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FOODWAYS OF THE VISUALLY-IMPAIRED: TRAVERSING THE BLIND KITCHEN

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FOODWAYS OF THE VISUALLY-IMPAIRED: TRAVERSING THE BLIND
KITCHEN

by

Jason C. Jay

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KITCHEN

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Professor Alkon and Professor Gonzales will continue to be an inspiration to me, and I hope my career will be as successful as theirs has already been.

FOODWAYS OF THE VISUALLY-IMPAIRED: TRAVERSING THE BLIND KITCHEN

Abstract

by Jason C. Jay

University of the Pacific
2017

In the United States, the number of visually impaired and blind Americans will rise drastically as the population continues to age; and, yet little is known about how the impact of blindness affects an individual when it comes to the experience of food provisioning and preparation. This thesis presents the study of how the blind and the visually impaired experience food provisioning and preparation. It explores how modern technology and sensory training help these groups of people traverse kitchen and grocery store environments. In thematically organized chapters, this thesis examines sensory education, nutrition and food related obstacles. This is the first study in the United States in which the experience of food provisioning, preparation of food, and consumption of food are described from the perspective of Blind and Visually Impaired Americans. In this qualitative study, food experience and the eating choices of the blind and visually

impaired Americans were examined. Influential factors on the experience of food were also explored.

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Chapter 1: Introduction

According to the National Federation of the Blind, there are an estimated 285 million visually impaired people living in the United States. Of all the visually impaired people who live in the United States, California has the highest concentration with about 764,200 people (Blind, 2015). The number of visually impaired Americans will increase by 50,000 in population annually as people continue to age and live longer lives. As this population becomes larger, the need for support and education will grow as well.

Food procurement and provisioning is a key difficulty for all visually impaired individuals. When visually impaired individuals shop at the grocery store; cans, bottles, and packaged products all feel the same or similar and cannot be distinguished clearly without the help of a sighted person to tell them what is labeled on the container.

There is almost no scholarly literature about how food is provisioned by the visually-impaired. Intuitively, we can expect that extra time and effort may be needed for a visually-impaired person to learn and exercise healthy eating habits, that specific skills are required to operate adaptive kitchen tools and appliances, and that these skills (such as learning to measure, pour, spread, cut, and peel foods) have to be meticulously explained and demonstrated because learning by visual imitation is impossible.

The absence of data on food accessibility and the experience of food preparation also means that professionals may be limited in their ability to provide effective

educational and nutrition-related support and advocacy. The National Federation of the Blind (NFB) and Lighthouse for the Blind are two major organizations that provide substantive support for the visually-impaired community, however, there are no services that exclusively address the visually-impaired community's food-related needs.

In thematic chapters, this thesis examines how visually-impaired people traverse through supermarkets and kitchen environments to prepare food for consumption. Through in-depth interviews with six couples, I have come to understand how these individuals engaged in grocery store shopping, recipe planning, and food preparation. My analysis highlights the roles of technology, the systemization of ingredients and tools, and memorization skill training in procuring and preparing food. My aim as a visually-impaired researcher is for this data to contribute substantive scholarship about obstacles to healthy eating that confront the visually impaired and to assist appropriate institutions and organizations in the development of support programs for the affected population.

Chapter 2: Literature Review

While compiling evidence for this literature review, I encountered significant difficulty in performing my research. First and foremost, there were scant scholarly texts available that discussed how the blind traverse their home kitchen or grocery store for food provisioning. I found a few manuals that offered exceedingly brief treatments of my main topic or related subjects. To address in this deficit of pertinent literature, I expanded the range of my research to include how kitchen appliance companies accommodated the needs of the visually-impaired. Kitchen appliance companies, such as Panasonic and Zojirushi discussed the integration of tactile braille labeling and large screen displays as effective measures that helped the visually-impaired community to function more like sighted people (Hodges, 2016). Utilizing specially-designed tools, such as an oven rack push puller¹ (Figure 1) or talking timers play an important role in assisting visually-impaired people to work safely in an appropriately modified adaptive kitchen (Durand, 2009).

¹ Oven Rack Push Puller is a thick wooden tool used to push in and pull out hot oven racks while keeping a good distance from the heat. It also has measuring markings of up to a foot in length with inches and centimeters, where it also functions as a great kitchen ruler for measuring pans, doughs, and cookies.



Figure 1: Oven Rack Push-Puller

Professional Culinary Perspectives

From a culinary professional's standpoint, encountering a chef or cook with a physical impediment is like finding one miniscule clear fishbone in your Sole Meunière². That rarity may explain why there are so few books and articles that discuss the extreme challenges people with any physical limitations encounter when they work in the professional kitchen environment. There are few autobiographical books that discuss working in the kitchen with a physical impairment with one exception by an author, Chef Joyce Dassonville, once a chef who but left the culinary industry.

There was, however, one other autobiographical book titled *Life on the Line* by Grant Achatz and his general manager Nick Kokonas. Both Achatz and Kokonas are still working arduously in the industry because of their perseverance and passion for food...

Executive Chef Achatz is revered as a reputable inspiration, a genius of the culinary industry, because of his 3 Michelin star rated restaurant – Alinea in Chicago, Illinois. Chef Achatz was diagnosed with a rare strain of esophageal cancer: He underwent an intensive procedure of weekly chemotherapy treatments to remove all the infected lymph nodes on his left side from the top of the neck to his collarbone, and a cluster from his right side (Tanaka, 2008). His story of overcoming life-threatening illness is shared by his business partner and personal friend, Nick Kokonas, who provides strong moral support and public relations for the Alinea restaurant. Achatz describes the difficult choice he had to make because either one would change his life forever. His

² Sole meunière is a classic French fish dish consisting of sole, preferably whole or a fillet, that is dredged in a seasoned flour of ground white pepper and salt, pan fried in butter and served with a brown butter sauce garnished with minced parsley and whole lemon slices (The International Culinary Center, 2007).

options were: 1) to have his tongue surgically (and completely) removed and only live for about a month, or 2) to undergo twelve weeks of intensive chemotherapy with a possible invasive surgery if any infected lymph nodes did not disappear during the chemotherapy period. The post-recovery time was another challenging factor too. For Chef Achatz, it was obvious which decision was best for him and Alinea. He described the chemotherapy process: “Each of the 12 weekly sessions included a changing roster of medications—a sort of tasting menu of chemotherapeutic agents” (Solomon, 2015). During post recovery, Achatz relied heavily on his sous chefs to relay descriptive sensory information to him for the continuity of his reputable restaurant (Achatz, 2012). While this impediment was a life changing experience for Chef Achatz, it strongly motivated him to continue his career as executive chef.

Presently, a well-known person who risen into celebrity stardom through her participation on Food Network’s “Master Chef” is Blind Master Chef Christine Ha. Master Chef Ha has contributed widely to how the blind and visually impaired function on a daily basis through Ted Talk presentations, her personal You Tube channel and her television show called “Four Senses”. Christine has shone a light on how blind people and visually-impaired such as herself, prepare and cook food for themselves in both the home kitchen and on television. She explained how she “sometimes uses adaptive tools in the kitchen but most of it is by touch” (Ha, 2017). On Ted talks, Ha explained that her husband always assists her when it comes to grocery shopping by supporting her arm and navigating her through the aisles at grocery stores and through crowds at Farmer’s markets. Furthermore, Christine mentioned the practice of strengthening her brain muscles for the purpose of muscle memory. Memorization skills have helped her and

many other blind and visually-impaired people who are living independently. In an explanation of her home kitchen, Ha explained how her home kitchen was always meticulously organized because without organization, she would be “very lost in finding her tools, spices, and plate wear” (Ha, 2017).

In addition to the life stories of these celebrity chefs, I also surveyed an online culinary forum called “ChefTalk”. On this platform, there were some threads that discussed how physically limited and learning-challenged people were able to adapt to both the home and professional kitchen environment. A majority of the forum participants conversed extensively about how the deboning of fish and the peeling of an onion were learned through repetition. As for those who cooked professionally, paraplegic line cook Emily Han mentioned that she and other physically limited individuals worked in fast food or corporate restaurant chain because these employers provided medical benefits (Han, 2008). Many forum participants on ChefTalk mentioned that they had to prove through medical documentation that they are indeed diagnosed with a physical or mental limitation. For example, cooks with upper extremity limitations mentioned that they did not use any type of adaptive equipment unless it was pulling something from out of an oven or shifting a stock pot of soup from one burner to the next. While all kitchen workers rotated around various stations, Chef Jeffy Fields mentioned “it was common for employers to not give their physically challenged individuals a duty where they used the deep fryer or the meat slicer because of health and safety concerns” (Fields, 2016). Some physically challenged forum participants on ChefTalk said that they took extra breaks when performing food preparation prior to meal

shifts while those who are in wheelchairs specifically worked in a corner so they wouldn't be in the way of able bodied cooks. Chef Godfried Foley mentioned a

dishwasher who had some type of disability of the legs that severely affected the way he walked. While the dishwasher busted his rear end and worked as hard, if not harder, than any other able-bodied man in the kitchen, he turned out to be the fastest dishwasher amongst all the other able-bodied dishwashers (Foley, 2008).

Several restaurateurs explained how most employers were more concerned about a potential worker's skill set and attitude than their physical limitation because if they could keep up with everyone during a dinner rush, then the limitation was generally a non-factor. Thus, a person with a physical limitation usually works harder than "normal healthy"³ people because they don't want to fall behind anyone else.

Kitchen Modifications

Adaptations and modifications to a kitchen and cooking equipment for wheel chair users can include lowered counters and 6-inch rubber baseboards to protect against wheelchair tires from marking up the kitchen walls, dials on stove appliances can be changed to touch screen buttons with digital and audible interfaces. The first adaptive kitchen of this kind was made for Jean-Yves Prodel, a wheelchair user and residing in France. Since that kitchen design was proven to be successful through a study of Jean-Yves' experience, other countries, specifically the United States and Canada have followed suit by creating adaptive kitchens for mobility-limited individuals and blind people. US Department of Rehabilitation schematic specifications for adaptive home

³ Ably functional and free of any physical impediments

kitchens are “standardized counter tops that can be lowered to 32 inches while pull-down shelves can be installed which made items easier to access” (Durand, 2009).

Kitchen design has been an evolving market for interior designers, culinary professionals and home cooks, and the inclusion of designing adaptive kitchen for the physically impaired has been included into this growing market. Adaptive kitchens are made specifically for mobility-limited individuals, the visually-impaired, and the blind. Adaptive equipment includes talking scales (Figure 2), talking thermometers, stoves, and microwaves that are equipped with audio functionality and braille labeled buttons or dials.



Figure 2: Talking Scale

The world of the blind and the visually-impaired use similar modern technology advancements as other mobility limited individuals, with the exception of navigational equipment for the purpose of improving their daily life. While the visually-impaired rely on technology for the preparation of food or train themselves, its arguable that blind and visually-impaired people who have a low income are unable to access this technology and are forced to rely on their other senses (hearing, smell, touch, taste). A study on “Tactile Sensory Substitution” done by the New York Academy of Sciences which discussed how “blind and visually-impaired people who rely heavily on technology have less tactile sensory acuity than non-gadget type visually-impaired people” (Bach-y-Rita, 1999). Generally speaking, people who are most reliant on technology reside in metropolitan cities or suburban areas surrounding a larger city and at the same time heavily relied on their guide canes, assistive animals, and their other senses for navigational purposes. Visually-impaired people who were most reliant on themselves and who did not have access to technologically devices were from the rural parts of the United States, were supported by family members or an assisted living facility.

Simultaneously, visually-impaired elderly people are beginning to constitute for the ever-aging and growing baby boomer generation. The use of current technological gadgets would probably prove to be irrelevant for the majority of this generation because of their lack of familiarity, skills, and learning time needed to put them to use. Many visually-impaired people rely on non-battery powered adaptive tools, such as melamine measuring cups and spoons (different colors and textures), blunt tipped kitchen shears, serrated silicon knives, non-slip cutting boards, and silicone padded roller mats to hold tools safely in place. Professor of Assistive Technology Emily Chang mentioned how the

“use of an induction stove with large print or braille buttons and an audio function interface would be safer to use than the normal electric or gas stoves that normal sighted people use” (Chang E. , 2011). The same is applied for other appliances, such as microwaves, convection ovens, and food processors. Though there are many types of low tech kitchen tools available for the visually-impaired community, these tools and appliances mentioned are the easiest to identify as the most basic of necessities.

Real World Comparisons

I found only two studies that partially overlapped with my own. One is titled “Food Experiences and Eating Patterns of Blind and Visually Impaired” (Bilyk, Chapman, Sonstrop, & Mamer, Spring 2009). Biggest difference between this research and mine was that my study focused primarily on the procurement of food more so than the study by Bilyk, et alia on’ that considered consumption patterns. Additionally, that study was an overview targeting “English-speaking participants with long-standing blindness or visual impairment, who resided in the Lower Mainland of British Columbia and were between the ages of 25 to 50 years old” (Bilyk, Chapman, Sonstrop, & Mamer, Spring 2009).

I was curious as to why only this area of Canada was targeted. This article acquired from participants who were age twenty-five and older, which lead me to additionally question why the study did not target individuals who were between the ages of 18 to 25. I believe the palate of a person is an ever-evolving process. Realistically, people from age 18 to 30 would be more attracted to fast food and not care about nutrition, whereas people from age 31 and up will be more selective about what is tasty and nutritious because of changes that occur in an aging person’s taste buds (This, 1893).

The study mentioned how a “participant who had only recently discovered bagged salad, a product that had been available for several years, felt he would be much more likely to eat salad now that it was so convenient” (Bilyk, Chapman, Sonstrop, & Mamer, Spring 2009). While this participant only mentioned that he or she discovered this recently, there was the probability that this participant considered the chopping of vegetables with a knife to be too dangerous while also not being informed of this at the grocery store. The reality that many blind and visually-impaired populations are not informed about what is available to them in the grocery stores since securing a sighted grocery store worker to assist them is always another task in itself (my own experience as well). Thus, the authors found that blind and visually-impaired Canadian participants only prepared simple meals that did not require a lot of preparation time and effort. For example, the microwaving of pre-packaged frozen meals or a can of soup would be easier for simple cooking since this task wouldn’t require many tools or time for preparation and consumption. Unemployed blind and visually Impaired participants in this article “exhibited more erratic meal patterns, unusual meal times, a tendency to stay up late and sleep in, and made less healthful food choices” (Bilyk, Chapman, Sonstrop, & Mamer, Spring 2009) – meaning a higher concentration consumption of junk food, grain products, and high calorie processed foods. In the Bilyk study, there was no mention of specific kitchen design or of how the visually-impaired organized their groceries when in the physical home kitchen environment or when they were in the check-out area of the grocery store.

The second study similar to my research was titled “Visually Impaired Consumers and Food Shopping” (Sahingoz, Sept 2012). This research was performed in Turkey and had 500 (260 female, 240 male) visually-impaired participants ranging between the ages

of 20 and 71 years old. The study found that visually-impaired Turks received little to no government support. The lack of support was substantive and included “the absence of facilities in ramps and stairs, the indifference of personnel, and the absence of any imprinting for visually-impaired individuals on price tags” (Sahingoz, Sept 2012). Turkey is the world’s 13th largest GDP⁴, it’s amazing that this economic powerhouse does not provide substantive support for their handicapped community.

A major difference between Turkey and the United States were the types of grocery stores available. In the United States, local supermarkets and grocery stores are the norm. In Turkey, however, “hyper-markets” are frequented far more by the general population. Turkish “hypermarkets are located away from the city center at larger, more spacious malls. Therefore, visually-impaired consumers prefer to go shopping in hypermarkets located in their own neighborhood since products were easier to access” (Sahingoz, Sept 2012). Based on this article, hypermarkets seemed to be easier to navigate with or without the assistance of someone who was visually sighted.

The absence of mobile technology for the visually-impaired in Turkey was also mentioned in this study. The Turkish government does not provide accessibility or funding to the visually-impaired community because they viewed this population of people as incapable of taking care of themselves. In contrast, in the United States, visually-impaired people can access many mobile technological options and free education for the experience of grocery shopping on their own. The visually-impaired in the United States can be trained to be very knowledgeable in tech that they can shop for

⁴ Gross Domestic Product (GDP) – a monetary measure of the market value of all final goods and services produced in an annual period.

food through a mobile app on their phones or through a software program on their computers, and have their goods delivered to their door step within the same day.

The study talked about how visually-impaired consumers between the ages of fifteen to forty stated that it was important for them to know the nutritional value of the products they would be purchasing for consumption, while visually-impaired consumers over the age of forty stated that nutritional value and mineral elements did not bear any significance for them. According to this study, there was a definitive difference between these generations of visually-impaired individuals. At the same time, it did not mention any other studies about visually-impaired consumers in relation to food shopping in Turkey. The study aimed to determine the problems visually-impaired people encountered when shopping, yet it did not go into detail about the specific types of obstacles they encountered. I believe that this study was done for the purpose of giving a basic overview that visually-impaired people (in Turkey) do go shopping, with whom they go shopping with (family or alone), what universal problems they encounter when they go shopping alone, and whether or not braille is coded on packaged foods or not.

Sensorial Experiences

If we consider food from a sensorial perspective; smell, taste, touch and sound are obviously the tool used by visually-impaired cooks to identify ingredients. When a visually sighted person “tastes” food, about 90 percent of it is experienced through smell and 10 percent through our taste buds. Amazing isn’t it? By delving into Barb Stuckey’s *Taste What You’re Missing: The Passionate Eater’s Guide to Why Good Food Tastes Good* book, we get an insight to how a person with a physical impairment senses food. In the ‘Food and Disability’ chapter, Stuckey explains,

Individually we all taste things a bit differently. I might like things sweeter or more bitter than you. Genetics, biology, your brain, and even the number of taste buds on your tongue all play a role in how we experience taste (Stuckey, 2013).

Even though an individual may lose one of their senses, the brain naturally makes the other senses become more acute, which facilitates that gradual reorganization and performance of tasks. Stuckey describes and explains the function of the senses of taste, smell, touch, sight and sound, and how the role of each plays an essential part in what we taste. As people, we all know we smell through our noses, taste with our tongues, and feel texture of food with the upper palate of our mouths.

For example, the aroma of baked pumpkin pie can entice us from across the room, and yet the smells are also sent from your mouth to your brain once the food is inside your mouth and you have begun chewing. Stuckey calls this sensation “mouth-smelling” (Stuckey, 2013). Textures are experienced by touch since we can often distinguish the feeling of a squishy fruit or a hard nut when we place a spoonful of ice cream into our mouths. During the consumption process, sight often overrides other senses when eating. So if a beverage, like, apple juice is served in an orange glass we may think it’s orange juice. Bacon served sizzling hot may leave a taste impression before we even put it in our mouths.

Barb Stuckey described what the basic five basic tastes are: salty, bitter, sweet, sour and *umami*; then provides exercises for us to try at home. These exercises are used to isolate the different tastes and senses we normally experience together. One of the exercises asks the reader to put on a blind fold to simulate how a visually-impaired

individual experiences food. She explained how to recognize what the umami flavor tastes like using aged cheese and roasted tomatoes as an example.

The *Food and Disability* chapter noted how the development of a person's palate gradually changed with age as it was an important factor with the decline beginning in the second decade of life. While Stuckey mentions "there is no comparable data available for taste, though it has been suggested that the sense of taste remains more robust with age" (Stuckey, 2013). To close, an individual's overall health status, which includes sensory impairments, functional limitations (including difficulty standing or bending), habits (such as smoking and drinking), and mental health status can impact and potentially change (whether it may be an increase or decrease) the palate.

Conducting this study as a visually-impaired person posed a real challenge since most of my research was performed using an assistive technology software called Kurzweil⁵. Granted that there were limited research materials available, this directed me to another venue to research on the related topic of manufacturers inventing gadgets to accommodate the visually-impaired in the kitchen, such as specially designed rulers to grab or push oven racks and pans, voice activated weight scales, etc. The personal stories of chefs with a disability about how they made it in this world were very encouraging. It was eye-opening to learn how much more the culinary industry has to do in order to include people with disabilities, and specifically those with visual impairments.

⁵ Kurzweil is a software which enables a visually impaired user to gain access to both web-based, digital or scanned print materials through its Optical Character Recognition (OCR) and text to speech features; Kurzweil software provides easy access to most forms of print and presents them with the fields, labels, boxes, and text areas in the appropriate reading order to enable form completion via the computer. This software also provides assistance for use with calculator, calendars, Microsoft Office, and fax.

Chapter 3: Methodology

I conducted a qualitative study performing individual in-person and telephone interviews. Although commonalities would not ensure rapport, I did disclose to participants that I, the interviewer, am also a visually-impaired individual.

The Approach

Grounded theory, which was developed by Glaser and Strauss (1967), is the process in which in-depth analysis is the basic method. The grounded theory methodology develops practical theory by means of note taking, coding, recording, and the sorting of data collected through different tactics such as observation, interviews, and the reading of literature related to the research situation or topic.

The objective is to try to understand the roles and positions of the people within the research situation, more so focused on the research situation, to discover what drives the research situation and create a theoretical framework that makes sense of it all. Grounded Theory is an interactive procedure, which utilizes the researcher's experiences and connections with the research situation, and gives merit to all subjectivity.

Participant Recruitment Process

Interviewees for this study were recruited from a pool of people within whom I – a visually-impaired athlete and culinarian - was acquainted. While the primary focus of this study is the visually-impaired, I decided to include the perspective of the able-bodied

spouse/life partner of the impaired person. An experiential perspective from a sighted person who lives at home with a visually-impaired individual has substantial value because they help to develop a routine food preparation and cooking. This is an initially very challenging process.

My participants were told they would have to give verbal consent, and it would be stated that they were volunteering their time for the benefit of assisting me with this study and to help create a better understanding of and support for the blind and vision-impaired community. Verbal consent was read to the participants prior to the start of the interview. We mutually agreed that when this research project adjourned, that I would provide them a copy of my thesis paper. Furthermore, since printed invitations would not be effective, the best way to for me communicate with this specific group of people was through the phone or in-person.

The participants and I share a commonality of being visually-impaired so video recordings for this study were not practical. Instead, we used audio recordings for data collection purposes, then coded the transcriptions of the interviews using grounded theory. Several participants voiced their concern that this study would not affect anyone except for a grade in my graduate studies program. I reassured them that by participating in this study, their experiences will address the academic vacuum of what is currently known about the blind and visually-impaired community. In-person interviews lasted one to two hours per person. Breaks were taken to address hesitation of allay anxiety. Phone conversations, however, took one to three hours per person.

Distance and time zone differences presented logistical challenges. There was one instance where a participant interrupted the process in the middle of our interview to ask

about ‘how much’ of my own experience will I be inputting into the study. Participants were encouraged that the main-focus for this research was their experiences and not mine. While I could relate to the aforementioned concern, it was important interviewees to understand that this thesis would present the perspectives of all participants in recognition of their unique experiences as well as any areas of commonality.

Personal Contribution

As a visually-impaired individual and culinary trained chef, I recall my life changing accident vividly; a typical mundane day of prepping culinary ingredients before dinner service, and one of the other line cooks I worked with decides to throw a piece of frozen fatty meat into a deep fryer without first going through the procedure of thawing it out and breading it. He threw it as if tossing a stone into a lake and – what do you know, 500°F deep frying rice-bran oil erupts everywhere causing a catastrophe in our area of the kitchen. After that, imagine the deathly screams from the injured, others yelling at others to call an ambulance. In my case; I blacked out. This catastrophe caused my right eye to be permanently blind while my left eye can only perceive light, shadow, color and distorted silhouettes. Even with the use of corrective lenses, I still have to use a guide cane to navigate my way through the fuzzy colorful haze while using tactile feel to find my tools that are marked with braille labels, sequenced rubber bands, and galvanized textures.

My journey with a vision impairment hasn’t stopped me from pursuing my goals as since my sensory receptors have developed a heightened acuity. Through the United States Blind Sports Association, I learned that I could continue to participate in the sport of archery through the use of adaptive equipment and training.

Participating in competitive para-archery allowed me to network and source participants for this study. Although we viewed each other as fellow vision-impaired athletes, we shared similar struggles and some more positive commonalities, such as being proactive in the archery community as well as, the sharing of our sensorial food experiences. Between competitions and travel for competitions, the opportunities arose to interview my fellow athletes and their spouses.

Through these interviews, I gained substantive knowledge about the participants' grocery shopping methods and patterns and the types of adaptive tools they use in the kitchen for food preparation. All visually-impaired participants shared that they had the most difficult time distinguishing the contents of packaged products in cans, bags, or cartons. Their very strong views validated my own experience and functioned as a catalyst for this research venture.

Chapter 4: Data

Visually-impaired people have managed to live without the use of modern technology for many generations. They have found ways to systematically improvise and personalize household tools to help them with food preparation adaptation. Meanwhile this population of people are continuously “adapting” to the modern age, the development of mobile technological gadgets are beginning to be the norm; especially for millennials.

Following are narratives about kitchen and food procurement adaptations from visually-impaired couples. Interviewing individuals separately, then together provided an abundance of information about how these couples functioned in their daily lives. For confidentiality purposes, names of the participants were replaced with their middle name and last name initials.

Lodi, CA

Robert Modavi of Woodbridge Winery hailed the City of Lodi as the “Zinfandel Capital of the World”. The effect of this widely circulated, which drew many wine snobs and wine enthusiasts to the area when this small town became known as the “2015 Wine Region of the Year” (Gordon, 2015). Nestled within this popular Zinfandel town are World Archery Gold Medalist UW and her husband (and coach) CW; who can tell you they aren’t avid wine drinkers and would prefer to live a simplistic peaceful lifestyle. UW

is a Southern Californian native, who was born with an ocular disease called Retinitis Pigmentosa (RP). Although she was diagnosed as legally blind from birth, UW was educated through the use of textbooks with extra-large font, basic braille, and audio books when she was in college. She mentioned she learned to use the white guide cane in college because her sight deteriorated quickly noting this experience was “extremely scary and difficult to adapt to”. The guide cane became her eyes while the rest of her senses (smell, taste, hearing, feel) became more acute.

When I first asked UW about her fondest food memories, there was quite a long pause. During this long pause, I thought I had asked her to recall what might have been a traumatic cooking experience. Seemingly, I was quite mistaken. Growing up in a very small town, UW attended a designated school closest to her in a larger city close by. It was in junior high school which drew her fondest cooking memories. It was the summer before her last year where she said,

Summer school for people like me were for the preparation for survival in our adult years, and we didn't have the fun and games type of schooling like most kids these days. We learned how to create a menu, prepare the ingredients, and followed by cooking the food on an electric stove top. I vividly remember our Visual Impairment (VI) Instructor giving me boxed foods to prepare and to periodically take home to prepare with my mom. Recalling back, I don't remember how often she had me take home things, though I found these life skills to be the best moments of my life! Being able to prepare and cook food for our class, our teachers, and best of all our families were the best memories of my childhood.

Unlike most visually impaired youth, UW did not attend a California School for the Blind institution. Many blind schools today do not teach cooking as a skills course until students are sixteen years of age. At the California School for the Blind in Fremont and Provincial Resource Centre for the *Visually Impaired* (PRCVI) in Vancouver, BC, basic cooking classes are offered once a month, yet limited to only six students per class. Having an etiologically small classroom setting confirms that students will receive one-on-one time with the chef professor, rather than being neglected if a class size were too large.

Ostensibly, junior high and high school flew by very quickly for UW, yet when she had moved out of the nest and lived independently, creating her own system of how her tasks needed to be done became arduous. Though all the necessary cooking and baking basics were learnt for survival, UW also personalized her kitchen tools by etching notches into her measurement tools and knife wear. Owning a few wooden, metallic, and silicon materialled kitchen tools made life simpler. Tools with different tactile textures help with how the visually impaired person can organize their kitchen tools as well as separate them based on how they feel. Through repeated use of a single tool, for example, a wooden spoon creates muscle memory in your brain. Through repetitive use of a wooden spoon, the brain will memorize what the spoon's rounded shape and texture feels like. One of the most important kitchen tools for UW was a talking kitchen scale. The kitchen scale helped her immensely when she was trying to maintain a healthy diet for her and her canine assistant. She said,

The talking scale was helpful for the measurement of dog food for my guide dog who lived with me too. In the moment, the talking scale helped me keep track of how much dog food I should be pouring out into the food dish.

Aside from the use of a talking scale, UW also used magnetic braille labelers and a gadget called, PenFriend⁶ (Figure 3). Magnetic braille labels are one of the most useful tools for the visually impaired population when it comes to remembering what they purchased in the grocery store. Since the braille labels can magnetically adhere to the tops of canned products, a type of marking or etching is also used for non-metallic goods too. In UW's case, when it came to purchasing food from behind a counter, grocery store staff will often verbally tell her they will be double wrapping the product, then give her the wrapped package. UW would then place a disposable braille sticker onto it. The use of braille stickers helped UW with the organization of her groceries. Systematically, the use of braille labels is a type of marking system that helped her memorize what kind of foods she had placed into the cart or basket before she would get to the check-out line.

⁶ PenFriend is a device best described as a barcode scanner and a digital recorder in one. To use it, simply place the tip of the PenFriend to one of the supplied labels and make a recording. The recording might be as brief as, say, "corn chowder" or as long as a 600-word letter. In either case, the entire recording will be associated with the tiny label, which can then be affixed to the object in question. Later, when you want to identify the object, you again place the tip of the PenFriend to the label and your verbal recording is played back to you. (Kendrick, 2011)



Figure 3: PenFriend with reusable magnetic braille labels

I asked UW what the most difficult challenges were when she went to shop at the grocery store alone. Purportedly she said,

The most challenging part about going to the grocery store was getting a worker who could assist me around the grocery store in acquiring what I needed. Store workers are often uneducated with how to guide me around and generally grab the most expensive ingredient off the shelf to place into my shopping cart. It's frustrating enough that I made a list of what I needed followed by the budget I put together before heading to the store. Sometimes when I inquire about a sale item,

I can tell by the worker's tone of voice that he or she is bored or impatient.
Upsetting really.

Often, when a visually impaired person gets to the register, he or she will often tell the clerk ringing them up to place canned goods in alphabetical order. For UW, having this system in place was beneficial since she will place magnetic braille labels onto each can after each item had been scanned. In any grocery store, this is a very meticulous process for both the visually impaired individual and the store clerk since it holds up the line. At the same time, the store must provide reasonable accessibility in compliance to American Disabilities Act (ADA). The marking of cans and metallic bottles was UW's personal way of organization for when she would get home. Alphabetization was also her way for placement of products into the cupboards. By culinary industry standards, this type of systemization is a good practice of the FIFO⁷ method.

When the internet and mobile app scene began to boom in the early 2000's, JW would plan her grocery shopping around an app called Grocery List. UW spoke fondly of this app stating,

You could go online, place your order, and it would be delivered in the afternoon on the next day. The app worked extremely well for me since login and navigation through the Grocery List website was easily accessible and accommodating for people like myself.

⁷ FIFO means First In First Out. A method where older products are rotated from the back and brought to the front to be used first

With the modernity of mobile apps, UW expressed that she currently uses Apple Inc's VoiceOver⁸ and the Siri function for grocery list building and day-to-day planning. In this sense, VoiceOver has greatly improved the livelihood for UW and many others like UW.

Although modern day gadgetry has greatly improved UW's life, her journey as a visually impaired individual wouldn't be complete without her husband, CW. Being the husband and athletic coach of a visually impaired World Archery⁹ Gold Medalist may sound awe-inspiring to many people, however, living with a vision impaired person is a different experience. CW is a Lodi native who has been married to UW for fifteen years even though he insists that it feels like he's only been married for two. As a jack of all trades, CW is an entrepreneur who works with tile for the remodeling of kitchens and bathrooms. As a man who has a background in engineering, CW also developed an adaptive tactile rig that assists UW and other visually impaired individuals (like myself) use for the purpose of shooting archery. In the present, CW's adaptive innovation is domestically used by visually impaired archers in the United States.

As pertaining to my interview about UW independently utilizing the home kitchen and the grocery store, he said he saw her as a woman who is "capable" and not vision impaired. Confidently CW stated,

There's nothing UW can't do that I can do because she can do anything she wants cooking wise. It may take her longer to cook something, but she'll get it done. My wife is very capable of navigating herself around the house without a cane

⁸ VoiceOver is a screen reader built into Apple Inc.'s Mac iOS, tvOS, and watchOS operating systems. By using VoiceOver, a user can access their iOS device based on spoken descriptions or in the keyboard.

⁹ World Archery is the international federation or governing organization for the Olympic sport of archery.

sometimes; mainly because she knows where everything is. When she's out and about the grocery store, Ballet, her canine assistant will guide her.

When it comes to being in the kitchen together, the two of them equally divide the tasks of cooking and cleaning. Although UW explained she did not enjoy baking because it was “too much work to measure out the ingredients”, CW explained otherwise. He animatedly discussed how comforting it was to bake while also saying “if tile work wasn't my profession, I think I would have been a professional pâtissier¹⁰ instead”.

Dynamically CW and UW's organizational methods weren't always in tune, and like any other couple, they had to adapt to each other when they first moved in together. While both exhibited habits that either were accustomed to, it didn't take long for CW to begin adapting to UW's system of using magnetic braille labels and organizing them alphabetically from left to right in the cupboards. CW mentioned,

UW had an organization system going and it seemed okay for me until the braille labels became worn and a bit sticky. To make it simpler for her, I installed some metal plates onto the cupboard doors so that she could place her magnetic braille labels onto it instead of onto the cans.

While UW's organization system was very simple and easy to work with, CW wasn't too worried about not being able to find things. There were a few instances where UW's system did reach a limit, such as “times when the cupboard was filled with everything Campbell's” and it sort of drove him crazy. CW laughingly noted “the fact that Campbell's canned soups were all the same size, cream of mushroom looked the

¹⁰ Pâtissier is the French term for Pastry Chef; a professional who specializes in the making of pastries, breads, cakes, and confectionaries

same as Chicken noodle soup from afar; I felt as though I had to sort through a grocery store in my own house!” Thus, the shopping for Campbell’s canned products diminished and healthier canned choices were created. During this part of the interview with both participants, CW said

I would stack cans in certain way, so JW knows how they are placed; in a single line from front to back. Canned soups are kind of quick and easy on a cold winter day or if I’m coming home from work late. The cereal is always in the same spot. I like it that way too because I can open up the cupboard and know exactly where everything is at.

When it came to grocery shopping, UW and CW always shopped together or if CW was in the store right after work, JW would be on the phone with him as he was walking the aisles. CW said,

I go most of the time. The other times she's on the other end of the phone. Like I said I'm physically there and usually we've already made our plans of what to get because we have healthy routine eating habits. If we want something different, usually it's through the phone. Then I just pick it up and go on.

However, when UW and CW would go to the grocery store together, they would plan their trips before physically going. Generally, they would make an extensive shopping list if they were planning a trip somewhere, such as an archery event or a road trip to visit relatives.

CW and UW explained their thought process for shopping; keeping it very simple.

During this portion of the interview CW said,

Our freezer has one week's worth of food in there. That's it. When its finished, we go back to the store to purchase another week's worth. The frozen stuff is always eaten after our fresh products in the fridge are completely used up.

Typically, we go to the store and purchase food for two weeks, and we're done.

The grocery store is conveniently located down the street from us and it's easy to go down and pick it up. We have less food waste because we don't store a lot of food in the fridge.

When asked about what kind of food they generally shop for, they responded that they shopped for two to three types of fruit and vegetables, two types of meat, a double pack of non-sugary cereal (such as Cheerios or Raisin Bran), a package or two of dry grains and pasta, and healthy snacks. Snacks were generally more on the healthy end, since CW said, "we try to be as healthy as we can since many products these days are loaded with sodium, excessive sugars, and fats. We both enjoy snacking nuts, fresh fruits, and occasionally beef jerky because I can devour a whole two-pound bag in one sitting."

Though CW's answers were very matter of fact, I inquired if he could describe their systematic grocery shopping procedure when navigating around a grocery store together.

Purportedly, CW said,

We always have a list with us before we go to the store. Generally, we begin on one end of the store, farthest from the check-out stands, and pushing the shopping cart forward together through each aisle. We walk through each aisle together and gather what we need along the way. Once we've snaked around the store, we're usually by the check-out lines and checking out. We're always together and I

almost never stray away from my wife to grab random items either. It's a waste of time. We also seldom backtrack to a previous aisle because we forgot something. If we missed it, that's okay because there is always next time.

In summary, UW's and CW's experiences demonstrated their capacity to adjust special issues of cohabitation through years of adaptive development of a systemic routine. They share kitchen tasks, traverse through the grocery store to procure nutritious food together, and, were always in communication with each other. Though they shop for groceries every two weeks and cut down on food waste. Thus, they showed ecological and economical consciousness –they were not the type to waste money either. These participants illustrated that having an organized home-made navigable by the development of sensory memorization of where household items, kitchen gadgets and food containers were placed and stored because they were always located in the same place.

Vancouver, CA, BC

If a city is judged for being green, clean, and sustainable; Vancouver would take the honors. Touted for diversity and culture, each of Vancouver's many neighborhood enclaves invite visitors and locals to stroll through colorful sidewalks, inhale fragrant scents, savor spectacular delicacies, and marinate in a wide range of urban vibes with roots from many different cultures and ways of life. As one of the top cities around the Pacific Ocean, "Vancouver's worth equates to 31 billion US Dollars while boasting an ambition to be the world's greenest city by 2020" (Vancouver Brand, 2017).

Comfortably living in the Gastown District are Vancouver natives KL and AL who have lived there for about seventy years. Considering that Vancouver is the third most live able city in the world as quoted by Economist Intelligence Unit's annual Global Livability Report (Staff, 2017), it's no wonder KL and AL have no desire to move away from their childhood roots. KL and AL are both visually-impaired people who had some form of eyesight early in their lives before becoming permanently blind.

In his 60's KL was diagnosed with Diabetes that caused a diabetic retinopathy, which resulted in the destruction of the retina. This sudden change in his health forced him to retire from his job as a restaurant owner and chef. KL's elder sister, AL, was born with Terry Syndrome or otherwise known as Retinopathy of Prematurity (ROP)¹¹. Although AL was diagnosed as blind from birth, AL was educated through the use of braille textbooks in high school. She mentioned that while she was growing up, she could not attend a blind school because her family lived in poverty and that her parents were trying to save face from keeping their disabled daughter out of school. Reluctantly, AL's siblings verbally dictated what they learned in school to teach AL basic mathematics and home economics skills. One of AL's many hardships was not related to food, but to her Chinese culture. She stated,

In the Chinese culture, anyone who had a physical disability was kept at home and considered a shame to the family. There were many times I could not attend family banquets and functions because I was blind. I literally had to fend for myself. I felt very ashamed and lonely of who I was since my parents cast me

¹¹ Previously known as retrolental fibroplasia (RLF) is an ocular disease where abnormal replacement of the sensory retina by fibrous tissue and blood vessels, occurring mainly in premature infants with a birth weight of less than 1500g who are placed in a high-oxygen environment. (Terry Syndrome, 2015)

aside like an animal. My siblings became my best friends during these times and I wouldn't be here today if it weren't for them.

When I asked AL about when she learned to use the guide cane, she said

my eldest brother went to college when I was ten, and after he graduated and landed a career, he used what little earnings he could spare to send me to a blind school in Washington State to get formal cane training.

Cane training is an essential navigation skill a visually-impaired person must learn in order to survive. Back in the 1940's, cane training for visually-impaired individuals cost \$2 CAD¹² per year. Once AL had learned how to use her white guide cane and basic braille, her brother could no longer afford for her to attend schooling.

When asked about grocery shopping and preparing food for herself, she responded by stating, "...growing up, my parents and siblings never let me use the stove for fear that I will burn myself or set the house on fire." During the interview, AL laughed at the fact she lived like royalty since her siblings always cooked for her when she was hungry. Her best food memories with her family were grocery store and farmer's market shopping. She would go to the Chinese grocers with her two sisters and her mom to shop. Instead of being stuck at home all the time, the women in AL's family would take her with them when they went shopping because they also thought it would be good exposure for her. AL described that she would inhale all the curiously fragrant and not so

¹² Canadian dollars (CAD)

fragrant scents a grocery store and farmer's markets had to offer. In this way, she learned by scent what varieties of fruits and vegetables were fresh and what was not in season.

I asked AL to describe her first grocery store experience. This experience took some time to recall: since AL apologized and jokingly laughed saying that she was getting a bit senile. Recalling information from her twenties was fuzzy, yet when she remembered, she said,

My mom handed me a set of house keys one day and told me to explore the neighborhood for a bit. I was a bit shocked since she never wanted me to go out without a sibling by my side. The first place I walked to was a grocery store that I knew was within walking distance from our home. The wind always blew toward the east in the afternoon since my house faced south. I remember going into the store alone and was greeted by a cashier who recognized me when I went in with my mom. The manager was kind enough to guide me around the store since he mentioned there were glass bottles displayed around the store, and didn't want me to knock over everything. We went to the produce area and I picked out what I needed based on smell and how it felt. The manager was as surprised as I was when I was able to pick out the items I needed. When it came time to pay, figuring out what bills to use was easy because Canadian Dollars have braille features embedded into them.

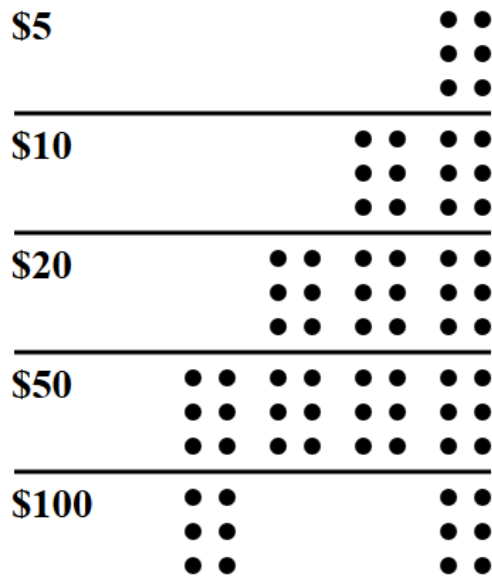


Figure 4: Canadian Currency Braille System

Canadian currency uses a 6-dot braille cell system (Figure 4) so that it can be easily identified by the visually-impaired. The “\$5 bill has one cell, with the \$10, \$20, and \$50 denominations each having one more cell than previous. The \$100 bill has two cells arranged in such that there is a space of two empty cells between them” (Airey, 2013) . This braille labeling system has helped the visually impaired in Canada since the early 2000’s. On each bill, these braille dots are located in the top right-hand corner making it easy to identify through tactile feel.

Although braille labeling is currently being used in some countries, many young visually-impaired millennials are no longer learning how to use the braille system to identify their currency. Instead, they are given an electronic currency reader that is a software that is programmed into their mobile phones.

Asking AL about adaptive tools was a no brainer because she automatically replied:

Since health care is universal in this country (Canada), the healthcare system provided me with a guide cane, push-pull oven tool, blunt tipped kitchen scissors, and this handy dandy wristlet that has a program called “Watch the Table” built into it. Watch the Table projects a low light display of where foods are placed on the table in front of me when I am at restaurants and cafes. It’s quite nifty and helpful for servers since they can place table wear in front of me and I already know where it is.

“Watch the Table” was created to enhance the eating experience for people who are blind and visually-impaired. Development of “Watch the Table” enables a person without vision to locate tableware better when dining out in a café or restaurant by using an electronic wristband that is worn by the blind individual (Alvarez, 2012). The wristband is used by the diner to project a digital placement onto the table. The wearer can toggle the device to either eating mode or table set up mode (Alvarez, 2012). This in turn assists restaurant staff with how a visually-impaired individual’s table settings were to be prepared and how food should be served to the visually-impaired guest. Consistent with the argument that the goal of this system is to “eliminate a type of threshold that exists between eating at home and eating outside of the home” (Alvarez, 2012), many

sight impaired people generally have a pattern for how tableware should be situated in their home. Though the device has an audio, tactile, and visual interface (for the wait staff), the technical details were yet to be specified in the article.

Amidst this, I think there is a clear opportunity to incorporate this kind of gadgetry into a symbiosis of assistive devices to help the blind and visually-impaired for their movement from simple eating experience to the possibility of becoming a gastronomic gourmand.

The “Watch the Table” program also helps integrate newly visually-impaired people with sensory memorization as to where an item, like a cup, is placed on a table. While this writing was directed towards the organization of a blind person’s dining space, this was an important consideration for how the experience of eating at home drastically differs from eating at a restaurant (Alvarez, 2012). Of my own experiences as a visually-impaired person, locating items on a table creates a variety of personal challenges too. For example, when a waiter refills a beverage glass and then places it back onto the table where it is in a different place than where I originally placed it – this would create a problem. Now that the glass is not placed in its familiar place, I have the challenge of locating it on the table; in which often times leads to the spilling of the contents. Thus, not knowing where something is (on the table) often means having to ask for it, which makes the sight impaired individual feel less independent (Alvarez, 2012).

When I asked AL about how often she dined out, she said “every afternoon.” The purpose for this was because she and KL together would pick up their great grandkids from elementary school in the afternoons and then take public transit back to their house. In a way, AL and KL would be a part of their great-grand children’s upbringing, and at

the same time giving them some exposure for what it's like to live with visually-impaired family members. This led me to question how far their great grandchildren's school was from their home and of how long it took to get home. AL explained to me that their school was quite a trek because they would have to take three buses, then climb a hill to get to the school that overlooked the bay. AL continued to explain:

Going to and from my great grand children's school takes us about two hours. We either frequent a local Hong Kong style snack shop that serves hot milk tea and Cantonese finger food, or a frozen yogurt shop. We tend to frequent establishments where the owners are familiar with my family's presence.

When I began interviewing KL, I realized that it was difficult to converse with him because he was very strategic when choosing his words and always spoke slowly. I realized that KL was a really reserved – a quiet man who spoke with very matter of fact type details. I asked him what it was like growing up and living with a visually impaired person in the house (AL), he paused for a very long time to figure out what he wanted to say while also sipping on a cup of hot tea. It seemed as though KL's experiences weren't as fond as his sister's. KL remarked:

I really abhorred shopping with my parents and sisters at the grocery store because they seemed to try and bargain for every little non-edible product. I'm the type to go in, do my business and split. The less I had to interact with sales people, the better. On top of that, my father and I always had to carry the groceries or bags for the womenfolk. They were always so loud wherever they

went and for some reason, they'd always attract some unwanted attention from men.

Before becoming visually-impaired, KL mentioned that he habitually frequented a Tim Horton's to consume a mocha with an extra squirt of chocolate syrup every morning on his way to work, and picked up honey milk tea with boba¹³ on his way home from work. Little did he know that he developed Diabetic Retinopathy forty years later from the consumption of these overloaded sugary beverages every day. KL recalled:

Seven months after my seventieth birthday, I woke up one morning not being able to see clearly and I was only able to perceive light. It was very hazy as if I was staring into a foggy mirror after a hot shower. I thought this was all a dream but became very frightened when I could not find my glasses case that always rested on my night stand. I was confronted with a hard realization when my doctor told me that I developed this diabetic eye disease from my daily habitual sugar beverage consumption.

KL's adjustment to blindness was not easy and it took him three years to fully adjust to this new lifestyle. Through Canada's universal health care system, KL received a canine assistant because he did not feel confident enough to perform activities on his own, unlike his older sister AL.

I asked KL about how his grocery shopping and food preparation experienced differed between when he was sighted and in the present. KL responded saying that he

¹³ Bubble tea, pearl milk tea, or tapioca pearls is a Taiwanese tea-based drink that is often blended with either a milk or fruit, to which soft and chewy tapioca-shaped pearls are added to it. (Chang D. , 2017)

thought he could do anything when he was sighted and took sight for granted.

Throughout our interview, he boasted, “my Steamed Pork with Salted Duck Eggs dish is made just like how the Cantonese villages made it back in the day and I was the best one in my family who made it like the old days.” When asked about whether he could still cook this “Steamed Pork with Salted Duck Eggs” dish, he said he could not because he was no longer confident in using a cleaver and cooking over an open flame. He explained that grocery services, such as Amazon Fresh, did not deliver fresh Asian groceries either.

KL explained:

“When I was sighted, I went to a Chinese grocery store once or twice a week after work to pick up necessary ingredients. My wife and I would separate our duties for grocery shopping. She would go to Cash & Carry¹⁴ or a Chinese market to pick up fresh meats and Asian dry goods while I would visit Kin’s Produce¹⁵ to purchase fresh seasonal fruits and vegetables. Although my wife passed last year, I am also not motivated to cook food like I used to.”

In the present, KL said that if it weren’t for mobile phone technology, he would not know what to do:

Going to the store has definitely become an obstacle course for my dog and I.

Instead of going the store and toppling over displays, I feel more comfortable

ordering food through an online app called HelloFresh¹⁶. They usually deliver

¹⁴ Cash & Carry is a grocery store geared towards foodservice professionals and is also owned by Smart & Final; a chain warehouse-style food and supply store

¹⁵ Kin’s Produce is also known as Kin’s Farm Market. They are a Canadian-owned specialty produce retailer that comprises corporate and franchise stores that are located only in British Columbia.

¹⁶ Hello Fresh is an app where users may order pre-made meals that are delivered to the doorstep on the same day it is ordered. Meals are pre-measured prior to delivery, then the user may assemble their food from

what I need by 5pm once a week. Deliveries from Hello Fresh are quite reliable and they are always punctual too.

KL explained that ordering his food through HelloFresh has made his life easier considering meals were delivered pre-assembled and all he had to do was to follow the braille instructions that were printed on the package. It was interesting that KL relied more on his pre-made meals in his current state than to venture out to the store with his guide dog. He explained that when he cooked his packaged meals at home, the only assisted kitchen tools he used were a talking timer, an oven rack push puller, a talking scale and a tactile microwave. For KL's daily tasks, he used Apple's Siri function for everything: meaning he verbally programmed his thoughts into memo reminders, calendar dates, and karaoke fun.

The culmination of these experiences identified some challenging cooking obstacles for these Vancouver natives. Such obstacles were having the accessibility to Asian ingredients for food preparation, the fear of using an open flame and sharp knives, and were confined to only making food from braille labeled pre-made meals. Both participants pinpointed that having adaptive mobile devices for the convenience of online grocery shopping and life organization have made their life easier. As the use of mobile adaptive technology continues to improve, the use of braille and tactile languages gradually moves toward obsolescence.

the comfort of their home. The meals can also be customized for each individual's dietary needs as well.

Austin, TX

Food Network's Duff Goldman praised Salt Lick BBQ for having the best barbeque in all of Texas stating, "The Salt Lick BBQ has it all, including pork ribs and sausage. The giant pit in the middle of the restaurant is what makes them special – it's also what makes the best beef ribs Bobby Flay has ever had. As for me, I couldn't get enough of the tender brisket and its crispy caramelized bark." Austin serves up a bevy of craft libations, local cuisine, and of course barbeque that will both tantalize and satiate you before you leave this iconic city. Amidst this popular food destination city resides retired Army Maj. DB and his wife RH, who have immersed themselves into Austin's foodie scene and do not have to cook a day in their life. DB and his wife RH have become quite popular amongst the food community because they earned the Yelp Elite status in Austin in a short amount of time for their thoroughly scathing reviews.

Unlike the other participants, DB does not have an ocular disease, but became visually-impaired during his deployment to Iraq in December of 2010 when the IAV¹⁷ he was riding in exploded after it was hit by RPG¹⁸ fire. DB explained that majority of his PTSD¹⁹ and ocular pain stems from this life-changing experience.

DB grew up in Oakland, CA, graduated from University of San Francisco in English, then attended University of California San Francisco for medical school before commissioning as a Captain in the United States Army.

¹⁷ Interim Armored Vehicle; armored infantry carrier vehicle equipped with an M2 machine gun and Mk19 grenade launcher.

¹⁸ Rocket Propelled Grenade.

¹⁹ Post-Traumatic Stress Disorder (PTSD) is a mental health condition that's triggered by a terrifying event — either experiencing it or witnessing it. Symptoms include flashbacks, nightmares and severe anxiety from a traumatic life experience.

He said,

Serving in the Army gave me a chance to travel the world, to medically treat those in need, and experience foreign cultures. I couldn't ask for a better career because I've always wanted to serve my country for the opportunities and freedoms they have given me.

The two of them met during a cultural festival hosted on base. Neither of them knew that DB was an officer and RH was an enlisted service woman. Dating between officers and enlisted are looked down upon especially since females are always encouraged to run to SHARP²⁰ authorities if they felt like they were being harassed or were forced to perform a sexual act with another soldier. DB kept his work professional and his private life away from the public eye until his wedding. He explained,

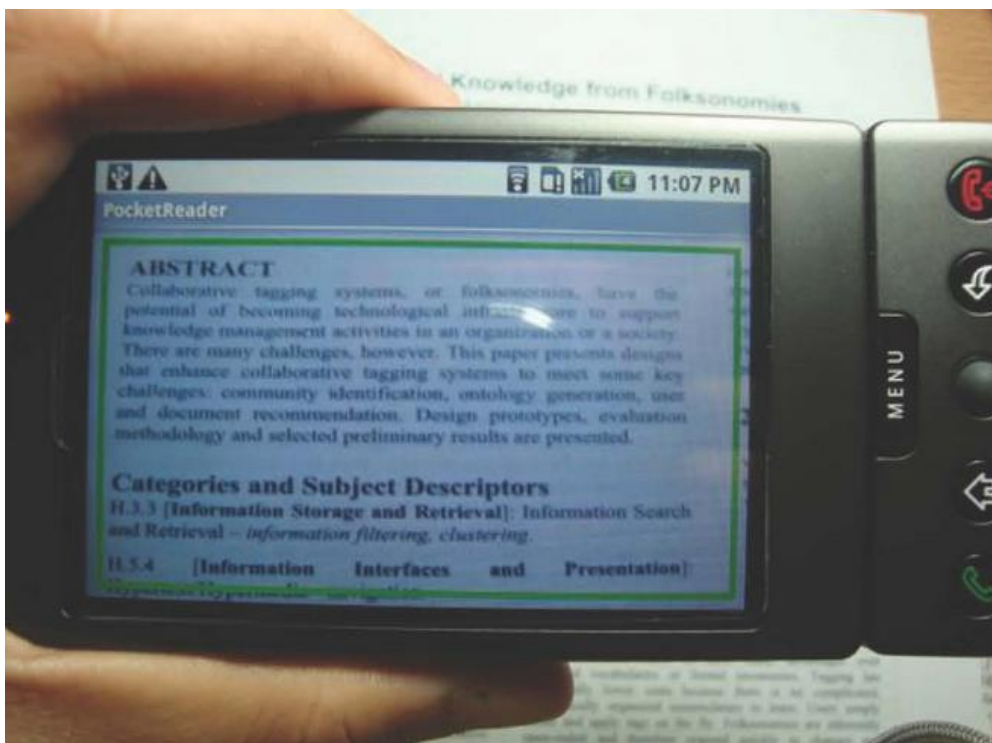
I was living life to the fullest with a beautiful family who thirsted for adventure everywhere we were sent until I was deployed to the Middle East. On my first tour to Iraq, I was stationed at JSB²¹ and oversaw the distribution of supplies for our men and women who were out in the field. It wasn't until my second tour in Iraq when my life would be changed forever. My unit and I were on our way to a Forward Base that was close to an insurgent hot zone when we were ambushed by RPG²² fire from just beyond the horizon. The next thing I knew, I woke up

²⁰ Sexual Harassment Assault Response & Prevention (S.H.A.R.P.)

²¹ Joint Base Balad. This base of operations was the U.S. Army's largest base in the Middle East.

²² Rocket Propelled Grenade (R.P.G.) is a shoulder-fired anti-vehicle weapon system that fires rockets equipped with an explosive warhead (Military Factory, 2003)

screaming in pain from something hot that seemed to be burning on my face,
along with familiar voices telling others that I was still alive.



RH explained that DB's adjustment to the visually-impaired lifestyle challenged both the family's physical and mental limits. Since DB could no longer be the man of the house, RH had to step up to be the family bread winner. This change forced RH to work

around the clock in both caring for her husband and the kids, while also working overtime at her full-time job over the weekend. She said,

Caring for my husband, kids, and myself really put me over the edge during the first three years. DB would live in a care home because my family and I had to get our house modified so that DB would not have a difficult time when he transitioned to move back home. We took the necessary precautions in making our home adaptable. We installed handrails in the hallway, upgraded each room with a sound activated clapper that turned our lights on and off, and replaced our electric stove with an induction stovetop. I knew how much my husband loved to cook, except I took new precautions now that he had to feel his way around. Although the kids were still young, they understood that this abrupt lifestyle change meant that they had to step up in assisting dad with sighted tasks, like taking out the trash.

Through services from the Department of Veteran's Affairs in Austin, DB learned to use a guide cane, read braille, and learn to adapt to living as a visually-impaired person. He received devices for daily use from the local Lighthouse for the Blind chapter. DB was issued a talking scale with a large illuminated screen, a magnetic braille labeler, and an OCR²³ device for printed text reading purposes, such as the reading of a restaurant menu or printed newspaper.

Optical Character Recognition (OCR) is a software system that is programmed into a device with a camera (like an Apple iPad or a Kindle Fire) or into a smart phone,

²³ Optical Character Recognition (Figure 5)

such as an Apple iPhone. A visually-impaired individual may take a photo through their device, where the image can be enlarged and a description can be dictated to the person through the device's audio functions. Through the use of an OCR, literature previously inaccessible for the vision impaired has now become accessible. In conjunction with the acquisition of culinary recipes and related gastronomic literature, this is a major step forward for the vision impaired community. Although braille index cards are still used for food recipes, this method of recording and cataloguing of recipes for the vision impaired are beginning to become obsolete in metropolitan areas.

Without the OCR device or braille cards, there is the possibility that the visually-impaired person will be very lost at the grocery store or even in the kitchen”
(Willings, 2016).

The OCR software has proven to be very useful for the visually-impaired community, and in this case DB because when he dines out at restaurants, he uses this software for the purpose of menu reading, unless a restaurant has a braille menu available (which is rare). I asked DB to describe a typical restaurant start to finish experience when he and RH dined out together.

Instantaneously he said,

Bi-weekly RH and I frequent the Salty Sow restaurant for dinner. Salty Sow is known in Austin for cooking almost all their meat cuts in pork lard or duck lard. The restaurant's always busy, so it's extremely difficult for me to navigate on my own through the minefield maze of small bar tables to a regular seated table. My wife usually has me hold onto her right shoulder with my right arm because we've

found through trial and error, that walking side by side never works there or any popular restaurant. We've discovered that this gives her the confidence of leading me from the front to and from our table or to the washroom. Since we're considered 'regulars' at Salty Sow, the restaurant has gone through the effort to create a large font menu for me since I was always using my OCR to listen to the menu every time I came. It became a cumbersome to always pull out my earbuds to listen to the menu since its always very noisy there. When it came to ordering food, we're a bit health conscientious and tend to stick to ordering small nibble plates (warm marinated olives tossed in olive oil) that we can share, two salads for each of us, and of course a few glasses of ice water. We used to order the large entrees because they were hearty and filling, but suddenly we became obese in a very short amount of time. Therefore, we decided together if we're going to order an entrée, we were going to share it instead of ordering two and also skip on ordering any appetizers like we did in the past. We also aren't big into desserts when we dine out, so that always saved us some money for other things.

DB also mentioned that without his wife, he wouldn't be able to get around as well. Ride share services, such as Uber and Lyft are almost non-existent in various parts of the city. When asked about grocery shopping, DB said they would never frequent the snack or canned food aisle. DB said,

Since the kids are off to college, we purchase food that can be cooked or blended easily. We always purchase a week's worth of fresh produce, packaged ready-to-go salads, and fresh cold-pressed juices. Seldom do we go to the snack or canned food aisles because we've noticed that we put on weight faster if we consumed a

can of soup. Those buggers are loaded with ingredients I've never heard of along with an unhealthy amount of sodium that can sink a cruise ship. If we're going to snack on something, we'd rather have fresh celery with a spread of almond or cashew butter since we enjoy crisp vegetables with a healthy dose of brain food.” The reason why DB and RH made these decisions is because neither of them really cooked at home much since they frequently dined out.

Because DB and RH ate out so often and only consumed simple blended foods at home, this led me to follow-up with a question about what types of kitchen tools DB used when he was home. Through this loss of vision, he did not trust himself with a knife to cut his own fruit and vegetables, stating,

I only really trust myself with a pair of blunt-tipped kitchen shears, an as-seen-on-television Slap Chop²⁴, and a braille labeled blender for the making of simple shakes and smoothies.

During our conversation about adaptive tools and nutrition, I asked DB how he acquired his healthy intake of proteins and vitamins since he ate out so often. It was not surprising that he shopped on the internet for vitamin pills, though it caught me off guard that he said he purchased protein powder supplements. Although many protein powders are not FDA approved, he told me that he “didn't care about the legalities of what is or isn't approved as long as the shakes helped him maintain a consistent healthy weight.” At the same time, he said:

²⁴ Slap Chop is a hand-held chopping device with internal blades; to operate it, the user places it over a food item and slaps down the button on the top (Shlomi, 2008). This easy to use gadget was invented by Vince Shlomi.

I know my body better than anyone and of how it reacts to the foods and supplements that I put into me. Honestly, protein supplement canisters tend to come with a measuring scooper that makes it easy for me to make a level scoop before adding it to the blender. One level scoop of protein blended with an 8 oz glass of green juice or milk gives me enough nutrition for a day; that's 30g of protein!

Since DB mentioned that he also shopped online for his supplements, I asked him what websites he frequented most often. He grocery shopped and procured his supplements from Amazon. He said,

I used to go to the store to get what I needed, though these days – the convenience of the internet has made life comfortable. It's better that I navigate the virtual pages of Amazon through my voice to text JAWS software than to crash into product displays at grocery stores. I enjoy how Amazon has taken the initiative to include the physically challenged community in its efforts to market their service to all.

JAWS is a computer screen reader program for Microsoft Windows that allows vision-impaired users to read the screen either with a text-to-speech output or by a refreshable tactile Braille display. JAWS audibly reads text and describes imagery to the vision-impaired user using a computerized speech synthesizer where the voice can be customized according to the user's personal preferences. While JAWS is based upon the new approach toward talking computers, able-bodied users were not forgotten either as this program also has audio and visual flexibility functions too (Inc., 2014).

It is completely understandable that DB utilizes his smart phone for just about everything to assist him in his daily tasks, he uses few adaptive tools to help him with basic food preparation duties. While he relies on eating simple foods that can be easily consumed out of a package or that is easily blended, it is certain that neither he nor his wife really cook at all.

Chapter 5: Conclusion

The goals of this project were:

- To understand the food experiences of the visually-impaired from their perspective
- To detect participants' of unmet needs
- To identify the technology and adaptive tools available that affect these experiences

This study explored the food experiences of the visually-impaired individuals and their families. In relation to the literature I came across for this project, there is a need for first-hand research on the visually-impaired communities and enclaves that thrive in non-metropolitan areas of the United States. Additionally, it is important for those interested in cultural foodways to be aware of these kinds of cooking methods and eating patterns that various groups engage in because this is a group that has not yet been studied.

The experiences and behavioral patterns collected from the participants were analyzed to reveal of similarities and differences. Participants identified numerous obstacles and inconveniences they encountered at grocery stores, restaurants, and in their own home kitchens. Lack of participants' knowledge of available varieties of products hindered their shopping decisions. This resulted in a tendency to only purchase products they were familiar with on a long-term basis, such as Campbell's soups.

Locating items safely and efficiently in the grocery store and restaurant settings were another major issue commonly cited by participants, including the lack of grocery store staff trained in navigational assistance. Participants also shared the experience of discomfort while cooking because of the challenging obstacles involved, unless the foods being prepared did not require the use of a knife or specific measurements of ingredients. UW was the only participant not fearful of sharp, bladed tools in the kitchen, yet she disliked the measuring of ingredients for baking purposes. In total, all of the participants shared that they enjoyed eating out and consuming food more than cooking at home.

Compared to the sighted general public, this trend appeared to result in a higher than average use of restaurants. A majority of restaurants did not provide auditory menus or braille printed menus for the visually-impaired to utilize.

The data produced by this study contributes substantially to the fields of food studies and disability studies. There will always be a need for research to be performed on how we, as an able-bodied society, can improve and assist the visually-impaired community. One positive possibility highlighted by this study is the need to have basic culinary courses included as part of the curriculum at visually-impaired schools in the United States.

In addition, this study reveals the need for advocacy to make adaptive technologies more readily available for the visually-impaired individuals. These technologies can contribute to the integration of visually impaired people into social life and a broader society, and thereby increase their quality of life.

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