day over 12 months (Stookey et al. 2007). Further evidence suggests that replacing SSBs with water or another low-calorie beverage has potential benefit on body-weight outcomes (Zheng et al. 2015). A handful of studies throughout the United States have been done on SSB consumption rates and beverage consumption patterns among college students. One study with community college students in an urban southern campus found that 95% students reported SSB intake in the past month and 65% reported daily intake; men were also more likely than women to report daily intake (West et al. 2006). Research also shows that SSB consumption in college students may be associated with race and gender, with African Americans and males being more likely to consume more SSBs (Bruce et al. 2016). Furthermore, taste and price have been identified as the most important factors in choosing beverages among college students (Block et al. 2013). Given their high rates of consumption and the relatively more controlled environment of a college campus, college students are an important target group for SSB interventions to improve long-term health outcomes.

As evidence points to the health benefits of replacing SSBs with water, it is important for us to consider the health and environmental implications of recommending either tap or bottled water as the alternative. The below paragraphs will compare the environmental and health effects of tap water to those of bottled water.

### Tap Water vs. Bottled Water

*Environmental effects*

There are a variety of different factors and impacts to consider when comparing tap water to bottled water. Furthermore, these factors

should be understood and contextualized at the regional and local level. From an environmental standpoint, drinking bottled water is less sustainable and more wasteful than drinking tap water. Large amounts of energy are required to produce and distribute bottled water. The majority of the plastic bottles are made out of polyethylene terephthalate (PET), which is a plastic made from fossil fuels (Gleick and Cooley 2009). Further energy is required to transport the bottles to the recycling processing plant and then recycle them. In 2004, about 40% of PET bottles returned for recycling in the US were processed internationally, often (until recently) in China. (Arnold and Larsen 2006). Although recycling and transporting PET bottles is energy intensive, it is less wasteful than throwing the bottles away in the trash where they end up in landfills or polluting public waterways.

The National Resource Defense Council found that only 13% of used water bottles were recycled in 2016 (The National Resource Defense Council 2016). Educating the public about the actual environmental impact of consuming bottled water rather than tap water is important for working towards more sustainable drinking habits. A study done at Purdue found that many students believed that recycling eliminates or greatly reduces the environmental impact of plastic water bottle use. While recycling is more sustainable than throwing the bottle away, tap water is by far the more sustainable decision. The study also found that there may be a disconnect between personal actions and environmental impact; despite knowing about the environmental impact, and "feeling bad", students still continue to purchase bottled water (Saylor, Prokopy, and Amberg 2011).

### Mistrust of Tap Water

Despite the environmental consequences of consuming plastic water bottles, the per capita consumption of bottled water has more than doubled in the past 20 years in the United States to a yearly average of almost 42 gallons per capita in 2017 (Statista 2017). As bottled water consumption doubled, public trust in tap water declined (Gleick and Cooley 2009). Because the quantity of bottled water consumption is linked to public trust in tap water, reduction in bottled water consumption requires improving the trust in public water systems.

Public safety incidents like the recent crisis in Flint, Michigan, involving tap water have impacted and degraded public trust in water systems. In 2014, the City of Flint decided to change its primary source of drinking water from the Detroit water system to the Flint River—leading to lead leaching into the water supply and poisoning a population that is largely low-income and minority communities (Switzer and Teodoro 2017). The crisis in Flint is not only an example of a public system failing its residents, but also of how water systems can produce environmental injustices.

Public health crises like that in Flint have brought national attention to water issues, particularly the safety and quality of tap water. In many ways, perception of the safety and quality of tap water is more influential than the actual objective safety and quality of the water. Perception is what will influence whether or not someone drinks from the tap. The first step to correcting misperceptions of tap water is to understand why those perceptions exist in the first place. This perception has an important impact on our environmental and personal health.

A few studies have been done in the United States studying tap water consumption and perception among college students. One study found that "heavy bottled water users" compared to "non-users" believed that bottled water is safer than tap water and tastes better. (Saylor, Prokopy, and Amberg 2011). Furthermore, the majority of bottled water drinkers were female and were concerned about the relative safety and cleanliness of the tap

water on their campus. Understanding the unique barriers to tap water consumption on our campus will be important for informing future messaging and interventions aimed at increasing tap water consumption.

Furthermore, mistrust of tap water has been linked to an increased intake of SSBs and bottled water (Onufrak et al. 2014). As individuals decide to drink soda instead of water from their tap, they are negatively impacting their health and the environment. This mistrust of tap water is influenced by a variety of factors. Individual and household indicators of socioeconomic status have been found to be influential in the perception of water quality. Most influential to tap water perception was foreign-born nativity, particularly for immigrants from Latin America (Pierce et al. 2019). This study found that immigrants from Latin America are the least likely to trust their tap water. The same study also found that interestingly enough, factors of the built environment or neighborhood had little indication of influencing tap water perception. In Los Angeles, where immigrants comprise 35% of the population, public education about the safety and quality of tap water is an important component of promoting tap water (PPIC 2019). Understanding to what extent students and staff treat SSBs as substitutes to water is important for informing appropriate health messaging.

### Organoleptic qualities of tap water

In addition to the quality and safety of tap water, organoleptic properties are also important in influencing tap water perception. Organoleptic properties include the taste, odor and color/turbidity of water. In a study done in Mexico City, the poor organoleptic features of tap water was stated as the main reason for choosing bottled water over tap water (Espinosa-García et al. 2015). Another study in Portugal done with college students showed that flavor was very important to tap water perception; risk perception of water was found to be mainly based off of the color and flavor of the water (Doria 2006). Lastly, organoleptic qualities can also be induced or amplified by publicity campaigns and marketing for bottled water companies (Hu, Morton, and Mahler 2011).

### Bottled Water and Microplastics

Despite incidents like Flint, tap water is often safer to drink than bottled water in the United States. Because bottled water is subject to less stringent requirements and less frequent testing than tap water, the quality of bottled water does not meet the same standards as that of tap water. In the United States, municipal tap water is not only regulated as a food product by the Food and Drug Administration (FDA), but is also held accountable under the Environmental Protection Agency (EPA). Another area of concern around the health and safety of bottled water is its contribution to microplastics pollution, an anthropogenic contaminant which have been found in lakes, rivers and oceans since the seventies. Microplastics made out of PET and polypropylene (bottle caps are made out of this) have been found in the water in plastic water bottles indicating potential wear of the packaging materials leaching the plastics into the water (Schymanski et al. 2018). The chemical element antimony is commonly used in the manufacturing process to make PET plastic bottles and is a cumulative toxic element and pollutant of priority interest by the EPA (Chapa-Martínez et al. 2016). The maximum feasible levels of antimony in drinking water in the United States is 6 micrograms/liter.

It has also been shown that plastic bottled sparkling water has more microplastics than still water—potentially due to the higher amount of pressure in the bottle that causes additional leaching of the plastic materials into the water. Another study done with bottled water purchased at Mexican supermarkets found similar results. Testing for the effects of temperature and exposure time on the leaching of PET into the water, this study showed that the

highest level of microplastics was found when the water was exposed to 75 degrees Celsius for a period of 5 days (Chapa-Martínez et al. 2016). In one brand, the release of antimony exceeded the EPA's regulated chronic daily intake.

## Beverage choices and decision-making

Although beverage habits are often formed during early childhood years, they can be changed and reshaped during adulthood. Research suggests that children can form long lasting beverage habits at a young age based off of what is available in the house (Sutherland et al. 2008). Children mimic their parent's food and beverage choices from a young age, sometimes as early as two years old. While research has studied the beverage decision-making processes and habits among children, there is a lack of research on the factors that influence college-aged students' and older adults' decision on what to drink.

Understanding that beverage choices and habits are shaped early in life, more typical interventions targeted at adults to reduce SSB consumption have centered around price changes, educational messaging and warning labels (Block et al. 2010). Several interventions have shown that educational messaging about the amount of sugar in SSBs combined with increases in SSB prices can be effective in reducing SSB consumption (Blake et al. 2018). Differently, nudging interventions seek to change habitual behaviors by changing the presentation of food and/or beverage choices (Wilson et al. 2016). These interventions rely on the understanding that habits are influenced by environmental cues that are oftentimes not processed consciously (Neat et al. 2006). These cues can come in a variety of forms, including traffic light labels and calorie content labels. UCLA specific research is important for contextualizing this knowledge to our campus.

## Conclusion

Understanding the barriers and facilitators to drinking tap water on campus can help inform interventions to promote tap water consumption. Reducing SSB consumption among college students in the United States presents its own unique obstacles and challenges, like an abundance of free-flow SSBs offered in the cafeteria. For many individuals, college is the first time when all eating and drinking choices are made independently. While many studies have been done on SSB consumption among children and adolescence, beverage choices among older age groups are not as well understood.

Current research does not paint a complete picture of the perception of beverage choices among college students and working adults. Existing studies rely on beverage intake data to understand patterns of SSB consumption and negative health outcomes, while few focus on the qualitative aspects of beverage consumption and tap water perception. There is a gap in understanding the motivations and barriers to consuming more tap water and less SSBs among college students and working adults.

This study fills these gaps by utilizing a different research methodology (focus groups) in order to 1) assess student and staff beverage choices, 2) ask open ended questions that promote discussion around motivation for healthy lifestyle choices, 3) understand the barriers to healthy and sustainable drinking choices, 4) identify solutions to help promote healthy beverage consumption among student/staff at a large urban campus and 5) gather insights on effective messaging that promotes healthy behaviors.

## Data and Methods

With consumption of sugary beverages as the primary source of added sugars and as those living in the United States have begun to drink more and more of their calories, the need for healthy beverage promotion and intervention becomes increasingly pressing. My research seeks to answer the following question in order to create a set of recommendations for the Semel Healthy Campus Initiative to promote healthier drinking habits on campus, primarily though creating impactful messaging.

**How can we create a campus environment that promotes drinking healthily and makes it easier to do so?**

Current research on beverage habits does not paint a complete picture of the perception of beverage choices among college students and working adults. Existing studies rely on beverage intake data to understand patterns of SSB consumption and negative health outcomes, while few focus on the qualitative aspects of beverage consumption, like the reasoning behind beverage purchase decisions. There is a gap in understanding the motivations and barriers to consuming more tap water and less SSBs among college students and working adults. This study fills these gaps by utilizing a different research methodology (focus groups) in order to do the following:

1. Assess student and staff beverage choices

2. Ask open ended questions that promote discussion around motivation for healthy lifestyle choices

3. Understand the barriers to healthy and sustainable drinking choices

4. Identify solutions to help promote healthy beverage consumption among student/staff at a large urban campus

5. Gather insights on effective messaging that promotes healthy behaviors.

This study conducted a series of focus groups among UCLA undergraduate students and staff in order to assess perceptions of beverage choice (particularly SSBs) and on-campus health messaging (i.e. "Take the Stairs" messaging). The focus groups consisted of three subgroups: undergraduates living on-campus, undergradutes living off-campus and UCLA staff commuting to campus from the LA area. In developing a strategy to create effective messaging that achieves the client's goal, it was important that we took a ground-up and community-based approach that focused on the voice of UCLA students and staff. With that said, focus groups were selected as the most suitable research method to do this.

## Research Questions

More specifically, this study sought to answer the following five research questions through conducting focus groups:

1. What are student/staff habits, priorities, and decision-making processes with respect to beverage choices?

2. What are student/staff perceptions of the taste and safety of tap water compared to bottled water?

3. How do student/staff define healthy drinks and what are the perceived barriers and facilitators to making healthy drink choices?

4. How do student/staff perceive on-campus health messaging that promotes healthy behaviors?

5. What are the effects of on-campus health messaging on student/staff lifestyle?

## Methodology

### Research Methods

This study used focus groups (small group discussions) and brief questionnaires to achieve the study objectives and answer the research questions. Focus groups allowed us to collect qualitative data from a focused discussion in order to assess student/staff perceptions and attitudes on beverage choices/preferences and on-campus health messaging. In this study, focus groups were able to provide valuable insights to these two topic areas that would not otherwise be provided by other research instruments such as surveys.

This study was approved by UCLA's Internal Review Board (IRB#19-001532). The study built on a pilot study that informed the formal study design. The focus groups were conducted in multiple phases. The first phase consisted of pilot recruitment/screening and two pilot focus groups, while the second phase consisted of recruitment/screening and nine focus groups.

### Phase 1: Pilot Focus Groups

One pilot group was comprised of staff only while the other pilot group was comprised of undergraduate students only. Screening for the pilot groups was done using the same screening questionnaire as the qualitative focus groups, but recruitment was done through methods of convenience. Staff were recruited through asking Semel Healthy Campus Initiative Center (SHCI) staff members to share the recruitment flyer with their offices and colleagues. Students were recruited through reaching out to the SHCI undergraduate team and asking departments on campus to share the flyer with their listservs. The pilot focus groups were conducted on the following dates and times with the indicated number of participants.

- Student Pilot Focus Group:
  12/10/2019, 12 - 2:30 pm, 7 participants
- Staff Pilot Focus Group:
  12/11/2019, 5:30 – 8:00 pm, 4 participants

In each of the pilot focus groups, I moderated discussion while a volunteer took notes. Each participant was given a number ID so that the notetaker could take note of who said what while keeping the anonymity of the participants. After conducting the pilot focus groups, I modified the intake questionnaire (appendix 3, 4) and focus groups guide (appendix 5) for clarity based on any questions asked during the administration of the questionnaire and the quality of the responses and discussion. Furthermore, the pilot focus groups acted as a "dress rehearsal" for the focus groups and were helpful in figuring out the logistics of the focus groups (e.g. room set up, setting up materials, recording, etc.).

### Phase 2: Focus Groups

The second phase of this study consisted of recruitment/screening and qualitative focus group sessions (see appendix 2 for recruitment flyers). During weeks 1 and 2 of Winter quarter 2020, I recruited and screened for the focus groups. A total of 9 focus group sessions consisting of 5-12 participants each were held during weeks 3, 4, and 5 of Winter quarter 2020. The focus groups consisted of 3 different subgroups, as shown below:

1. Undergraduates living on campus (3 focus groups)
2. Undergraduates living off campus (3 focus groups)
3. Staff members (3 focus groups)

Undergraduates living on- and off-campus were separated into different groups as there are distinct differences in their drinking environments; students living on campus are required to participate in a meal plan and usually spend much more time on campus. These factors will differently influence which beverages are available and promoted to students living on- versus off-campus.

Each focus group was approximately 2.5 hours in duration: 2 hours of questions and discussion plus 30 minutes for a meal, decision to consent, and administering the intake survey. The focus groups took place in an on-campus location—either a meeting room or classroom. To accommodate UCLA staff's varying shift hours, staff focus groups occurred at different times throughout the day. Student focus groups

typically took place in the evening from 5:30 – 8pm, with the exception of a few earlier sessions. Upon arrival, participants were provided with a study overview and consent form for participation in the focus group. Participants also filled out an intake survey that asked for demographic information, a few questions about beverage consumption and choice, and a validated United States Department of Agriculture (USDA) 15-Item Beverage Intake Questionnaire (BEVQ-15) that was slightly modified to relate better to the UCLA community (see appendix 3, 4 for intake questionnaire).

Once everyone completed the intake questionnaire, we began the discussion and progressed through a list of scripted questions and prompts that guided the conversation. The principle investigator moderated the session (directed the discussion) while a CITI-certified volunteer took notes. Each session was recorded and initially transcribed using an online transcription service. I then reviewed each online transcription while listening to the audio recording to edit for any incorrectly transcribed parts and missing sections.

## Focus Group Structure

The focus groups were divided into two major sections, each roughly 40 minutes long. The first section focused on participants' drinking habits, understanding of "healthy" and "unhealthy" drinks, and perception of tap water. After a 5-minute break, the participants returned for the second half of the discussion, where they were shown various health/sustainability messages and asked what they thought of each message. Some messages were produced by UCLA, while others were produced from outside entities. After discussing their perception of these messages, we proceeded to do a group brainstorm where the participants were given the task to come up with health messaging and strategies that would promote drinking more non-bottled water and less sugary beverages on campus (see appendix 5 for focus group guide). The promotion of "non-bottled water" rather than "tap water" was deliberately chosen so that participants would interpret what "non-bottled" meant to them.

## Recruitment and Screening

I sampled for UCLA undergraduate students and staff. My sample size for students was 22 students living on-campus, 29 students living off-campus and 28 staff members. With such a small sample size, the added value comes from the rich qualitative data gathered from the discussions rather than large quantitative and statistically significant results.

*Staff Recruitment:* Staff were primarily recruited through UCLA's Staff Assembly; a designed flyer was shared with their listserv (appendix 2). Additionally, I distributed the flyer through specific departments' listservs, including Housing and Hospitality Services, and Facilities.

*Student Recruitment:* Students were recruited using a variety of methods including visual displays on monitors in dining halls (appendix 2), flyers distributed by residential life, and emails sent through department listservs. Additionally, flyers were posted in various restrooms throughout campus.

All interested participants were directed to take either a staff or student screening questionnaire. As much as possible, focus groups were selected so that they were representative of general UCLA demographic characteristics, including race/ethnicity, year, and gender. Staff were also selected so that they represented a diversity of different departments. All staff members had to have worked with UCLA for at least one year in order to participate.

In order to facilitate more open and honest conversation, participants were also grouped by their provided consumption frequency of SSBs as much as possible. Students/staff may feel uncomfortable talking about drinking habits in a group with participants of dissimilar habits.

## Qualitative Analysis

In analyzing the results from the focus group discussions, I used a thematic analysis approach. Thematic analysis is a qualitative research method for identifying, analyzing, organizing, describing and reporting themes within a data set (Braun and Clarke 2006). This approach is often used with research that has an applied focus, such as this research project (Guest, MacQueen, & Namey, 2011). It is also a useful

form of analysis in examining different perspectives and highlighting similarities and differences among focus group participants. Such an approach matches this study's objectives in its ability to capture the diverse opinions of students and staff around beverage preferences and health messaging. Using a deductive approach, I used the study's objectives as a framework for the thematic analysis. In order to enhance the reliability and credibility of the results and reduce bias, I conducted the analysis with a peer and classmate, Sam Speroni. The analysis can be broken down into three main phases as outlined below:

### Phase 1: getting to know the data

In this phase, Sam and I familiarized ourselves with the data by reading through the transcripts and focus group notes. As Sam was also a notetaker for 3 different focus groups, he was already familiar with the format and structure of the focus groups. As such, he began the analysis with a background understanding of some of the results.

### Phase 2: generating initial codes

After familiarizing ourselves with the data, we worked towards developing the initial production of codes from the data in an iterative process. The goal of this phase was to take the unstructured data and develop a set of ideas that described what was going on in the data. I selected four focus groups (at least one from each subgroup) that were particularly productive and rich in discussion. Sam and I both independently read through the transcripts and coded using a framework based on the study objectives that I developed independently and provided to Sam for review. During coding, we each identified important sections of the text and coded them as they related to the study objectives framework.

We worked systematically through each of the four selected focus groups in an iterative process. After each independently generating an initial code for one focus group script, we came together and discussed our analysis. This allowed us to discuss the identified interesting aspects of that data. Each subsequent initial coding of the transcripts built off of the previous one. By analyzing the focus group scripts one at a time, we were able to engage with each focus group in a more in-depth manner that also allowed us to better pick up on the social dynamic created by the focus group participants.

### Phase 3: developing a codebook

By coding independently and then discussing together, we came to an agreement in setting explicit boundaries for the definition of the code to ensure that the codes were not interchangeable or redundant (Attride-Stirling, 2001). After developing a codebook together based off of the four selected focus groups, I applied to codebook to the rest of the five transcripts. With these five remaining transcripts, I made minor revisions to the codebook to account for any new emerging themes. The final codebook consisted of a hierarchical coding of the themes that emerged from the data set, organized by the study's objectives ( see appendix 7 for codebook).

## Findings and recommendations

During the last part of the focus group discussion, the participants engaged in a brainstorming activity to create messaging that promoted drinking more non-bottled water and less sugary drinks on campus. These brainstorming sessions were rich with ideas and often included non-messaging related recommendations. The recommendations in this report are a combination of strategies developed from the findings from the focus group discussion and specific recommendations made by focus group participants. I layered the themes identified during the qualitative analysis onto the specific ideas from the participants to choose the most salient and effective recommendations. Taking a community-based approach, it was important to include the ideas generated during the brainstorm of the focus groups into this report's recommendations.

After identifying these recommendations, I created a short list (see page 42) based off: 1. current momentum for the recommendations; 2. predicted ease of implementation; 3. level of support/excitement from the focus groups and; 4. relevance to the UCLA community. Current momentum included existing and ongoing projects and efforts at UCLA. For example, directional signage for hydration stations is already underway and therefore strategies pertaining to wayfinding were prioritized over other projects that are not currently in the works.

# Findings

The focus groups revealed a wide breadth and diversity of perceptions, preference and habits around beverage consumption and choice at UCLA. While there were common themes across all three subgroups—students living on-campus, students living off-campus, and staff—there were also unique themes that were identified more strongly with a particular subgroup. For example, planetary and environmental messaging resonated strongly with the student groups while health messaging seemed to resonate more with the staff subgroups. Tap water perception and reasons for mistrust of tap water also varied among these subgroups. While students were more likely to be influenced by the visual appeal of a hydration station, staff groups showed more concern about the internal infrastructure of the hydration stations.

This section will detail the key findings from the intake questionnaire and focus groups that relate to the study's objectives. The findings from the focus groups are split into two main sections: 1) understanding beverage choices and habits; 2) understanding behavior change and reaction to messaging.

## Focus Group Findings

### 1. Beverage choice and habits

**Key Findings**

**Decision-making processes**
- Availability and convenience
- Beverages as "treats"
- Need to stay awake

**Barriers to drinking tap water**
- Don't use the word "tap"
- Temperature matters
- Creating a "tap water culture"

**Healthy & unhealthy beverages**
- Sources of knowledge
- Confusing beverages

### 2. Behavior change/messaging

**Key Findings**

**Reactions to messaging**

**Behavior change**
- Repetition is key
- "Knowledge to action" gap
- Don't "tell" people what to do
- Campus as a place to develop new habits
- Personal versus communal message

## Demographics

Notably, this study had a large proportion of female participants. In the recruitment process, over 85% of the screening questionnaires were completed by females. Among students, 84% of the participants were female, while among staff, 77% of the participants were female. The race/ethnicity of the student participants more or less matched the overall demographics of the UCLA student population. I was not able to find complete available data on the demographics of UCLA staff.

| | Students | | | Staff | | |
|---|---|---|---|---|---|---|
| | Focus Group | | UCLA* | Focus Group | | UCLA |
| | n | % | % | n | % | % |
| *Gender* | | | | | | |
| Female | 43 | 84% | 60% | 23 | 77% | n/a |
| Male | 6 | 12% | 40% | 7 | 23% | n/a |
| Gender nonconforming | 2 | 4% | - | 0 | 0% | n/a |
| *Race/ethnicity* | | | | | | |
| African, African American or Black | 4 | 8% | 3% | 3 | 10% | 12% |
| Asian, Asian American, or Pacific Islander | 17 | 33% | 28% | 11 | 37% | 28% |
| Chicano/a or Latino/a | 16 | 31% | 22% | 8 | 27% | 30% |
| Multiracial | 4 | 8% | 6% | 1 | 3% | <1% |
| White/Caucasian | 10 | 20% | 27% | 7 | 23% | 30% |

*Source: undergraduate profile 2018-2019, https://www.apb.ucla.edu/campus-statistics/undergraduate-profile

Furthermore, the majority of student participants were receiving financial aid (63%) which is representative of the overall UCLA student body. Third- and fourth-year students also comprised a larger proportion of the student participants compared to first and second years.

| Student Demographic information | | | | | |
|---|---|---|---|---|---|
| *International student status* | n | % | *Living Situation* | n | % |
| Domestic | 48 | 94% | On-campus | 21 | 41% |
| International | 3 | 6% | Fraternity/Sorority | 1 | 2% |
| *Year in Undergraduate School* | n | % | Off-campus university housing | 4 | 8% |
| 1st year | 7 | 14% | Other off-campus housing | 22 | 43% |
| 2nd year | 8 | 16% | Parent/Guardian Home | 2 | 4% |
| 3rd year | 16 | 31% | *Enrolled in a Meal Plan* | n | % |
| 4th year | 20 | 39% | Yes | 22 | 43% |
| *Receiving Financial Aid* | n | % | No | 29 | 57% |
| Yes | 32 | 63% | | | |
| No | 19 | 37% | | | |

Among the staff participants, 73% worked 40 hours a week, 23% worked more than 40 hours a week and 3% worked between 20 and 39 hours per week. There were also various levels of educational attainment among staff participants: 7% Associate's degree, 62% Bachelor's degree, 28% Master's degree, 3% some college.

## Section 1: beverage choice and habits

We found that the decision of what to drink can be a complex one. There are many different reasons why one may decide what to drink, including to quench thirst, to stay awake, to socialize and to relax. At different moments and times of the day, the purpose of a beverage will change and thus change one's decision-making processes. For example, the decision-making process for choosing a drink as a special treat or a drink as a meal replacement will be very different from each other. Overall, we found six major factors that influence one's decision on what to drink:

*What do people consider when deciding what to drink?*

**Availability**

Convenience, and the environment

**Health**

Hydration, calories, nutrients & supplements

**Need to stay awake**

Caffeinated drinks

**Taste**

Satiating, flavor

**Cost**

Cost barriers, drinks as an unnecessary cost

**Leisure**

Social events, pairing w/ specific meals, reward/treat, relaxation

While the above six factors were identified from the focus group discussions, the results from the intake questionnaire show slightly different results. In the questionnaire administered before the discussion took place, we asked participants how important various factors were when deciding what to drink. Participants answered each given question on a Likert scale from "not important at all" to "very important". The below results show that students and staff had similar answers for all factors except two: "weight" and "social/environmental impact." Given that the discussion among students seemed to be more concerned with the social/environmental compared to the staff groups, it is somewhat surprising that 90% of staff identified "social/environmental impact" as an important consideration, while 61% of students did.

*Intake questionnaire results: "What's important when you decide what to drink?"*



Legend: ■ Staff ■ Student
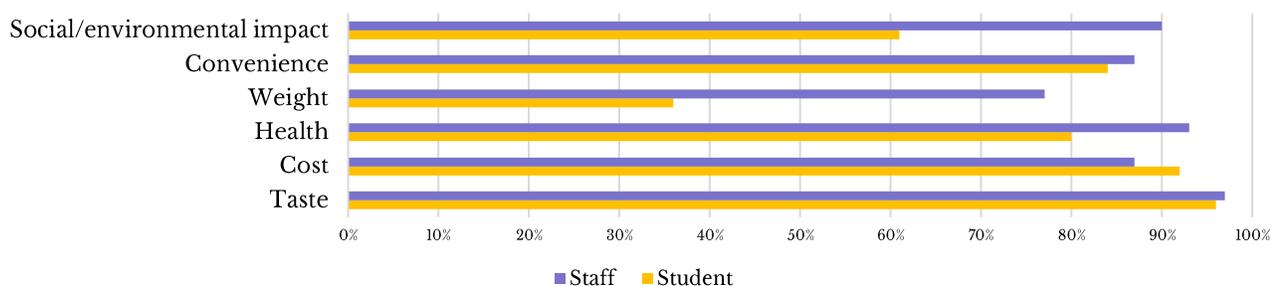
### Drinking Water

In general, students were more likely to drink tap water than staff. 76% of students responded that they usually drink tap water while 65% of staff usually drink bottled water. These findings support Bianca Juarros' (UCLA MURP '19) study conducted last year for her client project, "Tapping Out Bottled Water" that found 75% of staff primarily drank from plastic water bottles (bulk and individual) (Juarros 2019). The below chart shows the breakdown of staff and student responses for where they usually get water from while on and off campus. **Both students and staff are more likely to drink tap water from drinking fountains while on campus**. This could be due to the readily available and numerous water fountains and hydration stations on campus as compared to other off campus places. Furthermore, 80% of students primarily get their water from water refilling stations compared to staff at 30%.

### Where do you usually get your water from?

| | On campus | | Off Campus | |
|---|---|---|---|---|
| | Student | Staff | Student | Staff |
| Tap water from drinking fountains | **78%** | 29% | 24% | 10% |
| Tap water from dispensers/fill-up sinks | **80%** | 32% | 30% | 26% |
| Tap water from kitchen or bathroom sinks | 6% | 0% | 36% | 23% |
| Individual plastic bottles of water | 26% | **42%** | 28% | 61% |
| Water from home | 54% | 16% | 66% | 52% |
| Bulk, delivered water bottle containers | 8% | **68%** | 16% | 29% |
| I don't drink water while on campus | 2% | 0% | - | - |

As revealed in the focus group discussions, water source preferences are largely a function of what type of water is available. For staff, the most popular source of water on campus was bulk/delivered water bottle containers. Many offices at UCLA have a water station with large 5-gallon water jugs either from Arrowhead or Sparkletts. Some offices also have their own filtration system. On the other hand, these 5-gallon jugs are not often readily accessible to

students. Instead, many students discussed their preference for hydration stations that are more readily available.

### Beverage habits and preferences

All participants filled out the USDA Beverage Intake Questionnaire (BEVQ-15), a brief questionnaire that assesses habitual beverage intake and total beverage energy intake (appendix 3, 4). The two most commonly consumed beverages were water and coffee/tea. About 85% of participants consume coffee/tea on a regular basis. On average, staff and students consume about the same amount of water at 32-33 oz of water per day, or about half of the recommended 64 oz. This could be a result of the questionnaire design that may underestimate the level of consumption for beverages consumed at high levels.

### Water and coffee/tea consumption

| | Water | Coffee/Tea Black | Tea/Coffee with cream and/or sugar |
|---|---|---|---|
| % who drink | 100% | 62% | 51% |
| **Avg daily intake (oz)** | 32.6 | 9.1 | 7.2 |
| Students | 32.0 | 6.3 | 6.0 |
| Staff | 33.0 | 13.0 | 8.5 |

### SSB Consumption

| | Energy Drinks | Soda | Diet Soda | SJD* | Fruit Juice |
|---|---|---|---|---|---|
| % who drink | 17% | 21% | 15% | 30% | 30% |
| **Avg daily intake (oz)** | 2.3 | 3.3 | 2.1 | 3.4 | 2.9 |
| Students | 2.4 | 4.0 | 1.8 | 4.2 | 2.9 |
| Staff | 2.1 | 2.4 | 2.4 | 1.8 | 2.9 |

*SJD = sweetened juice drink- includes drinks like Sunny Delight

The BEVQ-15 questionnaire also collected data on milk consumption. I modified the questionnaire to include milk alternatives given the rising popularity of beverages like almond milk and oat milk. Overall, about 30% of participants drank milk while 33% drank milk alternatives. Students consumed more milk and milk alternatives overall compared to staff.

# Key Findings: decision-making processes

## Availability and convenience

One particularly interesting finding and reoccurring theme of the focus groups was the influence of **availability** of beverages on drinking habits and preferences. What is around you, readily available and convenient seems to play an important role in your beverage decisions. Whether it's drinking water from a 5-gallon water dispenser because that's what is available at work, or drinking more soda when you go home for break because that's what your parents drink at home, changing your physical and social environment may be a relatively easy way to shift beverage habits. Availability and convenience can also override your usual beverage preferences. If you prefer seltzer water, but your parents keep soda at home, there's a good chance that you'll drink soda instead.

> *"...when I go home, I go back to drinking like cans of coke. And I hate it. Here, I'm usually okay because it's like water, water, water. But at home, we get like the boxes of cokes because that's what my dad drinks to take to work. I get too lazy to get a cup and to get water. So, I just use the alternate and just get coke."*
>
> *– Undergrad student living on campus*

**The physical, social and working environment can be an important prompt to trying new beverages.** The university setting provides a unique opportunity for increased exposure to different types of beverages. For staff members, attending events and meetings where beverages are offered for free may influence beverage choice and habits. For students living on campus, dining halls are central to beverage choices and habits. What's available in a dining hall can largely influence what someone decides to drink. Furthermore, students are oftentimes exposed to a wide variety of new choices and new people when they come to campus. College presents new choices, opportunities and information that can influence and change beverage choices/habits. This makes it even more important to be thoughtful about beverage choices provided on campus and messaging around beverage decisions.

> *"I think it depends on what your employer offers because I've worked at other places where coffee isn't accessible, so you'd have to go out and buy your coffee or you know, go buy like a soda. Whereas here, I feel for the most part like water is provided... when I worked at other places where things aren't offered like that. I'm less likely to consume it. Because I'm more conscious of what I'm spending versus here where it's free or easily accessible."*
>
> *– Staff member*

> *"I'm a big proponent of tap water. But at work I drink Sparkletts because it's closer than tap water is. But around campus when there's a water fountain and I'm thirsty, I'll drink from the water fountain. I have no problems with that. At home, I'll drink from the refrigerator, which is just filtered tap water."*
>
> *– Staff member*

## Beverages as "treats"

Beverages can serve many different functions. They can be used for hydration, as nutritional supplement, or as a treat or reward, to name a few. On-campus participants living on the hill may see the times they go off campus as a special opportunity to buy a tasty drink with a friend. Many students shared that spending money on beverages seemed like an unnecessary expense, especially given a tight student budget. As such, participants (mainly students) shared that spending money on a drink like a bubble tea or latte, was a special treat. Off-campus students seemed to be the most cost-conscious, while staff seemed to consider cost less when making beverage decisions. This makes sense given the financial burden of being a student paying rent versus being a full-time employee.

> *"If I had more money, I think I could see myself like getting Starbucks or like something like that more often like a hot chocolate or like... something. But I just don't do that a lot because I feel I like treat it more as like a special occasion"*
>
> *– undergrad student living on campus*

### Need to stay awake

It is notable how pervasive coffee and other caffeinated drink consumption was. Deciding to drink a caffeinated beverage to stay awake was a common theme across all subgroups. From the discussion, it seemed like caffeine intake was highest among staff members and more common among the students living off-campus than those living on-campus. According to the intake questionnaire, the average daily intake of coffee/tea among staff was highest for an average of 10.8 oz per day, with off-campus students at 7.5 oz per day and on-campus students at 6 oz. Yerba Mate came up several times during the discussion as a preferred caffeinated beverage among students.

> *"I don't remember drinking as much lattes or coffee as I do now. Mostly have them for my commute like on the way here to help wake me up. But also on the way back, especially like... right now when it's already dark, like I get very tired or sleepy so I need something to kind of keep me awake.*
>
> *- Staff member*

The higher consumption among off-campus students could be a result of increased course work during the later years of college. It could also be a result of being immersed in the university culture of staying caffeinated for more years. The usually younger on-campus students may not have yet picked up those caffeine-drinking habits. Furthermore, many students cited reducing their caffeine intake on a weekend to feel "more relaxed" or because they didn't have to go to class and study all night. Many students also shared that they were worried about drinking coffee because they have heard that you can become addicted to it and get caffeine withdrawals.

> *"I also drink a lot of yerba mate for like energy throughout the day. Like I had a can right before I came, I had a can this morning".*
>
> *– Undergrad student living on campus*

## Key Findings: tap water perception

*What do you think of as tap water?*



| Faucet/sink | Drinking fountain | Hydration Station | Other refill stations |
| --- | --- | --- | --- |
| Yes, definitely tap | Maybe...unsure | No, since it's filtered | I don't think so...? |

The focus groups all agreed that any water coming out of a faucet was tap water. Things started to get less clear when talking about other water sources like drinking fountains and water refill stations. Some participants felt strongly that anything *except* bottled water was tap water, including drinking water fountains and water from hydration stations. Many students stated that they didn't consider water from designated water refill stations as tap water. These stations included retrofitted water fountains, soda fountain machines and other pitchers and stations found in cafes or restaurants. One's personal distinction of what is or is not tap water was important when choosing water sources to drink from—particularly for those averse to drinking tap water.

### Don't use the word "tap"

"Tap" is a loaded word. Across all focus groups, many participants shared their negative attitudes towards the word "tap". This supports studies with blind taste tests with water that show that there are other factors beyond sensory perception that influence one's preference for tap or bottled water (Teillet et al. 2010). Marketing, news and media can all play a role in creating different mental associations with "the word "tap". Several students who used the hydration stations on campus shared that they do not like to drink tap water. There was an implicit assumption among many of the students that water from the hydration stations was different from the regular drinking water fountains, which they believed was tap water.

> *"I prefer like filtered like through a Brita or like any of the stations on campus, but if none of those are available, then like it's not going to be in the world if I have to like put my water bottle under sink or something."*
>
> *– undergrad student living off campus*

This perception seemed to be less common among staff members who more frequently shared that they believed the water from hydration stations was also tap water.

> *"Like the bathroom. That's tap water. Same as the fountains here. That's what I associate tap water with. The sink. And that's why I refuse to drink out of the faucet or water fountain."*
>
> *– Staff member*

The focus groups also revealed a strong mental distinction between "tap" and "filtered" water. Many participants shared that they do not drink tap water, and instead drink filtered water. There seemed to be a general consensus that tap water was anything that comes out of a faucet.

Furthermore, the "device" that the water comes out of seems to make a large difference in one's perception of the quality and type of water. For example, water from a water station in a café may be more appealing than water straight from the faucet even if they are both the same water. This may have to do with the assumption that the water in the water station is *not* from the faucet. A water station designates the water as specifically intended for drinking unlike water from a sink that can be used for many different activities.
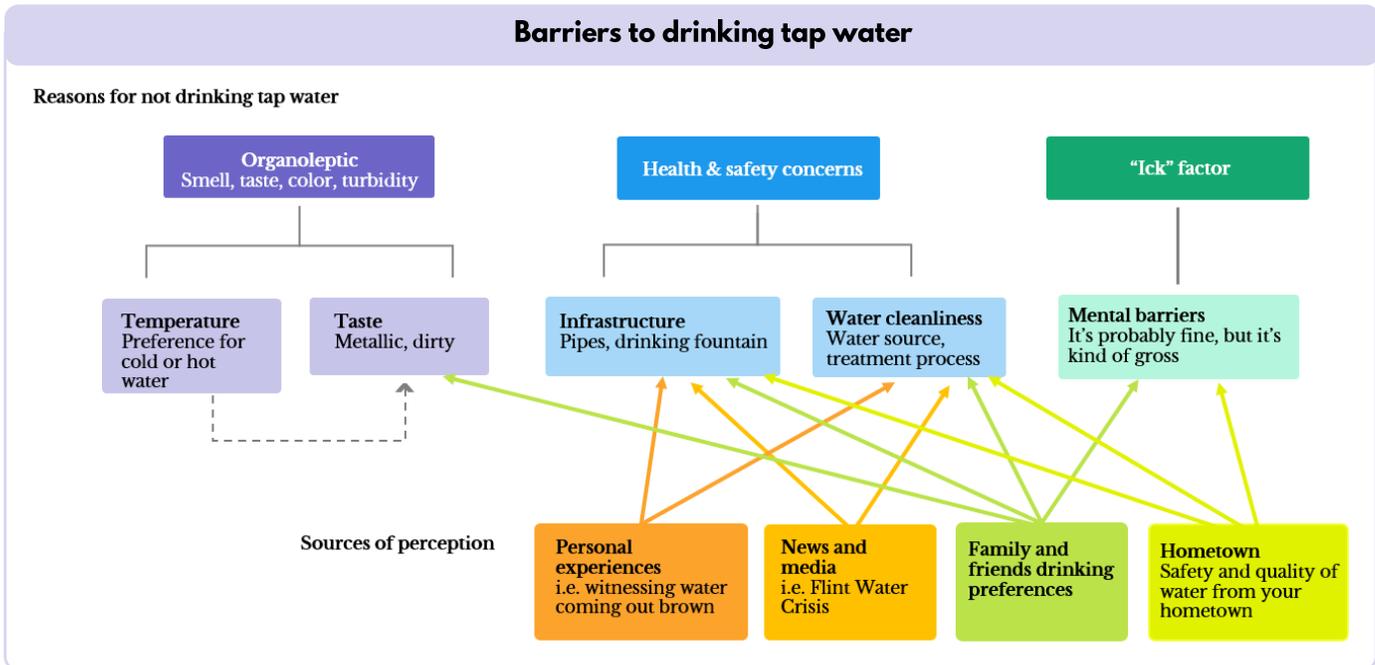


The focus groups revealed a variety of barriers to drinking tap water as shown above. The above findings support research done last year at UCLA that found that the campus population had an inaccurate perception that bottled water is safer to drink than tap water (Juarros 2019).

### Temperature matters

Many participants shared that they preferred drinking cold water. Others shared that they preferred drinking warm or hot water. This preference for a certain temperature of water often guided where students and staff decided to get their water from. Many students' top preference for water on campus was the water from soda fountains. They shared that this preference was at least partially due to soda fountains having cold water and ice available.

> *"If I like refill, I'll usually go to Ackerman... I usually go to like the restaurants that have like dedicated like water stations or I'll go to...one of the fountains that are like made for water bottles where you stick it in a sensor and the water comes out, but that water is like never cold. So, I prefer to go to like one of the dining areas and just go to the little water station."*
>
> *– undergrad student living off campus*

Consistent with research that shows that the intensity of water taste is greatest at room temperature and lower with hot and cold water, students also shared that the taste of the water seemed to matter less when the water was cold (Pagborn and Bertolero 1972). Cold temperatures slightly suppress the sensitivity of our taste buds—making it more difficult to taste the dissolved minerals in water. Other research also shows that drinking cold water may make you feel more hydrated as it induces more saliva flow and leaves your mouth in a wetter state (Brunstrom et al. 1997).

> *"Like my little Brita...tastes dirty, but you refrigerate for a minute...and yeah, it tastes a little bit different. Honestly, I'm sure it's not dirty, it's just in my mind like when it's warm and just came from the tap, you're like, I don't know about this..."*
>
> *– undergrad student living off campus*

### Creating a "tap water culture"

Creating cultural norms around drinking tap water can be a powerful way to promote drinking tap water. Personal networks are an important factor in influencing your perception of tap water. Whether or not your roommates, friends, colleagues or family members drink tap water can shape your own personal habits. Many participants shared how their decision to drink tap water was based off something they heard from someone.

> *"I feel weird about...the machines basically because I've heard that if you take off, I don't know what pieces from the water machines. and everything like they're very dirty and like they just have stuff because they don't clean them and just water passes through and like doesn't ever dry up and stuff..."*
>
> *– undergrad student living on campus*

Perception of tap water can also change— particularly during college when students are submersed in a new environment. In meeting people from different cities and regions around the world, people can form new perceptions of tap water. Many participants shared the same concern that water in Los Angeles was not safe to drink; several students compared the tap water in LA to tap water 'back home', which they found to be better tasting and cleaner. Changing the culture around tap water at UCLA will require addressing the reputation of LA tap water.

> *"I mean for me, I'm not from around here... I know LA tap water has a bad reputation. So, like I guess I'm more careful about it, but like I wouldn't go out of my way. Like if I had to go somewhere else to get non tap water, I don't think I would care that much, but if there is filtered water, if there's a choice, I will choose filtered water."*
>
> *- On campus student*

Furthermore, other social norms like carrying around your own water bottle can be an important factor in shaping behavior around tap water consumption.

> *"I was kind of thinking that a lot of people here at UCLA or like a lot of campuses- like a lot of people have Hydroflasks and I'm just wondering like how many people actually drink still drink bottled water? I know my roommate just drinks bottled water and I kind of like shame them for it, but like I think in general...they definitely have their own bottles. They have Hydroflasks... So I feel like to that extent, we're already like pretty far ahead."*
>
> *– undergrad student living on campus*

## Key findings: healthy & unhealthy beverages

The Healthy Beverage Initiative aims to create "healthy beverage zones" on campus. As such, we found it important to understand how the UCLA community defines "healthy" and "unhealthy" beverages. During the focus group discussions, I asked the participants to individually write down the three drinks they believed were the most healthy and the three drinks they believed were the least healthy.  Their answers were tallied and then written on a white board so that all participants could see what everyone else wrote down. This exercise stimulated discussion around what makes a drink healthy or unhealthy. The findings along with selected quotes from this exercise are outlined below:

## *Healthy beverages are...*

### Natural

"...something that's natural- like came from the earth— usually it's gonna be healthy for you." – on campus student

### Hydrating

"Because everyone needs some liquid in them. Water is the best thing that anyone can drink. It's no calories for one thing. It replenishes the body with what they need. So that's the best part, if anyone can drink water. – *staff member*

"I guess it depends on how much your body is really getting hydrated with the drink, you know...I guess that's what I would consider when I think about healthy". – *staff member*

### Beneficial to your health

"I think I kind of have to have a narrative as to what they do. Like I didn't think coconut water was good until it was advertised like it does this... or apple cider vinegar, like it balances this and this or alkaline water...if someone explains that like Coke will rejuvenate my insides I'd probably be like, 'oh, okay'." – *off campus student*

"I put kombucha because like the digestive enzyme helps us do something in our body, and the detox water, kind of of the same thing, like it helps cleanse your system." – *on campus student*

### Are transparent in their contents

"I think like as you get more complicated in your drinks...like the more work that takes into making them like the less likely you are to be like completely sure that it's like a healthy beverage." – *off campus student*

"For me when I think of like anything healthy, I just look at the label and see if I can like understand all the ingredients ... I bet if you look at like a back of a soda can or something then there's bunch of additives that we don't really understand." – *off campus students*

## *Unhealthy beverages are...*

### Artificial

"I think energy drinks ... as well as sodas...have always seemed very either unhealthy, but also just like daunting in a sense because when you look at the ingredients... I have no idea what any of these things are like that. I think a common thread with this list ...the ingredients and just not knowing what any of it means... - *off campus students*

### High in sugar

"... there's like there's like the thing, sugar is like a drug.  If you get addicted to sugar and...a lot of those drinks like juice and milk are given to you since you're a kid and that like gets you kind of hooked on that amount of sugar..." - *on campus student*

"There's just like a lot of sugar. Like unnecessary added sugar that you don't need, I think. And like you could say the same thing with most of the things on that list. Like it's just like added sugar that you don't need" – *on campus student*

### Destructive for your health

"I think for me energy drinks was like the very first thing that came to my mind when I thought of unhealthy drinks. Definitely the sugar but then also just the amount of caffeine is so dangerous for people and so many people talk about, you know, having all these heart issues and like all these horrible side effects of drinking energy drinks" – *staff member*

### Addictive

"For soda like it's really sugary...it can be addictive so like the more you drink the more soda you want, which makes you like more unhealthy as you keep drinking more soda" – *on campus student*

"Alcohol puts your body through a lot and works out your liver. And I know people get like pretty dependent on like energy drinks and coffee...like an addiction...when they don't have it, they're just not in the mood for anything." - *on campus students*

## Sources of knowledge

During the focus groups, discussion around what is a healthy or unhealthy drink oftentimes led to participants sharing knowledge with each other. This exchange of knowledge was oftentimes very fluid and dynamic. Many participants expressed surprise or shock at learning new information from other participants about the healthfulness of drinks. After learning new information, several also stated a resolve to change their drinking habits. The focus group discussions revealed the casual and conversational setting that learning about a healthy diet may take place. Particularly among the student groups, a common phrase used was, "I heard from someone that ____ is or is not healthy because ____." Several people also shared that they received their knowledge about healthy beverages from more informal channels like blogs, Buzzfeed, and Twitter.

> *"Yeah for me, I am very skeptical about ads like advertising healthy drinks just because I'm like, you're a business...you just want me to buy your drink. But if it's like coming from someone who's personally drank it and like I have a close relationship to them then I'm just like more inclined to like either learn more about it or try the drink.*
>
> *— undergrad student living off campus*

## Confusion about milk and juice

During the focus group activity of listing out healthy and unhealthy drinks, milk and juice were consistently topics of confusion and debate among participants. Milk and juice often showed up on both the top 3 most and top 3 least healthy drink list. Participants oftentimes engaged in discussion about why or why not milk and juice were healthy. This conversation often stirred up confusion among the participants. The confusion around the healthiness of these two beverages indicates a need for clearly presented information about the health effects of these beverages. Below are some reasons participants shared for why each of these beverages is or is not healthy.

Milk is healthy because…
- It's very nutritious – particularly for children
- High in calcium- good for strong bones
- Good for post-workout recovery

Milk is not healthy because…
- Your body may not be able to process it- lactose intolerance
- It's not intended for human consumption- it's meant for baby cows
- Highly processed
- It's bad for the environment

Juice is healthy because…
- It's filled with nutrients and vitamins
- The sugars are natural

Juice is not healthy because…
- Packed with sugar – both natural sugars and sometimes added
- It depends- is it freshly squeezed or from concentrate?
- We should eat rather than drink our fruits→ lost fiber

Overall, the topic of milk stirred up more conversation around the dairy industry and biological purposes while the conversation around juice centered more around the transparency of knowing what is inside your juice, particularly when it comes to sugar. Diet soda was also a source of confusion for many participants. Many had heard that diet soda was actually worse for you than regular soda, but few could explain why. Several participants across different focus groups shared an awareness that artificial sugars were worse for you than regular sugar but were unclear as to why.

> *"I think diet sodas, have aspartame, which I've just been told is worse and I don't really know why, but everyone says that. So, I trust that."*
>
> *-undergrad student living off campus*

## Section 2: Reactions to messaging and understanding behavior change

A main objective of this research was understanding what drives behavior change on campus in order to create thoughtful messaging that may influence people to make healthier and more sustainable beverage choices. The Semel Healthy Campus Initiative Center has created a number of research-based messaging campaigns over the past several years to nudge the UCLA community towards healthier behavior. One of the more visible campaigns was the Stairwell Project launched in Spring 2014 that included applying vinyl decals on elevators and doors encouraging people to "take the stairs". During the focus groups, participants were shown some of these messages along with a few non-UCLA specific messages and asked for their feedback (see appendix 6 for images shown during the focus group).

There was a wide range of reactions to the messages ranging from upset to motivated. Receiving feedback and input on these messages is important for creating future messages that will appeal to the UCLA community. This activity allowed participants to discuss what they liked or didn't like about each of the messages. Below are a few selected messages that were shown during the focus groups and some of the positive and negative reactions to the messages.

### Key Findings: reactions to messaging

#### Take the Stairs Messaging



(+)
- Fun and clever
- Motivating through guilt/shame
- Motivating through encouragement

(−)
- Ableist message
- Too directive – "Don't tell me what to do"

#### Foodprint
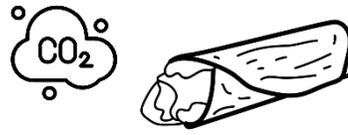


(+)
- Informative and interesting
- Motivating through surprise/shock
- Clear and easy to understand
- Piqued curiosity

(−)
- Too directive
- Puts the blame on the consumer
- Not an appropriate alternative (veggie for beef)
- Not enough or too much information

#### SSB- sugar content



(+)
- Motivating through shock/surprise
- Informative
- Clear and easy to understand

(−)
- Too directive (appendix 6 - #6 left)
- Too specific in beverage choice- "I want to know what my alternatives are" (appendix 6- image #6  right)

#### Environmental impact of water bottles



(+)
- Motivating through surprise/shock
- Motivating through dismay/disgust
- New and interesting information

(−)
- Too abstract- difficult to conceptualize what it means
- Confusing, unclear
- Too much text

## Key Findings: Behavior Change

### Repetition is key

Having prior knowledge and exposure to a specific message seemed to have a positive relationship to behavior change. Participants who had prior knowledge and repeated exposure to the topic a message was about seemed to be more open and receptive to the message.

*"Last year, I didn't think about like stuff like this like almost like at all but like because I eat at Rende (Rendezvous Dining Hall) pretty often. Like having that outside of Rende, it gets you like thinking every time. Like I never ever thought about it last year, but this year I thought about it at a lot. It's like that like one specific graph where it's like veggie and then like the bars like this and it's like beef and the bars like this. And it's like red."*
        *-on campus student*

Similar to the undergrad student with a dining plan quoted above, participants shared that repeated exposure to a particular message made them more likely to change their behavior. This repeated exposure could be seeing the same or similar message multiple times or could also include hearing similar information from one's peers. Receiving the same message in different ways may be positive for reinforcing the message. Participants often shared that that the message was a "good reminder". Even if they already knew the information, the message acted as a prompt for immediate action—particularly when the prompt was placed at a point of decision making.

*"I think it's a good reminder. Like I have a friend who like wanted to be vegetarian and like she's saying like, oh, whenever I see there's different reminders on the Hill that make her want to be, like want to go more plant-based..."*
        *-on campus student*

Oftentimes, no one single thing changes behavior, but instead the repeated exposure to a certain message may lead to a higher chance of behavior change. Learning information in class was also a positive indicator of behavior change among student participants. For example, one student shared that because they took a class that taught the environmental impact of food production, the "foodprint" message resonated particularly well with her.

### Don't "tell" people what to do

Across all focus groups, informational messages were received better than directive messages. Students particularly reacted well to messages that provided them with only the information. When participants perceived that the message left the decision for action in their own hands, they were more likely to react positively to the message. Specifically, two similar messages about the high sugar content in sugar-sweetened beverages were shown side-by-side to the participants. The right one showed the amount of sugar in each beverage without any text while the left one included the text, "you wouldn't eat 22 packs of sugar, why would you drink them?" (appendix 6). Participants perceived the left message to be more directive and less appealing than the right one that simply "gave them the facts." Messaging that is purely informational rather than directive may have a more positive reaction and effect at UCLA.

*"I also like how on the right, it's kind of like different levels of sugar, depending on what you're drinking. So like if I'm normally a coke drinker, I can see, oh I can grab this little juice box and it's better for me than a Coke. And maybe that helps me make a better-informed decision about what I'm drinking. Where the one on the left just feels like... a little bit more harsh and like, 'you're bad if you drink Coke'...if I'm a Coke drinker, I want to know...*



*The above diagram shows the three main reasons why participants may not change their behavior despite having pre-existing knowledge on the topic.*
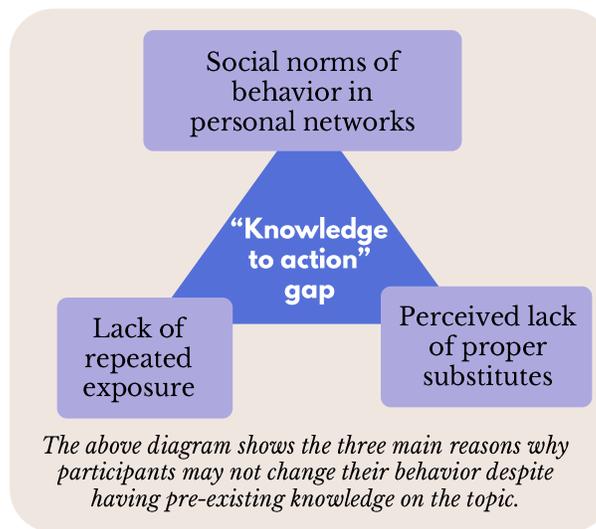
*what my better alternative is. I don't want to hear, 'you just shouldn't drink Coke,' because that feels kind of condescending and like more negative I guess."*

*-staff member*

## Campus as a place to develop new habits

Participants shared stories about their exposure to new information once coming to UCLA. Many students and staff shared personal experiences at UCLA that influenced their beverages choices among several other health and lifestyle choices. The campus provides opportunities for new and diverse conversations that can lead to meaningful change in one's personal life. A university campus is an opportune setting to learn new information and develop new habits. Many students are living on their own for the first time and provided the freedom to make choices on their own. Students shared that they learned new things once they came to UCLA as they were exposed to different people, cultures, food and drink. Dining halls are a particularly influential place for exposing students and staff to new food and drink and ultimately, guiding diets.

*"I didn't start drinking almond coconut milk until I got to UCLA. I felt like everyone was vegan the first year...the people on my floor- we were just all trying to get clear skin. And yes, we're not trying to get the Freshman 15. So, I didn't drink that kind of milk... and also boba. I didn't drink it until I got to UCLA either. We didn't have those kind of drinks I guess in my neighborhood. So we had like smoothies that would be our little thing or like milkshakes from like Jack-in-the-Box or something. So boba is new.*

*– off campus student*

## Personal vs. communal message

Overall, students seemed to respond more positively to community-oriented messages while staff members responded more positively to more individualized messages. Community-oriented messages focus on encouraging behavior change that leads to change for the greater community and/or planet. The "foodprint" message sought to change behavior by inspiring people to think about the effects of their personal food choices on planetary health.

More individualized messages focused on what you can personally gain from changing your behavior. For example, by drinking tap water rather than bottled water, you can save X amount of dollars. Messages focusing on the health effects of SSBs are more individualized while those focusing on the environmental effects of SSBs are more community oriented. One staff member articulated her perspective on these different types of messages as:

*"I think in America is more of like... individualistic, like what's in it for you. Yeah, here we're talking about like the environment and that's a different take. Some people will be more keen to read something that is like, 'it's gonna be healthy for yourself'. Like here, we're talking about the environment like, you know, and it's a different message. So I like it, but it will be interesting to see how different will be if you send a message like, "hey change the proportions for you for your health". Maybe it's a different. You have a different impact."*

*– staff member*

# Recommendations

Overall, the findings show that there is a lot of variation in beverage choices, habits, and preferences, even within our UCLA community. Different people have different barriers to making healthier and more sustainable drinking choices. One person may not drink tap water because it's inconvenient to, while another may not because they do not trust that the water is safe to drink. Participants demonstrated varying levels of knowledge about health and beverages. Additionally, the focus group discussions revealed that there is a lot of confusion around the topic of health and beverages. Marketing, labelling, and a plethora of different sources of health information create a confusing a landscape for any beverage consumer to navigate.

Furthermore, different people may be motivated by different types of messages. One person may be very receptive to an environmental message while another may care more about economic savings. Overall, the environment seemed to be a key factor influencing beverage habits. What is most readily available can often override personal preferences when it comes to beverage choices and behavior. Furthermore, making the healthy and sustainable option the most convenient choice is necessary to drive behavior change on campus. Whether promoting on tap water or other healthy and sustainable beverages, it is important to make this choice the path of least resistance.

*The findings from this research suggest that in order to promote tap water as the healthy and sustainable alternative to SSBs, we should create a "***reusable water bottle culture***" on campus.*

During the last part of the focus group discussion, the participants engaged in a brainstorming activity to create messaging that promoted drinking more non-bottled water and less sugary drinks on campus. These brainstorming sessions were rich with ideas and often included non-messaging-related recommendations.

Specific strategies to create a **reusable water bottle culture** are outlined in this section; the recommendations are based off of the ideas generated from this brainstorm in conjunction with themes identified in the analysis. The majority of this section will include concrete recommendations for messaging. Additionally, this section will also outline programmatic and infrastructural recommendations.

## Recommendations: Messaging

Three major types of messages were identified and recommended during the focus groups: 1. Planetary health; 2. Personal health; 3. Culture shifting. Overall, the planetary health messages seemed to be the most popular and well-supported among the focus group participants, particularly among the student groups. Personal health messages also elicited a strong positive reaction from focus group participants. Additionally, messages around economic savings were also recommended by participants—particularly off-campus students. This could potentially be a factor of a heavier financial burden among students living off-campus. The economic savings message could be layered onto any the planetary or personal health message. While this may seem like a lot of different types of messages, the diversity of messages will better address the diversity of different barriers to drinking tap water. All messages in combination can work together towards creating a "reusable water bottle culture". Furthermore, through designing all these messages with a common theme, the different messages can be unified under the same movement. See appendix 8 for a few sample recommended messages.

### *In general, messages should be...*



Simple/easy to understand

Catchy, visually appealing

Relatable

Location/setting appropriate
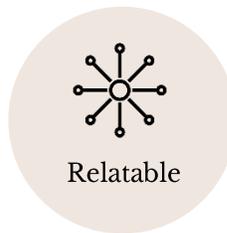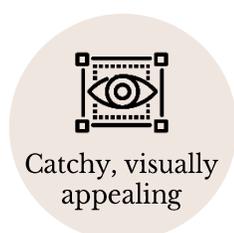
### *Recommendations for three types of messages*

**1    Planetary Health**

Recommendations:

    a.  What is the carbon footprint of creating a bottled drink like soda?
    b.  Comparison of the "water footprint" of tap water to bottled water and SSBs
       i.  i.e. How much water does it takes to produce a bottle of Coke? Include the water used in all inputs into Coke like how much water is used to grow the sugarcane and process it into sugar.
    c.  What actually happens when you recycle a water bottle?
       What is the environmental impact of recycling?
    d.  What is the environmental impact at UCLA for changing our drinking preferences? How much plastic, carbon, and water has our campus saved by using a reusable water bottle? Participants drew comparisons to the stickers in the bathrooms that show the environmental impact of only using 1 paper towel and to the counter on the hydration stations that show how many water bottles we've saved. Participants found these types of messages positive and motivating.

*So my idea was like you put a bottle of water as like a visual then you like equal it to like 250 mls of oil but you like add like a truck visual and plus like a machine visual plus like a factory visual with like the steam coming out of the factory plus like any other parts so that like people understand where that oil is coming from and then they'll kind of, they can like piece it together. Like obviously how'd it get to the grocery store? Like how did it get out of the ground or however they like take what from places?"*

*— off-campus student*

**2    Personal Health**

Recommendations:
- a.  Reassure public of the safety of tap water:
  - i.   Bottled water versus tap water regulation
  - ii.  Infographic on how the water is processed and the safety of the infrastructure (e.g. what material the pipes are made of)
- b.  Raise awareness about the sugar content in beverages
  - i.   Visual of sugar content of commonly sold beverages on campus like Yerba Mate, kombucha, Suja juices, soda, Red bull, and soda.
  - ii.  Make sure to include healthier alternatives in this visual but do not explicitly say those are healthier – stray away from being directive in your message.
  - iii. Compare the amount of sugar/calories in beverages to desserts/food equivalent
- c.  Create specific health information for beverages that are difficult to understand from a health perspective: juice, milk and diet sodas.
  - i.   E.g. Diet soda: what are the health effects of artificial sweeteners?

*"It's like instead of promoting the less sugary beverages, it should be like promoting better beverages where it's just like not even just giving alternatives, but like promoting those alternatives instead...I feel like when things are associated with a negative aspect where it's like, 'oh, like don't do this like you should be doing this'...a lot of people have like resentment towards that so I feel like if you flip it on its side...and like look at it from a different perspective and try to promote other things that are healthier..."*

*– off-campus student*

**3    Culture Shifting**

Recommendations:
- a.  Make tap water sound appealing – brand tap water without directly using the word "tap". For example: "LADWP Water" or even just "water" with images of tap water
  - i.   As part of the Healthy Beverage Initiative, UCSF worked with Stanford Associate Professor of Marketing to develop tap water images that promoted tap water through awe-inspiring messages.  Taking a page out of soda marketing, these messages focus on evoking positive feelings associated with tap water rather than the taste and product itself.
- b.  Creating a slogan
  - i.   A short catchy slogan to promote drinking tap water that can also be translated into a sticker

*I think also just maybe just like more like information on like I guess like tap water and safety of it. Like I don't know, maybe something like a slogan or catchphrase. Like I know like "the Westwood bubble still has LA water, but the number one school has the number one filters" or like whatever they could do to try to make tap water sound more appealing.*

*-off-campus student*

*I think one thing one of my friends says. He like called bottled water 'plastic water'. So sort of like framing it as something that is significantly different than regular tap water makes it like less appealing.*

*– on campus student*

## Recommendations: Programmatic

An important component of creating a healthy beverage environment is removing barriers to accessing healthy and sustainable beverage options like tap water. Even if people have the knowledge, they may not change their behavior if their environment doesn't make it easy to do so. Part of creating a "reusable water bottle culture" will include creating programmatic elements such as the ones outlined below:

### Promoting tap water

- Provide **free water bottles** through campus events.

  e.g. Build off of success of UCLA Housing providing free water bottles to students.

  Providing a high quality durable and insulated water bottle may increase the likelihood of more students using the water bottle. Consider using brand names like Hydroflask that are largely popular on campus and have become part of the campus culture.

- Promote water bottles through **discounts and flash sales.**

- Provide alternatives to bottled water at **events.**

  e.g. at conferences, provide a reusable cup for everyone, get a water truck at outdoor events, sell reusable water bottles.

  *Large events can be a high-visibility opportunity to promote tap water and show the universities' support and trust of tap water.

### Alternative healthy drinks

- Provide **samples for healthier beverages** to encourage people to try these healthy drinks by reducing the risk of purchasing something you may not like.

  Dining halls are great for trying new beverages, but not everyone has access to dining halls.

  Utilize events as an opportunity to promote and advertise different healthy beverages.

- Encourage trying new drinks by having **promotions and sales.**

- Advertise commitment to and partnerships with **sustainable vendors**

### Competition and incentives

- Competition with other campuses

  e.g. extension/addition onto the Cool Campus Challenge

  Additionally, many participants liked the idea of having some sort of incentive to bring your own water bottle / refill your bottle.

> *"I think something that would be really good for someone to do is like really tap into like the Hydro flask culture. Like the stickers, make them a sticker of the map or like a little cute aesthetic sticker like where to get water or put that slogan on a sticker and like advertise that... because we love free...stickers that it would go on Hydro Flasks or it would go anywhere..."*
>
> *-off campus student*

> *"I think last year UCLA gave like the dorms a free water bottle, which I really appreciated. And from then on like you could see that people actually use their water bottles and like basically everywhere you went like people had like the UCLA Housing like blue reusable water bottles. So, it's just like I know a lot like Hydro flasks are pretty expensive for like the average person or like somebody who's struggling like in college. So I like the fact that UCLA went ahead and like did that on their own. Like I feel like that was a very good initiative and like it really promoted the use of like reusing water bottles"*
>
> *-off-campus student*

## Recommendations: Infrastructural

From the findings and recommendations made during the focus groups, I provide two main recommendations relating to infrastructure: 1. Hydration station; 2. Directions and wayfinding for hydration stations. These two recommendations are detailed below.

### Hydration Stations

Participants (particularly students) overall had positive feedback of the hydration stations on campus. They showed a particular preference for hydration stations with a motion sensor and ones that had cold water and/or ice available.

Participants shared that the stations with a motion sensor made it easier to fill their bottle when their hands were full. Several also shared that they preferred drinking cold water because it tasted better, was more refreshing and/or simply because they preferred that temperature. Fewer, but still multiple, participants shared that they preferred warmer/hot water.

Overall, students had much more feedback on the hydration stations than staff who oftentimes have 5-gallon jugs of bottled water available in their offices.

**1** Make hydration stations the more appealing and obvious choice



**2** When possible, provide cold water and/or ice

**3** Install more hydration stations on campus to improve availability and access

### Directions and wayfinding

Supporting previous data collected from a campus-wide survey (Juarros 2019), participants shared that they may refill their water bottles more often if it was easier and more convenient to find a hydration station. By installing wayfinding signage including maps and directionals signs, we can make it easier for people on campus to find hydration stations.

*"Like if you have like five minutes till your next class and you're like really thirsty...what are you going to do? Spend a dollar or like trying to scurry to [find a hydration station]" – on-campus student*

*"Sometimes they're like in a corner and you're like, "where is it?" And they're like gray. So yeah, it's kind of hard to see."*

*– off-campus student*

_____

*In Spring 2019, Semel HCI worked together with ASUCLA to install two temporary wayfinding signs (including one blade sign) in Ackerman Student Union to alert and direct passerby to a hydration station. After installing the signs, usage of the station increased by 43%.

**1** **Maps-** provide maps of where hydration stations are located on campus near areas that sell beverages including vending machines, stores and cafes



**2** **Blade signs\*** - blade signs project out from the front of a building so that passerby can easily identify what the sign is advertising. Blade signs above hydration stations can increase hydration station use.

Reminders to bring your own water bottle for those living on the Hill may also reduce the number of plastic water bottles purchased on campus.

## Prioritizing the recommendations

The below chart prioritizes specific recommendations from the above strategies based off of current momentum for the recommendation (existing or ongoing efforts), predicted ease of implementation, level of support/excitement from the focus groups and salience to the UCLA community.

| | Recommendation | Pros | Cons |
|---|---|---|---|
| 1 | Create a simple slogan or catchphrase e.g. "60% Water", "UCLA sips LADWP" | - Publicity for tap water and create buzz around the topic<br>- Brand the movement<br>- Unify separate programs/projects that share the same goal | - Could create backlash if people don't like the slogan<br>- Inclusion of the word "tap" may raise awareness about sources of tap water on campus and lead to a decreased consumption |
| 2 | Hydration station maps, post near water bottle points of sale- identify ones where cold water is available. | - Improve access and awareness<br>- Relatively low cost<br>- Show university support for tap water | - Requires regular updating |
| 3 | Wayfinding and directional signs | - Improve access to existing stations | - Could be confusing if not don't properly |
| 4 | Install more hydration stations on campus | - Improve access | - Relatively high cost<br>- Requires plumbing maintenance |
| 5 | Upgrade hydration stations- make more appealing and draw attraction | - Increase consumption<br>- Raise awareness about tap water<br>- Show university support | - Could get costly |
| 6 | Messaging: top 5 recommended<br>1. Safety of tap water: bottled water versus tap regulation;<br>2. Carbon footprint and "water footprint" tap vs bottled.<br>3. What happens when you recycle plastic bottles?<br>4. Sugar content in beverages<br>5. Confusing beverages | - Provide knowledge and information to community<br>- Show university's care for the community's health | - Could be received negatively- lead to confusion among students, resentment of administration if not thoughtfully paired with other programmatic changes |
| 7 | Continue free water bottle programs (like UCLA Housing) | - Use existing infrastructure/build off current programming<br>- Show university's care | - Could lead to more waste if water bottles are not used<br>- Cost |
| 8 | Incorporate healthier and more sustainable beverage options into UCLA catering and events | - Visible way to show commitment to health<br>- Promote trying new healthy beverages | - May be more costly<br>- May have to navigate existing contracts |
| 9 | Promote healthier beverages and reusable water bottles w/discounts and sales<br><br>*As healthier options are often perceived as being more expensive, explicit cost advertisement is important | - Incentivize healthier and more sustainable choices<br>- Show university's commitment to health | - Sales impact |
| 10 | Improve access to cold water and ice | - Increase consumption of tap water<br>- Show university's attention to community's preferences | - Relatively high cost<br>- Requires plumbing maintenance<br>- Negative environmental impact |

🟡 Messaging    🟠 Infrastructure    🟠 Programmatic

# Concluding Remarks

*Consumption of SSBs is one of the major determinants of weight gain among adolescents and young adults. Research also shows that replacing sugary beverages with water can reduce overall caloric intake (Stookey et al. 2007). More often than not, water is the free, healthy and sustainable alternative to SSBs. As individuals decide to drink beverages like soda and bottled water instead of water from their tap (given the tap water is safe to drink), they are not only negatively impacting their own health, but also the health of the environment. Promoting a beverage environment that takes into consideration both personal and planetary health requires promoting tap water specifically, rather than bottled water. Not only does bottled water require 2,000 times more energy to produce than tap water, but it is also a water inefficient process; the Pacific Institute estimates that that it requires 3 liters of water to produce just 1 liter of bottled water (Pacific Institute 2007). Promoting tap water as the healthy alternative to SSBs requires a multi-layered approach that understands and addresses the barriers to drinking tap water, while simultaneously promoting less SSB consumption.*

The results from this study will help inform the client's goal to **create a campus environment at UCLA that promotes drinking healthily and makes it easier to do so**. The results from the focus group discussions show that in order to achieve this goal, SHCI will have to lead a multi-pronged strategy that moves beyond just messaging. Continuing relationships with existing partners on campus including Facilities Management, Sustainability and Dining Services Management (to name a few) will be crucial to create a *reusable water bottle culture* that aligns with SHCI's mission to create a culture of health at UCLA.

## Complementing existing work

This research project supports and complements existing ongoing efforts on campus that promote healthier drink choices. Al Ferrone, the Senior Director of UCLA's Dining Services Management, is currently running a healthier beverage vending program that designates certain zones on campus as areas that serve drinks with less sugar. Last year, UCLA Facilities Management began its "25 Thirsty Buildings" project to increase access to hydration stations on campus by installing 25 new hydration stations within two years. UCLA's Housing and Hospitality Services has also been working on informational messaging for the dining halls on the health effects of consuming sugar-sweetened beverages, while UCLA Sustainability is working on efforts to install more outdoor water refilling stations in part to reduce plastic water bottle needs for outdoor events.

On the research side, Bianca Juarros' (UCLA MURP '19) work for UCLA Sustainability in her client project laid the foundation for this project. Building off of her research, this client project sought to study the qualitative aspects of her important findings about tap water perception on campus collected from a survey with nearly 700 responses. UCLA Anderson School of Management Marketing Professor, Dr. Aimee Drolet Rossi is working on research around consumer-decision making and sugar-sweetened beverages. The Healthy Beverage Initiative led by SHCI has acted as a hub for the various efforts on campus to promote a healthier drinking environment while the Healthy Campus Network provides the infrastructure to share the results and lessons learned from efforts at UCLA with other UC campuses.

## Key insights

We found that the decision of what to drink can be a complex one. There are many different reasons why one may decide what to drink, including to quench thirst, to stay awake, to socialize and to relax. At different moments and times of the day, the purpose of a beverage will change and thus change one's decision-making processes. Furthermore, the perceptions around different sources of water can be complex and fluid—influenced by social and environmental factors.

One particularly interesting finding and reoccurring theme in the focus groups was the influence of **availability** of beverages on drinking habits and preferences. What is around you, readily available and convenient seems to play an important role in your beverage decisions. Availability and convenience can also override your usual beverage preferences as with the below cases:

> Students and staff are more likely to drink tap water from drinking fountains while on campus.
>
> Students may change their drinking habits when they leave campus and live at home due to family preferences
>
> Students and staff are exposed to and often try new drinks while on campus; the availability and convenience of drinks are important influencing factors in beverage decisions.

The focus group discussions also revealed a distaste for the word "tap". Many participants shared that they had a strong mental distinction between tap and filtered water and that they preferred to drink filtered water. Furthermore, the "device" that the water comes out of seems to make a large difference in one's perception of the quality and type of water. A clearly marked and visually appealing water station gives the signal that the water is specifically intended for drinking, unlike water from a sink that can be used for many other functions.

The key insights for each of the study's objectives informed a set of recommendations that were divided into three categories: messaging, programmatic elements and infrastructural elements. As we took a community-based approach for this research, it was important that the recommendations were derived from the student and staff input. The student and staff ideas that were supported by the findings and in line with the client's goal were selected.

**Messages** should be simple, catchy, relatable and contextualized. A variety of messages should be created to address the different barrier to drinking tap water. Recommended messages can be separated into three main categories: planetary health messages, personal health messages and culture shifting messages.

**Programmatic** elements include promoting tap water through providing free water bottles, incentivizing healthier drink options and igniting a competitive spirit when it comes to healthy/sustainable drink choices.

**Infrastructural** changes center around making hydration stations the more obvious and appealing choice by revamping hydration stations and installing wayfinding signage.

## Limitations

While the focus groups provided for rich discussion and qualitative analysis, there are a number of limiting factors to this study. The results are limited due to certain biases. With 84% female participants, the focus group insights do not represent the general UCLA population that has a ~60% female population. Furthermore, the participants may be more knowledgeable about health and/or healthier than the general UCLA population as those who expressed interest in participating in the focus groups may have done so because they are interested in health and/or are predisposed to these topics.

While I tried to group participants by their level of SSB consumption to create a more comfortable environment to share openly about beverage habits, scheduling restrictions often made this impossible. Most groups had a variety of SSB consumers – one group may have contained people who never drink soda, drink it sometimes, and drink it every day. If a group had a strong representation of non-SSB drinkers, the participants who drank SSBs may not have been as comfortable voicing their opinions. The

insights from those who regularly drink SSBs are particularly important for this research. Future research may consider creating subgroups for regular SSB drinkers only and/or doing targeted recruitment of regular SSB drinkers.

## Future Direction

The findings from this research will inform practical strategies on campus to create a healthier beverage environment. With continued funding from the Healthy Beverage Initiative, SHCI may be able to support multiple recommendations outlined in this report. This year's (2019-2020) funding will support the creation of wayfinding signage to improve access to existing hydration stations on campus. Additionally, the funding supports installing more hydration stations on campus and can augment existing funding for the "25 Thirsty Buildings" project. Future funding may expand upon these efforts and support thoughtful informational messaging (appendix 8).

Notably, the current COVID-19 pandemic presents unique challenges to promoting tap water. Fears about the cleanliness of drinking fountains are exacerbated as individuals are more germ-conscious than ever. Many experts have also recommended to avoid using drinking fountains considering their proximity to other people's mouths and noses. Hydration stations offer a safer alternative for accessing tap water in public spaces. People will not be putting their mouth or nose close to the spout that is designed to only be used to refill water bottles. However, the possibility of people placing the mouth of their water bottle close to the spout raises some health and safety concern. As such, we may see an increase in the purchase of single-use water bottles when UCLA returns to campus. While COVID-19 presents its challenges, it is important that efforts to promote a healthier and more sustainable beverage environment continue moving forward to address pressing public health and planetary health issues. By creating a "reusable water bottle culture" as part of a culture of health, UCLA has the opportunity to improve its community's health while also having a positive impact on our planet's health.

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# Appendix

**Participation in Staff Pilot Group for *Beverage Choice and Health Messaging***
**Information Sheet**

You have been invited to participate in the pilot for a study that is being conducted by Meagan Wang, a graduate student in the Luskin School of Public Affairs, as part of her Master's project. This study is sponsored by the Semel Healthy Campus Initiative Center and Dr. Wendelin Slusser is the faculty sponsor for the study. The purpose of the study is to learn about beverage choices and perceptions of health messaging among students and staff at UCLA.

Your participation will require that you participate in a pilot focus group discussion about how you make beverage choices and what you think about health messaging on campus. The purpose of the pilot focus group is to test the questions that will be used in this study. You are being invited to participate because you are a UCLA staff member.

- The discussion will take about 1.5 to 2 hours and will be tape-recorded.
- The first 30 minutes of the focus group will be used to take a screening questionnaire and enjoy dinner.
- The discussion will take place in Murphy Hall 2325 on December 11, 2019. No UCLA faculty or administrators will be present.
- The discussion will take place outside of school instructional or paid work time.
- All of your answers will be kept private and confidential. We will use only first names during the discussion so that you cannot be identified, and we will not use any part of your name with the information we report from this study.
- Only the research team will have access to the notes and recordings from this session.
- All participants will be asked to keep what is said during the group discussion between the participants only. However, we cannot guarantee complete confidentiality.
- Your participation in this study is voluntary. You may choose not to answer any question and can stop participating at any time.
- Your decision whether or not to participate will not adversely affect your grades, services received from UCLA, nor your employment status in any way.
- Neither your participation in this discussion nor anything you say here will impact your ability to access services or resources at UCLA.
- To thank you for participating in the pilot, staff will receive a $10 gift card.

If you have questions about the study, you can ask them at any time by contacting Meagan Wang at mwang07@ucla.edu
IRB# 19-001532
If you have questions about your rights while taking part in this study, or you have concerns or suggestions and you want to talk to someone other than the researchers about the study, please call the OHRPP at (310) 825-7122 or write to: UCLA Office of the Human Research Protection Program, 11000 Kinross Avenue, Suite 211, Box 951694, Los Angeles, CA 90095-1694.

Name: _____     ID# _____

Signature: _____

## Appendix 2: Recruitment Flyers

Digital Flyer distributed on the Hill



Flyer posted throughout campus and sent via email

## Appendix 3: Staff Intake Questionnaire

STAFF INTAKE QUESTIONNAIRE                    ID# _____

1.  When you are **on campus**, what type of water do you *usually* drink?
    a.  Tap water from drinking fountains
    b.  Tap water from dispensers/fill-up sinks
    c.  Tap water from kitchen or bathroom sinks
    d.  Individual plastic bottles of water
    e.  Water from home
    f.  Bulk, delivered water bottle containers (i.e. Sparkletts, Arrowhead)
    g.  Other (please specify): _____
    h.  I don't drink water while on campus

2.  When you are **NOT** on campus, what type of water do you *usually* drink? (select all that apply)
    a.  Tap water from drinking fountains
    b.  Tap water from dispensers/fill-up sinks
    c.  Tap water from kitchen or bathroom sinks
    d.  Individual plastic bottles of water
    e.  Water from home
    f.  Bulk, delivered water bottle containers (i.e. Sparkletts, Arrowhead)
    g.  Other (please specify): _____
    h.  I don't drink water while on campus

3.  How often do you purchase beverages during workdays?
    a.  Every day
    b.  A couple times a week
    c.  Rarely (Skip to question #5)
    d.  Never (Skip to question #5)

4.  If you purchase beverages on workdays, where do you usually get them?
    a.  Vending machine
    b.  On-campus restaurant/cafe
    c.  Off-campus restaurant/cafe
    d.  On-campus store (i.e. book store, snack shop)
    e.  Off-campus store (i.e. pharmacy, grocery store)

5.  When do you usually drink beverages? Check all that apply.
    a.  With a meal/food
    b.  Throughout the day
    c.  While working out/exercising
    d.  At home
    e.  Other: _____

6.  Please rate the following items as they relate to your decisions about what to drink:

|  | Very Important | Important | Unimportant | Not Important At All |
|---|---|---|---|---|
| Taste | ○ | ○ | ○ | ○ |
| Cost | ○ | ○ | ○ | ○ |
| Healthfulness | ○ | ○ | ○ | ○ |
| Convenience | ○ | ○ | ○ | ○ |
| Social & Environmental Impacts | ○ | ○ | ○ | ○ |
| Weight Control | ○ | ○ | ○ | ○ |

7. In the past month, please indicate your response for each beverage type by marking "X" in the bubble for "how often" and "how much each time".

- Indicate how often you *usually* drink each beverage, for example, if you usually drink 5 glasses of water per week, mark 4-6 times per week.
- Indicate the approximate amount of beverage you *usually* drink each time, for example, if you *usually* drink 1 cup of water each time, mark 1 cup under "how much each time".
- Count milk added to tea and coffee in the *tea/coffee with cream beverage category* **NOT** in the milk categories.
- Do not count beverages used in cooking or consumed with food, such as milk in cereal.

| Type of Beverage | HOW OFTEN? | | | | | | | HOW MUCH EACH TIME? | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Never or less than one time per week | 1 time per week | 2-3 times per week | 4-6 times per week | 1 time per day | 2 times per day | 3+ times per day | Less than 6 fl oz (¾ cup) | 8 fl oz (1 cup) | 12 fl oz (1½ cup) | 16 fl oz (2 cups) | More than 20 fl oz (2½ cups) |
| Water | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 100% Fruit Juice | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Sweetened Juice Drink (e.g. fruit-ades, lemonade, punch, Sunny Delight) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Dairy Milk | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Milk alternatives (soy, almond, oat…) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Non-diet Soda | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Diet soda | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Tea/Coffee, black | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Tea/Coffee with cream (includes non-dairy creamer) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Energy and sports drinks (Red Bull, Gatorade) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Other beverages (list): | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

8. When you drink tea/coffee, do you usually add:
   a. Artificial sweetener
   b. Sugar
   c. Neither

1. What department do you work in?
   a. _____

2. How many hours a week do you work on campus?
   a. <10 hours
   b. 10-19 hours
   c. 20-39 hours
   d. 40 hours
   e. More than 40 hours

3. Age: _____

4. What is your gender identity?
   a. Female
   b. Male
   c. Trans Female/Trans Woman
   d. Trans Male/Trans Man
   e. Genderqueer or Nonbinary Gender
   f. Different Identity

5. What is your race/ethnicity?
   *Please select the race/ethnicity option that best represents your background. If your background falls into more than one category, please select multi-racial.*
   a. Native American or Alaskan
   b. Asian, Asian American or Pacific Islander
   c. African, African American or Black
   d. Chicano/a or Latino/a
   e. White/Caucasian
   f. Multiracial
   g. Other

6. What is the highest degree you have attained?
   a. Some high school, no degree
   b. High School Graduate
   c. General Equivalency Diploma (GED)
   d. Some college
   e. Associate's degree
   f. Bachelor's degree
   g. Master's Degree
   h. Professional Doctorate Degree

Thank you for taking the time to complete this survey!

ID# _____

STUDENT INTAKE QUESTIONNAIRE

9. When you are **on campus**, what type of water do you *usually* drink (includes residential halls and dining halls)?
   a. Tap water from drinking fountains
   b. Tap water from dispensers/fill-up sinks
   c. Tap water from kitchen or bathroom sinks
   d. Individual plastic bottles of water
   e. Water from home
   f. Bulk, delivered water bottle containers (i.e. Sparkletts, Arrowhead)
   g. Other (please specify): _____
   h. I don't drink water while on campus

10. When you are **NOT** on campus, what type of water do you *usually* drink? (select all that apply)
   a. Tap water from drinking fountains
   b. Tap water from dispensers/fill-up sinks
   c. Tap water from kitchen or bathroom sinks
   d. Individual plastic bottles of water
   e. Water from home
   f. Bulk, delivered water bottle containers (i.e. Sparkletts, Arrowhead)
   g. Other (please specify): _____
   h. I don't drink water while on campus

11. How often do you purchase beverages during workdays?
   a. Every day
   b. A couple times a week
   c. Rarely (Skip to question #5)
   d. Never (Skip to question #5)

12. If you purchase beverages on workdays, where do you usually get them?
   a. Vending machine
   b. On-campus restaurant/cafe
   c. Off-campus restaurant/cafe
   d. On-campus store (i.e. book store, snack shop)
   e. Off-campus store (i.e. pharmacy, grocery store)

13. When do you usually drink beverages? Check all that apply.
   a. With a meal/food
   b. Throughout the day
   c. While working out/exercising
   d. At home
   e. Other: _____

14. Please rate the following items as they relate to your decisions about what to drink:

|  | Very Important | Important | Unimportant | Not Important At All |
|---|---|---|---|---|
| Taste | ○ | ○ | ○ | ○ |
| Cost | ○ | ○ | ○ | ○ |
| Healthfulness | ○ | ○ | ○ | ○ |
| Convenience | ○ | ○ | ○ | ○ |
| Social & Environmental Impacts | ○ | ○ | ○ | ○ |
| Weight Control | ○ | ○ | ○ | ○ |

15. In the past month, please indicate your response for each beverage type by marking "X" in the bubble for "how often" and "how much each time".
- Indicate how often you *usually* drink each beverage, for example, if you usually drink 5 glasses of water per week, mark 4-6 times per week.
- Indicate the approximate amount of beverage you *usually* drink each time, for example, if you *usually* drink 1 cup of water each time, mark 1 cup under "how much each time".
- Count milk added to tea and coffee in the *tea/coffee with cream beverage category* **NOT** in the milk categories.
- Do not count beverages used in cooking or consumed with food, such as milk in cereal.

| Type of Beverage | HOW OFTEN? | | | | | | | HOW MUCH EACH TIME? | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Never or less than one time per week | 1 time per week | 2-3 times per week | 4-6 times per week | 1 time per day | 2 times per day | 3+ times per day | Less than 6 fl oz (¾ cup) | 8 fl oz (1 cup) | 12 fl oz (1½ cup) | 16 fl oz (2 cups) | More than 20 fl oz (2½ cups) |
| Water | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 100% Fruit Juice | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Sweetened Juice Drink (e.g. fruit-ades, lemonade, punch, Sunny Delight) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Dairy Milk | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Milk alternatives (soy, almond, oat…) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Non-diet Soda | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Diet soda | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Tea/Coffee, black | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Tea/Coffee with cream (includes non-dairy creamer) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Energy and sports drinks (Red Bull, Gatorade) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Other beverages (list): | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

16. When you drink tea/coffee, do you usually add:
    a. Artificial sweetener
    b. Sugar
    c. Neither

17. Please indicate what year you are:
    a. 1st year
    b. 2nd year
    c. 3rd year
    d. 4th year
    e. 5th year
    f. Other: _____

18. What is your gender identity?
    a. Female
    b. Male
    c. Trans Female/Trans Woman
    d. Trans Male/Trans Man
    e. Genderqueer or Nonbinary Gender
    f. Different Identity

19. What is your race/ethnicity?
    *Please select the race/ethnicity option that best represents your background. If your background falls into more than one category, please select multi-racial.*

a. Native American or Alaskan
    b. Asian, Asian American or Pacific Islander
    c. African, African American or Black
    d. Chicano/a or Latino/a
    e. White/Caucasian
    f. Multiracial
    g. Other

20. What is your major/department?
    a. _____

21. Are you an international student?
    a. Yes
    b. No

22. Please indicate your current living accommodations:
    a. Campus residence hall
    b. Fraternity or sorority house
    c. Off-campus University Housing
    d. Parent/Guardian home
    e. Other off-campus housing
    f. Other: _____

23. Do you have a meal plan with UCLA dining?
    a. Yes
    b. No

24. Think about your current quarter/semester, do you receive financial aid, needs-based grants or scholarships, or needs-based loans to pay for college and living expenses?
    a. Yes
    b. No


Thank you for taking the time to complete this survey!

Focus Group Guide: Undergraduate Students

*Prep before:*
- On sign-in table:
  o Name cards and markers to write down first name only
  o Pens and intake questionnaires to fill out
- At discussion table:
  o At each seat, 3 index cards (3 different colors: white, green, pink)
  o On table, scratch paper
  o Flip chart:
    ▪ Page 1 titled "MOST healthy drinks" on left half and "why healthy?" on right side
    ▪ Page 2 titled "LEAST healthy drinks" on left half and "why unhealthy?" on right side
    ▪ Page 3 titled "Drinking more water" on top. To take notes on their responses to question 9.
    ▪ Page 4 titled "More water AND Less Sugary beverages" on top. To take notes on their responses to question 10.
- Set up projector with slides

**First 30 minutes:** lunch or dinner will be provided. Participants will be provided with the intake questionnaire to be completed within the 30 minutes. Questionnaire will be self-administered.

**Introduction and ground rules:**
- Welcome and introduction:

  o Welcome and thank you for participating today! My name is Meagan and I am a graduate student in urban planning. I am here to facilitate today's discussion. The first half of the discussion will take about 40 minutes, we will take a quick 5-minute break and then come back for the second half.
  o This is part of the UC-wide Healthy Beverage Initiative and supported by UCLA's Semel Healthy Campus Initiative. We are conducting these focus groups because we want to understand what you consider when deciding what to drink.

- Ground Rules: Before we get started, I'd like to set some ground rules:

  o First, please take a moment to silence your phones.
  o Today, we want to have an open discussion with everyone's participation. We want you to do the talking. I may call on you if I haven't heard from you in a while.
  o There are no right or wrong answers. Please speak up if you agree or disagree with something. We want this to be a space where you feel comfortable sharing openly and freely. Every person's experiences and opinions are important.
  o There is a recorder in the center of the table, and we will be recording the session because we want to capture everything you say. We will be using first names in this discussion; however, we will **not** refer to anyone by name in our report. You will remain anonymous.
  o Only the research team and transcription team will have access to the notes and recordings from this session.
  o When we report your findings, no names will be used, and the report will be written in such a way that no one in the group can be identified.

  o Everything we say here is confidential, and it is important that we do not share what we discuss here with anyone outside this room- including with your best friends or family. Can I ask each of you to commit to that?

    o Before we start, are there any questions?

**Opening:**
- Round of introductions: Let's start by introducing ourselves. Let's go around and please say your name and something you like doing to de-stress/relax?

<div align="center">

## Part I: Beverage Choices

</div>

Great, thank you everyone for sharing. We are conducting these focus groups because we want to understand what you consider when deciding what to drink. To start, think about your typical weekday, Monday through Friday. On the white index card in front of you, please write down the beverages you usually drink, such as coffee, tea, juices, soda, energy drinks, water, on a typical weekday—starting from when you wake up in the morning, and thinking about what you drink with food and also without food; with meals and without meals.

  [WAIT 1 MINUTE]

For each beverage you have listed, think about why you drink it.

  [WAIT 30 SECONDS]

**Key Question: Decision-making process on beverages (objective 1)**

1. Would you share with us some of the drinks you listed and the reasons why you drink them?
   a. **Probe:** Have you considered drinking other beverages?
   b. **Probe:** Where do you usually get your beverages?
   c. **Probe:** Some reasons could be to quench your thirst, give you energy, taste, social reasons...

2. Do you think your beverage choices would be different if you were not a college student/working at UCLA campus? If they would, how so?
     **Probe:** Have your beverages choices changed since you came to UCLA? If they have, how so?

3. Let's think about your weekend. Does your list of beverages look different for the weekend compared to your weekday? How is it different?
   a. **Probe:** What factors influence what you choose to drink over the weekend?

- - - - - - - - -

On the green index card, you have been given, I'd like you to list three drinks that you think are the *most* healthy.

<mark>[NOTETAKER: COLLECT CARDS AND WRITE DOWN RESPONSES ON FLIP CHART]</mark>

Now, on the pink index card, please write down three drinks that you think are the *least* healthy.

<mark>[NOTETAKER: COLLECT CARDS AND WRITE DOWN RESPONSES ON FLIP CHART]</mark>

**Key Question: How are healthy drinks defined (objective 3)**

4. Looking at the list of drinks that you all wrote as <u>most</u> healthy. What do you think makes these healthy? [MEAGAN WRITE DOWN WHAT THEY SAY]
   a. **Probe:** Does anyone disagree or agree with any of the beverages in these lists? And remember, I just want to get your opinions so please share freely and there are no right or wrong answers.

5. Now, let's look at the list of least healthy drinks. What do you think makes them the least healthy? [MEAGAN WRITE DOWN WHAT THEY SAY]

a. **Probe:** Does anyone disagree or agree with any of the beverages in these lists? There are no right or wrong answers.

Before we move on, does anyone else have anything else to say about these most and least healthy drinks?

**Key Question: Tap water perception (objective 2)**

6. I'd like to focus on a specific beverage: water. What are your thoughts on water as a beverage- do you drink it regularly? Why or why not?
   a. **Probe:** When you're on campus, where do you get your water from? Are there certain places you prefer? If so, why do you prefer them?
   b. **Probe:** What are your thoughts on the taste of water from different sources?
   c. **Probe:** What type of water do you prefer to drink? Tap water or bottled water?
   d. **Probe:** If you don't drink water regularly- why not?

7. What are your thoughts on tap water?
   a. **Probe:** What do you consider to be tap water?
   b. **Probe:** What do you think of water from the water fountains or water bottle filler stations on campus?

**\*\*Quick 5-minute Break\*\***

**Part II: Health Messaging**

For the last half of today's focus group, we are going to take a look at a couple different messages or posters that you might recognize and talk about your thoughts on them. Some of these are from campus, and some are more widely popular messages. Let's start by looking at a couple messages that are from UCLA.

[SHOW SLIDE WITH PICTURES OF UCLA HEALTH MESSAGES: students shown slide 3, staff shown slide 9]

**Key Question: health messaging and impact on lifestyle (objective 4 and 5)**

8. What are your thoughts on the messages shown here? How do they make you feel?
   a. **Probe:** Have you seen these before? If you have, have they influenced your lifestyle at all? If this is your first time seeing them, do you think they would change anything in your life?
   b. **Probe:** Can you think of any other messages you've seen that have influenced what you do? If you do think of any, what about them resonated with you?

**Key Question: creating on campus health messaging for HBI (objective 6)**

For the last part of today's conversation, I'd like us to pretend that we are working on a campaign for UCLA. Our team has been tasked with coming up with signs and messaging that promote drinking more non-bottled water. We have a lot of freedom in deciding where these signs will be posted, what they will look like and what they will say. Let's spend the next couple of minutes brainstorming and talking about what we would like to do. If you would like to take any notes, please feel free to use a piece of scratch paper in front of you.

[2 MINUTES OF BRAINSTORMING]

9. What type of messaging do you think would be most effective?
   a. **Probe:** what would the message say?

b. **Probe:** where would they be posted?

[MEAGAN- WRITE DOWN NOTES ON THEIR IDEAS ON FLIPCHART]

Now let's pretend that our project has changed. We are to create messages that not only promote drinking more water, but also promote drinking less sugary beverages, like non-diet soda and sugar-sweetened juices, and teas and coffees sweetened with sugar.

10. What do you think about this change in our project?
    a. **Probe:** how would our messages change?
    b. **Probe:** do you think they should be two separate messages or one combined message?
    c. **Probe:** where would they be posted?

[MEAGAN- WRITE DOWN NOTES ON THEIR IDEAS ON FLIPCHART]

11. We're almost done with our conversation- is there anything we missed that you would like to add?

**Ending and wrap-up:**
- Let's go around, and if you would like- please share something that you will take away from today's conversation// you would've liked to be done differently, or any feedback you have for how today's conversation went.

- Thank you everyone for talking with us and sharing your thoughts. Your input is greatly appreciated!

- If you have any follow-up questions or comments, please feel free to contact us.

- Also, please remember that what is said in this room stays in this room. The recording will only be accessed by the research team and all responses are anonymous. Also, please say hi to each other when you all cross paths outside of this room!

- Lastly, you will receive $10 gift card to Starbucks shortly after this session for participating in today's focus group.

*Objectives:*

7. *Objective 1: Learn about student/staff habits, priorities, and decision-making processes with respect to beverage choices.*
8. *Objective 2: Understand student/staff perception of the taste and safety of tap water compared to bottled water.*
9. *Objective 3: Learn how student/staff define healthy drinks and understand perceived barriers and facilitators to making healthy drink choices.*
10. *Objective 4: Understand student/staff awareness and perception of on-campus health messaging that promotes healthy behaviors.*
11. *Objective 5: Learn the effects of on-campus health messaging on student/staff lifestyle.*
12. *Objective 6: Identify strategies for creating on-campus messaging to promote healthy and sustainable behaviors, specifically reducing sugar-sweetened beverage intake and promoting tap water consumption.*

## Appendix 6: images shown during the focus groups

1. At UCLA: Take the Stairs – elevator wraps
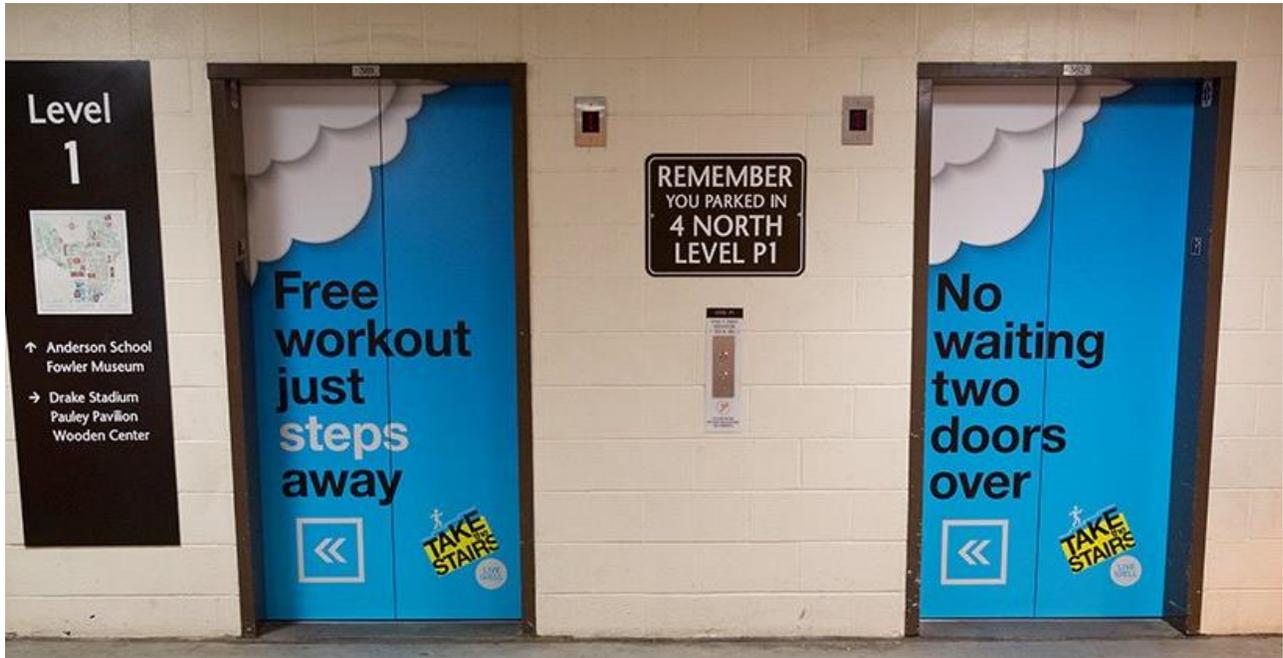


2. At UCLA: healthy vending machine and regular vending machine
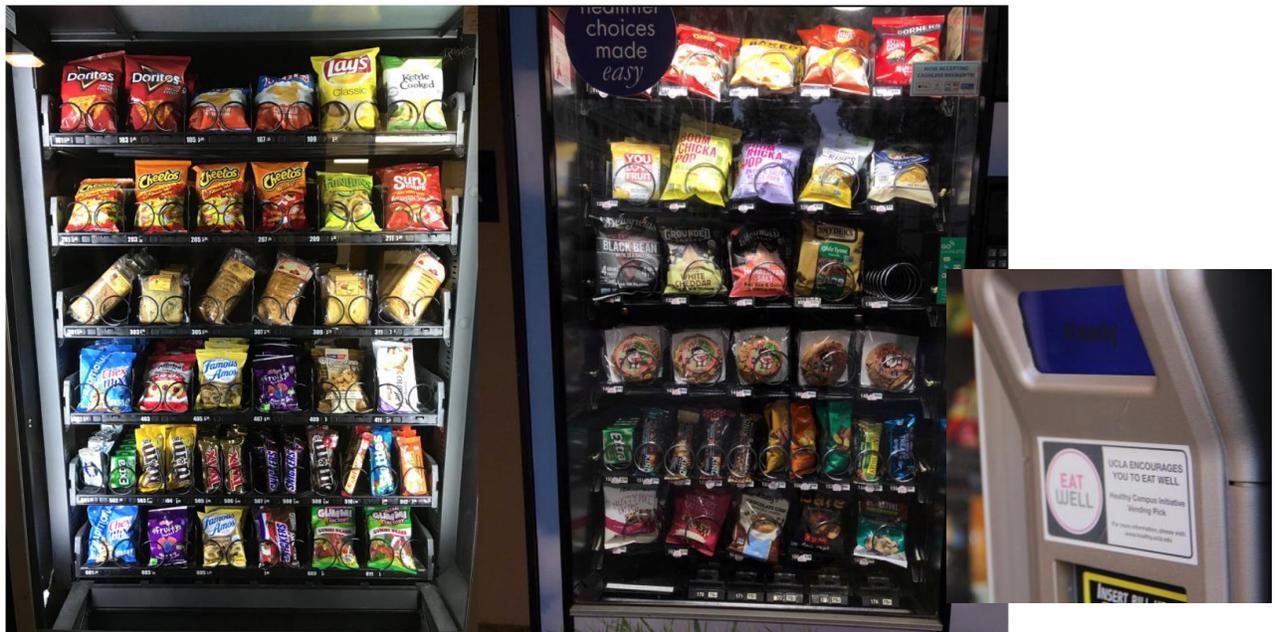
3. At UCLA: "Foodprint" – EatWell pod



4. At UCLA (staff only): MoveMail and BEHIP

5. Left: from choosehealthla.com- sugar in soda. Right: sugar in different SSBs
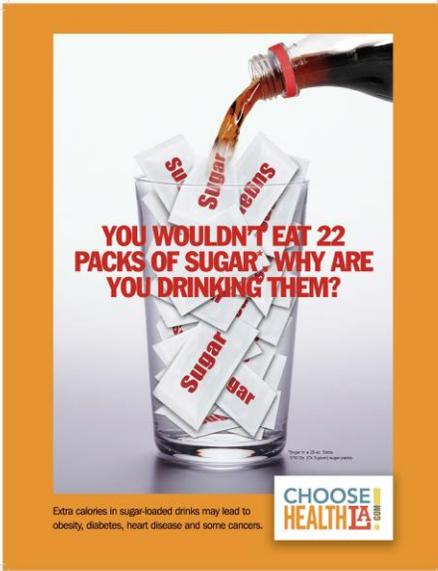


6. "Drink tap" water truck (DC Water)



1,000 GALLONS OF TAP WATER = $10
BOTTLED WATER = $1000

7. Oil used in making bottled water (Public Utilities Board- Singapore)



For every 1ℓ of bottled water 250 mℓ of oil are used.

The total amount of energy embedded in our use of bottled water can be as high as the equivalent of filling a plastic bottle one quarter full with oil, estimates the Pacific Institute.
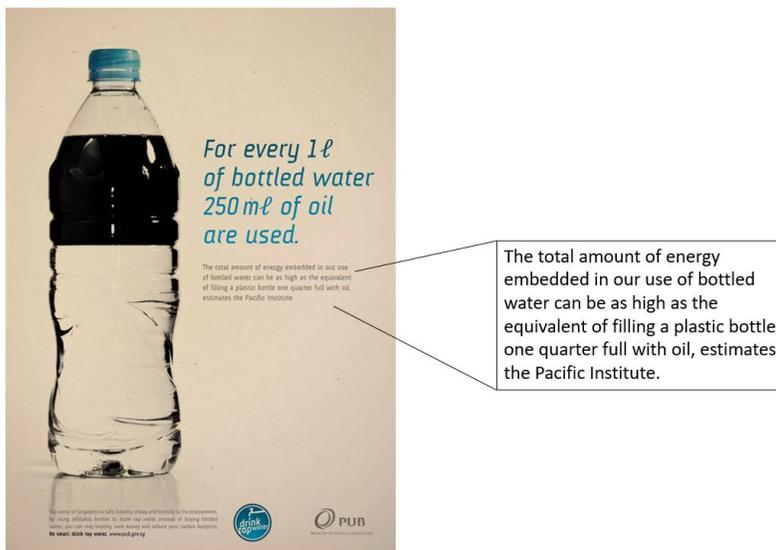
# Appendix 7: Codebook

## Coding Hierarchy

| Parent Code |
|---|
| Sub-code: Child 1 (Level A) |
| Sub-code: Child 2 (Level B) |

| Related Objective | Code Name | Description | Example |
|---|---|---|---|
| 1: Learn about student/staff habits, priorities, and decision-making processes with respect to beverages choices | **Decision making** | **Factors that influence what you decide to drink** | |
| | Health | Taking into account a drink's health effects when deciding what to drink | " I used to drink soda or Snapple, but I cut that off like five six years ago because my doctor said I have too much sugar in my blood already. I'm borderline. I was borderline diabetic. So I cut it all off. So drink mostly water or milk, tea, things like that. " |
| | Hydration | Drinking a beverage because it quenches your thirst | "I think there's always like a reminder in the back of my head. It's like oh like I should be drinking like um enough water to like be healthy or like make sure that my body is it becoming dehydrated? So like if that like reminder like sets in and I'm like, oh I should drink some water or like you said, like if I see it and it's like heavy, I'm like okay, I should drink some now. " |
| | Caloric intake | Drinking a beverage as a way to control your weight: including suppressing appetite, increasing calories (e.g. protein shake), and/or belief that the beverage will help you lose weight | "Before I used to drink Coca-Cola, like I was obsessed with it, but then I changed to like water because like my friend and maybe like started doing that like the keto diet and then like we wanted to like lose weight and then like I like over summer like I quit on drinking Coca-Cola. So now I usually just drink water like every day." |
| | Nutrients/supplements | Drinking a beverage for the nutrients and vitamins it can provide you, including as a supplement to a poor diet | "I also think that it depends on like what else you're eating in the day. If you're someone who has a hard time getting in those I might get the terminology wrong but like micronutrients or like someone who doesn't like to eat a lot of fruits and vegetables, but find like juice is a quick alternative or especially like natural ones. Then that could be a good way to get those like, I know like some have specific vitamins and stuff like that I could incorporate" |
| | Availability | Deciding what to drink based off of what is available to you | "I drink water a lot. It's just mostly what I drink because that's what is available. It doesn't cost anything. But then like in the dining halls, I'll drink coffee or something. " |
| | Convenience | Drinking a beverage because it quenches your thirst | "I think moving on campus because I'm like I live on campus, I drink frequently water like everyone else cause it's like free and convenient and it tastes good sometimes when it's cold," |

| | Code Name | Description | Example |
|---|---|---|---|
| 1: Learn about student/staff habits, priorities, and decision-making processes with respect to beverages choices | Environment | What types of drinks are available in your physical environment (family's house, on campus, dining halls, house) | "For me personally back home. There's a lot of soda, but for me, it's the opposite. My mom's like a Coca-Cola like fanatic like she can't live without a Coke. I think it has to do with someone like her blood pressure or something. She says that I when she feels like it goes down like it brings back up. So there's constantly like soda in my house and like show if she makes dinner should be like, oh do you want like a soda or something? So it's constantly like being offered..." |
| | Cost | The cost of drinks influencing what you decide to drink | " If I do drink something flavored, I usually get it from the food closet or something because I try not to like spend money on buying like sweet drinks, cause I know I don't need them and I don't have a lot of money anyways. So if I do drink something sweeter I get it from like the food closet or maybe if I go to panda express like once a while like get like a soda from them" |
| | Need to stay awake | Choosing a beverage because it has caffeine and you need it to stay awake/do work | "Yeah, I also start my day with coffee and then I'll like hydrate throughout the day with water and usually yerba mate if I need like extra caffeine" |
| | **Taste** | Choosing a beverage because it tastes good | "And throughout the week, I drink a lot of milk tea, but that's mostly like I really like the taste" |
| | **Ritual/Routine** | Choosing a beverage because it is part of your routine/a ritualistic act | " So in the morning, I do have coffee pretty much every day as well even on the weekends also, do I need it? No, but I think my mind or my body tells me that I need it or want it so that is a daily routine. " |
| | Leisure | Beverages choices influenced by personal enjoyment, recreational activities and social functions | |
| | Social events | Social events influencing what you decide to drink (e.g. birthday parties, tailgates, barbecues) | "also it's like a social reason like going out to get Boba is like an activity and you have to get the drink and then soda just like sometimes…maybe like once a week." |
| | Specific meals | Certain meals call for certain drinks | "I think mind changes a little. I feel like for weekends. I usually go out to eat. So like and most of the time it's Tacos. So like I'll either have like an horchata or like a Coke, but like I limit it to like only going out like when I go eat tacos" |
| | Reward/treat | Choosing a specific beverage as a treat/personal celebration/"deserving it" | " If I had more money, I think I could see myself like getting Starbucks or like something like that more often like a hot chocolate or like something. But I just don't do that a lot because I feel I like treat it more as like a special occasion…" |
| | Relaxation | Drinking something to relax | "For weekends, I don't take any caffeine drinks at all. Just to be more relaxed…"<br><br>" For tea, just to calm me down, relax, start off my day, end my day." |

| Related objective | Code Name | Description | Example |
|---|---|---|---|
| | **Water Preferences** | **Factors that influence your water preferences** | |
| | Familiarity | Preferences to drink what you are used to drinking/grew up drinking | "Like I think you were saying about like grow where you grow up with water. Like I grew up with like really good tap water like Mountain Water and so I just drink so much tap water. And I just drink it everywhere." |
| 2: understand student/staff perception of the taste and safety of tap water compared to bottled water | Temperature | Preferences about the temperature of water drinking | "And I feel like it's almost like in warmer water, you can taste it more for some reason. Yeah. Yeah, and it's like I feel like if you give me waters and they're all ice-cold, I'm not gonna be able to tell you which one. But if you give me some that are warmer" |
| | Cultural | Cultural backgrounds influencing temperature preference | "When I came to America, one thing I noticed was people like drinking a lot of cold water. Like my concept of cold water is the regular water that people have here. Cause that's already cold for me, but then people have ice water which is just not something people did back home" |
| | Taste | Preferences for specific tastes of water | "At my parent's house, like they only buy a distilled water from or like yeah distilled water from like the water store and then we have like a big jug of it, which tastes like way better than like normal water, but I'm not that picky with that, I'll just refill it like wherever but I know some people like, oh, I only refill it here because it tastes better, but I feel like it all pretty much tastes the same" |
| | Brands | Preferences for specific brands of water | "I love water. I don't know. I just feel like, like I know that there are like certain brands and for me Arrowhead tastes the worst. I don't know why. It just does so and then I don't know I feel like it's just so weird how we can taste it's like different, you know, it's like it's water but it just tastes different with all these brands, but I love water though." |
| | Source | Preferences for specific sources of water | |
| | Tap | Prefers drinking tap water | " I prefer tap water over, or recently, I've been trying to not drink bottled water or just in general because of like environmental stuff and like also like, you know, like Nestle there was like a big scandal with their um...I don't know, like with the water stuff." |
| | Filtered | Prefers drinking filtered water | " I'd like she was saying the tap water where I live. I live in like really Northern California. So there's like a lot of like natural spring like the waters like we send water down here. So we have like good water, but it just like I drink from the tap at home and I like trust it. Like I still use like the filter in the refrigerator like for the most part like I'm not opposed to drinking tap water there. Whereas like in LA like you hear things about like LA tap water and like just kind of scares me to drink it. So like I prefer not to, if I have the choice" **Also tagged under location** |

| | Code Name | Description | Example |
|---|---|---|---|
| 2: understand student/staff perception of the taste and safety of tap water compared to bottled water | Bottled | Prefers drinking bottled water | "My place we also have the water coolers, but we have Arrowhead but it does taste the same to me so we do that or what a lot of co-workers do if they don't want to drink tap water at home. We'll just bring a large like metal bottle water bottle. They'll take the Arrowhead water home. So they'll just fill up their water bottle first before going home and just drink that at home, too." |
| | Carbonated | Prefers drinking carbonated water | |
| | Location | What city/region is the water coming from? And what specific sources on campus? | "Not all water fountains are made equal here. Some are like really nice. Like Luskin has a refill ones where you put the thing under, but like if a water fountain is disgusting with leaves and various other pieces of dirt in it. I'm just gonna keep on pushing. But yeah, like if it looks like it's been coughed on..." |
| | **Barriers to drinking tap water** | **Reasons for not drinking tap water** | |
| | Organoleptic | Dislike the smell, taste, color and/or turbidity of tap water | "I feel like the water dispenser on my floor, like the water tastes really bad like it taste like peanuts and I don't like drinking it and I don't like drinking it but like there's no other option like on the floor that's convenient to me. So I preferred like filling up my water bottle once I'm on campus and like going to class. It doesn't taste as weird. " |
| | Health and safety | Concerned about the health and safety of tap water | |
| | Infrastructure | Safety and cleanliness of water infrastructure (pipes, water fountain mouth part, faucet) | " I refuse [to drink from water fountains]. I won't even go to the ones that actually say its filtered. Cause where are the pipes leading to?" |
| | Water cleanliness | Safety and cleanliness of the water itself (water source and treatment process) | "I used to drink all kinds of water, including tap. But I've heard it has traces of different medications and other specific things that I can't really remember, but that's why I kind of stopped drinking tap water. I do still drink sometimes where like there is no other access to water, but I do see the difference in like having Brita water or any other filtered water. It's a lot sweeter in my opinion. " |
| | "Ick factor" | Recognition that water is probably fine, but mental barriers to drinking tap water | "...like when I was in school, like all of the public water fountains were like they were the worst like they had all like, these sticks and stones in them and people would shove gum into the place where the water comes out. So I can't get it out of my mind that it's gross. Even if I look at it and like it's like shiny. No rust. And then also just like the environment around where people like sneeze and cough around it"<br><br>"I feel kind of dirty when I drink tap water. " |

| | Code Name | Description | Example |
|---|---|---|---|
| **2: understand student/staff perception of the taste and safety of tap water compared to bottled water** | Mistrust of government | Does not trust government and thus sourcing/treating of tap water | "I don't drink tap water anymore. I grew up drinking tap water. Grew up drinking water from the water hose. But like now I feel like I don't really trust the government. I don't know what they're putting in the water. " |
| | **Tap water perception sources** | **Factors that influence one's perception of tap water** | |
| | Personal experiences | A personal encounter with tap water | " Yea, I've actually seen them install a water fountain. They put one right next to our office. And if you saw the critters that were coming through the walls, you wouldn't drink from it either. " |
| | Peers | Family and friends drinking preferences | " So I also don't really drink tap water, especially in LA. Sometimes I drink it like if it's not in LA and the reason why is because I know someone who owns like a coffee shop and so they had to have like professional filter installed for their coffee machine and I was there when they were installing it and then the guy who installed it said that like LA's water's like the worst. And so and I'm he was like telling all these thing and so I definitely try not to drink LA tap water." |
| | Hometown | Perception of tap water back home influencing perception of LA tap water | " My parents are both from countries where drinking tap water can get you sick. So it's been like grilled into me since I was a kid, to like never use tap water unless you're boiling it for any kind of cooking or drinking. So we're always using, we get big bottles for you know at home and then small ones to take places. " |
| | Media/news stories | Media and news stories influencing perception of tap water | : And then you think of Flint, and it makes you not even want to drink the water [general agreement] 4: Yeah, it makes you wonder how many more Flints are out there that we don't know… ?: Exactly |
| | **Bottled water preferences** | **Factors that influence one's perception of bottled water** | |
| | Brands/marketing | Preference for specific brands | |
| | Taste | Preferences for specific flavor profiles | |
| | **Barriers to drinking bottled water** | **Reasons for not drinking bottled water** | |
| | Health concerns | Concerned about safety of bottled water (BPA, plastic) | "I feel like going on about like the plastic. Like if you leave in like a really hot area and everything and not in a cool dry place that that would definitely affect the water." |
| | Environmental concerns | Concerned about environmental impact of bottled water | "I feel so guilty using plastic now too because of like, Turtles and like all this talk like I've never knew how bad plastic was for the environment like if I use like a straw I guess I feel so guilty. So I got like a metal straw. So yeah environment purposes too" |

| | Code Name | Description | Example |
|---|---|---|---|
| 3. Learn how student/staff define healthy drinks and understand percieved barriers and facilitators to what makes healthy drink choices | **Definition of healthy beverages** | **What makes a beverage healthy?** | |
| | Natural | Belief that the drink is "natural" | ""…something that's natural- like came from the earth—usually it's gonna be healthy for you." |
| | Hydrates | A beverage that hydrates you | "Because everyone needs some liquid in them. Water is the best thing that anyone can drink. It's no calories for one thing. It replenishes the body with what they need. So that's the best part, if anyone can drink water. " |
| | Positive health benefits | Provides some sort of benefit like digestive health, heart benefits, immune boosting, detoxing | "I put kombucha because like the digestive enzyme helps us do something in our body, and the detox water, kind of the same thing, like it helps cleanse your system. " |
| | Transparency | You know what the ingredients are inside (i.e. fewer and easy to understand ingredients) | "I think like as you get more complicated in your drinks…like the more work that takes into making them like the less likely you are to be like completely sure that it's like a healthy beverage." |
| | **Milk** | Pertaining to milk specifically as healthy or not (lots of debate around this) | |
| | **Juice** | Pertaining to juice specifically as healthy or not (lots of debate around this) | |
| | **Definition of unhealthy beverages** | **What makes a beverage healthy?** | |
| | Artificial | Contains artificial ingredients, additivies, preservatives | "I think energy drinks … as well as sodas…have always seemed very either unhealthy, but also just like daunting in a sense because when you look at the ingredients… I have no idea what any of these things are like that. I think a common thread with this list …the ingredients and just not knowing what any of it means" |
| | Destructive health effects | Harmful to your health and can lead to diseases and/or sickness | "I think for me energy drinks was like the very first thing that came to my mind when I thought of unhealthy drinks. Definitely the sugar but then also just the amount of caffeine is so dangerous for people and so many people talk about, you know, having all these heart issues and like all these horrible side effects of drinking energy drinks" |
| | Sugar | Contains a lot of sugar- both natural and added sugars | "There's just like a lot of sugar. Like unnecessary added sugar that you don't need, I think. And like you could say the same thing with most of the things on that list. Like it's just like added sugar that you don't need" |
| | **Too much** | Consuming something in excessive amounts (not in moderation) | 8: But it's also important to consider like too much coffee can definitely be bad for your health. Like long term. And I feel like that's definitely true for a lot of these things.<br>5: I mean everything with if you over eat or over drink something, it's unhealthy.<br>8: Yeah, so its important to.. |
| | Addictive properties | Easy or common to become addicted/dependent on drink | "For soda like it's really sugary…it can be addictive so like the more you drink the more soda you want, which makes you like more unhealthy as you keep drinking more soda" |

| | Code Name | Description | Example |
|---|---|---|---|
| **4/5: 4) Understand student/staff awareness and perception of on-campus health messaging that promotes healthy behavior; 5) learn the effects of on-campus health messaging on student/staff lifestyle** | **Health messaging reactions** | **Ways in which people react to health messages** | |
| | Guilt/shame | Message makes person feel guilty or ashamed of their behavior | "On my building it's on the stairs thing like take the stairs. Like it's right there something like that. And then like I feel bad so I'm like, okay, I'll take the stairs. But like when I am tired, I'll take the elevator, but I'm like, you're right" |
| | Shock | The message is shocking (visually and/or informationally) | " But like how is it that they fit like all that sugar into like a can of Coke. I used to drink a lot of coke like when I was in high school and now that I think about it, I'm like wow that's a lot." |
| | Motivating | The message motivates the person to change their behavior | " I think that image is very striking like just looking at that image and it looks like oil and I read the oil it makes me what to read it because that seems very jarring and yeah, like I don't know that and that amount is crazy and it might encourage me to carry my own water bottle. " **\*also tagged under "shock"** |
| | Rebellious | The message makes the person **not** want to do the promoted behavior | "I see these like even not at UCLA. And every time I read those, I feel like its kind of an aggressive… ?: Right! I'm like f\*ck you, I'm going to take the elevator if I want to " |
| | Indifferent | The person is indifferent to the message | "I think generally it doesn't really make a difference. I think people who are gonna take the elevator are gonna take the elevator regardless. And people who take the stairs, will do that. " |
| | Intriguing | The person finds the message interesting | " I think the phrasing on the left one evokes a little bit more guilt, but I do think that both of them seem very like informational. Maybe that's not the right word, but you know informative as opposed to like I keep going back to the stairs one and how that one felt very guilt-driven, but this one seems more of like just a visual representation." |
| | **Reasons for NOT changing behavior** | **Reasons why someone will NOT change behavior despite seeing a message** | |
| | Lack of substitutes | Perception that there are not good substitutes to their current behavior | "For me, like what I do see last time. It was like last week. I think I did go to Rende and I saw the like the poster that said like how the impossible meat is better and I thought about it. I was like should I get it but then I yeah I thought about it. I was like no I feel weird about eating like fake meat and that was like, okay, I'll just go with the steak instead" |
| | Convenience | Alternative options are inconvenient (e.g. hard to access, not readily available, time consuming) | |
| | Cost | Alternative options are too expensive | |
| | Quality | Alternative options are inferior on quality, including taste, cleanliness, attractiveness | |
| | \*Not my responsibility (+/-) | Belief that the problem is not up to the individual to change (e.g. large corporations should be responsible for this not the consumer) | "That is like. I'ma die before global warming is a problem. My grandkids can deal with it. There will be a lot of smart people that engineer something. " |

| | Code Name | Description | Example |
|---|---|---|---|
| | ** Lack of prior knowledge (+/-) | First time seeing this information/message leading to being less likely to change behavior | |
| | *** Scale of impact (+/-) | Belief that your impact as an individual is negligable | "I don't know, cause like do you think like let's say if like a group of people suddenly stopped drinking or consuming bottled water. Does that necessarily mean that the company is going to like stop making it though? Because like I would love to think that in theory, you know, if a large amount of people are- they cease their consumption of bottled water...I feel like companies would still like make it. " |
| | **Reasons for changing behavior** | **Reasons why someone may change behavior despite seeing a message** | |
| | * Sense of personal reponsibility (+/-) | Belief that you have the responsibility to make change | "I think it's pretty impactful, but also just from like prior knowledge that like red meat is pretty like bad for the environment like this sign just kind of like reminds you like you could have like a healthier option not just for yourself, but also for the planet. So it kind of makes me think like I could eat something that's better." |
| | **Prior knowledge (+/-) | Have seen the message/similar messages multiple times, eventually leading to behavior change | "It's not surprising because I grew up with this. Like my parents would always be like do not drink your calories like if you're gonna- so like we saved her calories for like meals and stuff and like we would always like- Dad would always show us like you want this? Like look how much it is and it's like it's kind of scary thinking about it because like I did never saw that one but it's true." |
| | New Information | Changing behavior due to acquiring new information/learning something new | " I'm gonna start feeling guilty now because I didn't feel so badly be bottled water back at home because I would recycle it and get money for it. I'm like oh I recycle it so its okay, but I didn't know there was oil involved either." |
| | *** Scale of impact (+/-) | Belief that your impact as an indivdual can lead to overall change | " It's kind of like also like I think the environmental impact is really like stark because like like when I watched like cowspiracy or whatever like that's what made me like want like actually want to go vegan is like the political and environmental like impacts of like specifically like beef." |
| | **Recommendations** | **Student and staff recommendations for promoting drinking more tap water and less sugary beverages** | |
| | **Structural** | **Recommendations that relate to infrastructure/physical changes** | |
| 6: identify strategies for creating on-campus messaging | Hydration Station | Infrastructure changes involving hydration stations | "Yea, like switching the fountains and like modernizing them into like the refill stations where it comes from the top would make it like accessible..." |
| | Beverage choice and options | Involving changes in beverage offerings | " I think also like reducing access to them. So like BPlate doesn't have, like no soda I think. But people still go to BPlate, and it's not like people go to the other dining halls to drink soda. And like the stuff they have to replace it, like the fizzy water, is fairly good." |

| Code Name | Description | Example |
|---|---|---|
| **Programmatic** | **Recommendations that relate to implementing a program** | |
| Incentives | Incentivizing desired behavior | "...like an incentive to bring your own bottle" |
| **Messaging** | **Recommendations on messaging specifically** | |
| Location | Where to locate/place the messages | " I think like the thing they do with the elevator and the stairs. Like you can put like an advertisement of like where the closest water bottle station is like near like vending machines that sell plastic. " |
| Timing | When should the message be shared | "Maybe like a flyers in housing, like on elevators and hallways and the doors saying do you have your water bottle like reminding the students to go get their water bottle before they go all the way to campus before they realize they don't have it and have to buy a water bottle" |
| Informational | Messages that should be informative | "I think this one is supposed to because like it's pure information based. Like obviously this is up to try to get you to do something but like none of the text is really say this one is better than the other as opposed to some like some other ones like it on staying like stairs better or whatever like is kind of like trying to like get you to make a choice" |
| Environmental concerns | Messages that appeal to environmental concerns | " I feel like it's wasting plastic too because you can't actually refill soda from places. So like sometimes people like the proper way to actually recycle something is to rinse out the inside, let it dry out, and then it has to be clear. Otherwise at the recycling place. They were just trash and put in the trash bin like it won't even be recycled properly" |
| Health | Messages that appeal to health concerns | " I think like explaining what goes into making the drinks is really effective. So like the amount of sugar and preservatives and also like how much water it takes to grow sugar cane or whatever crop their using for sugar. That stuff. I feel like, just like people don't necessarily think about it when they drink stuff like that. " |

## Appendix 8: Sample recommended messages

This appendix contains five sample messages based off of the findings and recommendations of this project. The five messages included in this appendix are as follows:

- Health and safety of tap water: bottled water regulation compared to tap water
- Planetary health message around SSBs: water footprint to make soda
- Planetary health message around SSBs: water footprint to make soda as compared to bottled water
- Planetary health message of plastic water bottles: oil used to produce the water bottles
- SSBs and health- sugar content in different beverages commonly found on campus

Additionally, below are a few sample ideas for slogans/catch phrases and sticker designs to create recognition for a reusable water bottle culture on campus.

# TAP WATER IS REGULATED AT A HIGHER STANDARD THAN BOTTLED WATER

**REGULATED BY THE EPA**

- ✓ REQUIRED REGULAR TESTING
- ✓ PUBLICLY AVAILABLE REPORTS
- ✓ MUST DISCLOSE TO CONSUMERS WHERE THE WATER COMES FROM
- ✓ MUST DISCLOSE TREATMENT OF WATER AND CONTAMINANTS IT CONTAINS
- **NA** REQUIRES PHONE NUMBER ON BOTTLE SO YOU CAN CALL FOR MORE INFORMATION

**REGULATED BY THE FDA**

- ✗ REQUIRED REGULAR TESTING
- ✗ PUBLICLY AVAILABLE REPORTS
- ✗ MUST DISCLOSE TO CONSUMERS WHERE THE WATER COMES FROM
- ✗ MUST DISCLOSE TREATMENT OF WATER AND CONTAMINANTS IT CONTAINS
- ✓ REQUIRES PHONE NUMBER ON BOTTLE SO YOU CAN CALL FOR MORE INFORMATION

# IT TAKES
## 500 LITERS OF WATER TO MAKE
## 2 LITERS OF SODA

PROCESSING
THE PLASTIC
BOTTLE

GROWING
SUGAR CANE
FOR SUGAR
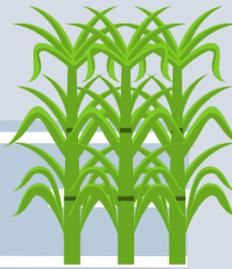
PROCESSING
AND BOTTLING
THE SODA

# 500 LITERS OF WATER ARE USED
## TO MAKE 2 LITERS OF SODA

# 35 LITERS OF WATER ARE USED
## TO MAKE 2 LITERS OF BOTTLED WATER
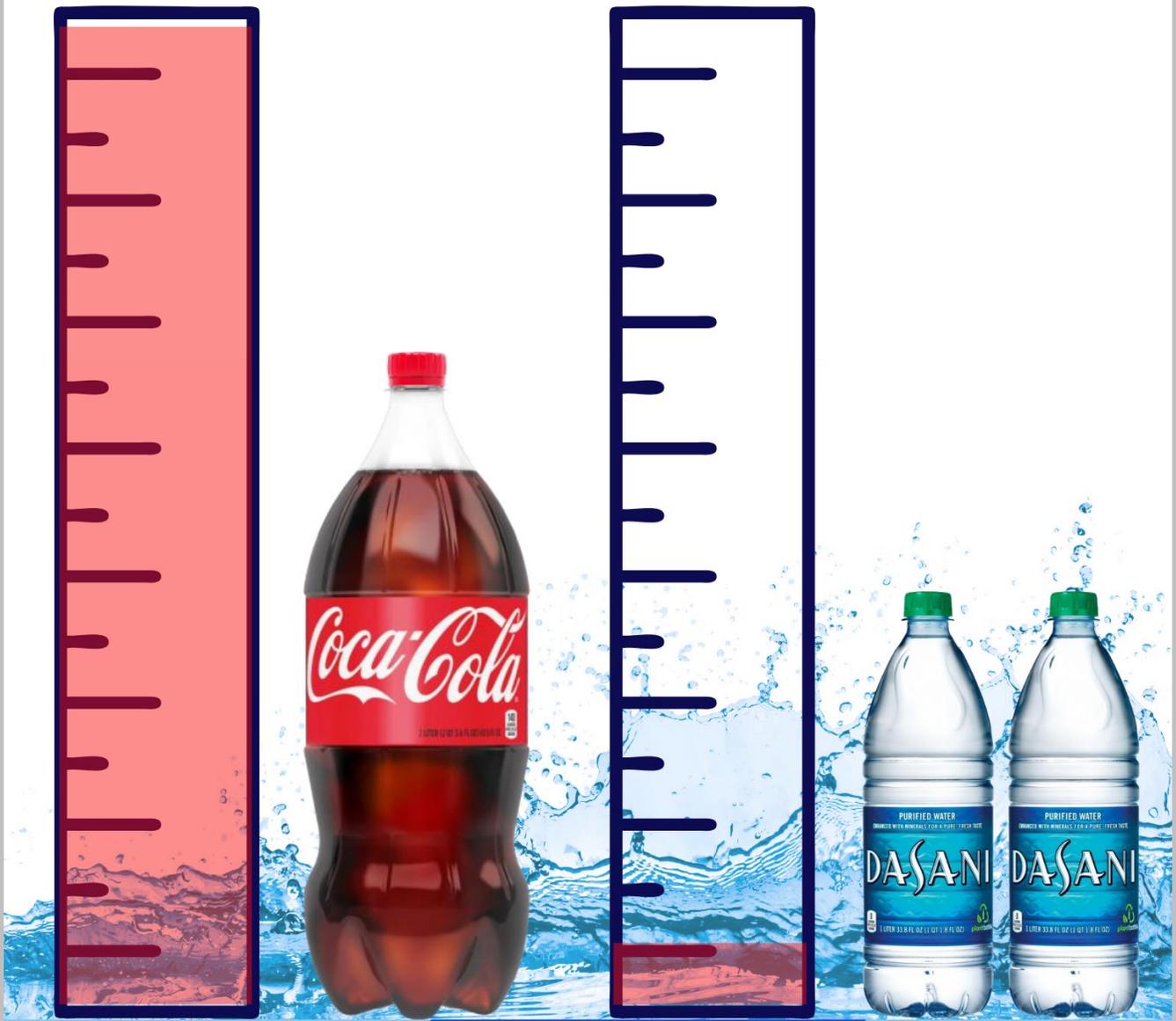
**17 MILLION BARRELS OF OIL EQUIVALENT ARE USED TO MEET THE UNITED STATE'S DEMAND FOR PLASTIC WATER BOTTLES**

PHOTO FROM BLOOMBERGQUINT

**THAT'S ENOUGH ENERGY TO FUEL 1 MILLION CARS FOR A YEAR**

PACIFIC INSTITUTE FACT SHEET: BOTTLED WATER AND ENERGY: GETTING TO 17 MILLION BARRELS

# WHAT'S IN YOUR DRINK?

**28g**
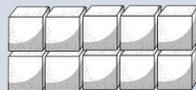
YERBA MATE
15.5 OZ

**12g**

SUJA JUICE
8 OZ

**14g**

KOMBUCHA
16 OZ

**52g**
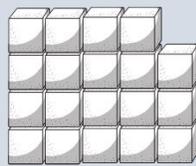
COKE
16 OZ

**27g**
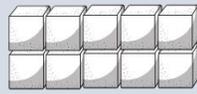
REDBULL
8.4 OZ

**31g**
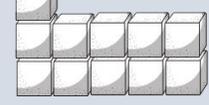
STARBUCKS VANILLA
LATTE (16 OZ -GRANDE)

DAILY RECOMMENDED
INTAKE OF SUGAR:    **25 - 38g**
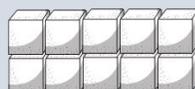
**UCLA**
**OHRPP**
Office of the Human Research Protection Program

University of California Los Angeles
10889 Wilshire Blvd, Suite 830
Los Angeles, CA 90095-1406

http://ora.research.ucla.edu/ohrpp
General Campus IRB: (310) 825-7122
Medical IRB: (310) 825-5344

**EXEMPTION CERTIFICATION**
**New Study**

| DATE: | 1/13/2020 |
|---|---|
| TO: | Meagan Wang , MURP<br>URBAN PLANNING |
| FROM: | Diana Alcaraz<br>GIRB Principal Analyst |
| RE: | IRB#19-001532<br>Perception of Beverage Choice and Health Messaging Among UCLA Students and Staff<br>Version: 1 |

The UCLA Office of the Human Research Protection Program (OHRPP) has determined that the above-referenced study meets the criteria for an exemption from IRB review. UCLA's Federalwide Assurance (FWA) with Department of Health and Human Services is FWA00004642.

Any modifications to the research procedures must be submitted to the OHRPP for prospective review and certification of exemption prior to implementation.

**Submission and Review Information:**

| Certification Date | 1/13/2020 |
|---|---|
| Funding Source(s) | 1) Other: UC Systemwide Human Resources (operating under UC Office of the President)<br>*Grant PI*: Meagan Wang<br>*Grant Title*: UC- Health Beverage Initiative |

**Regulatory Determinations**

| -- **Exempt Certification** - This research has been certified as exempt from IRB review per 45 CFR 46.101, category 2. |
|---|

**The Principal Investigator is required to complete Annual PI Assurances within the webIRB submission system in order to confirm that the research remains active. Study amendments and post approval reports are still required.**

**General Conditions of Approval**
As indicated in the PI Assurances as part of the IRB requirements for approval, the PI has ultimate responsibility for the

conduct of the study, the ethical performance of the project, the protection of the rights and welfare of human subjects, and strict adherence to any stipulations imposed by the IRB.

The PI and study team will comply with all UCLA policies and procedures, as well as with all applicable Federal, State, and local laws regarding the protection of human subjects in research, including, but not limited to, the following:

- Ensuring that the personnel performing the project are qualified, appropriately trained, and will adhere to the provisions of the approved protocol,
- Implementing no changes in the approved protocol or consent process or documents without prior IRB approval (except in an emergency, if necessary to safeguard the well-being of human subjects and then notifying the IRB as soon as possible afterwards),
- Obtaining the legally effective informed consent from human subjects or their legally responsible representative, and using only the currently approved consent process and consent documents, as appropriate, with human subjects,
- Reporting serious or unexpected adverse events as well as protocol violations or other incidents related to the protocol to the IRB according to the OHRPP reporting requirements.
- Assuring that adequate resources to protect research participants (i.e., personnel, funding, time, equipment and space) are in place before implementing the research project, and that the research will stop if adequate resources become unavailable.
- Arranging for a co-investigator to assume direct responsibility of the study if the PI will be unavailable to direct this research personally, for example, when on sabbatical leave or vacation or other absences. Either this person is named as co-investigator in this application, or advising IRB via webIRB in advance of such arrangements.