Social and Cultural Drivers of Meat Consumption

among Mexican-American Millennials

in Tempe, AZ

by

Deborah Namugayi

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Graduate Supervisory Committee:

Kelli L.Larson, Chair
Sonja Klinsky
Erin Redman

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ABSTRACT

The rise of meat consumption in the United States has been dramatic over the past half century due to demographic changes. The increase in meat is visible in Mexico as well due to expanding economic interest in cattle production plus increased population and rising incomes. The worst consequences of our modern food system are in factory farming of animals, which requires a greater amount of resources than for producing grains, fruits, and vegetables. The specific effects of meat consumption highlight the importance of understanding humans as actors in the food system. In order to explore the drivers of consumer food and meat choice, my research answered the two questions: What factors influence meat consumption? and How do cultural and social norms influence decisions to consume certain types and amounts of meat?

Qualitative interviews were conducted with Mexican-American respondents between age 20 and 29 as the population of interest because of their regional dominance in the study area of Tempe, AZ and because of the high prevalence of meat in their cultural diets. Looking at millennials in particular is crucial because as the first generation born with technology and Internet as constants, they have formed unique characteristics like openness to change and new perspectives. My sample population communicated motivations and constraints to their overall consumption patterns and the frequency and types of meat consumed.

This study found that cost and convenience were the driving factors behind food choice, given the hectic schedules of the sample population, who

were mostly students at Arizona State University. Culture played an important role in respondents' heavy meat consumption given their exposure to meat's centrality in traditional Mexican meals. Acculturation did not play an extensive role because prominent Mexican culture in the Southwest U.S. allowed respondents' families access to traditional food while living in the US. The lack of sustainability knowledge and its connection to food choice indicates the importance of marketing that contextualizes decreased meat consumption. Rather than focusing solely on environmental outcomes, marketing tools highlighting health, financial, and economic benefits of eating less meat would encourage more consumers to decrease consumption.

DEDICATION

The constant support and encouragement from my mother, Elizabeth Acul, has been an immeasurable force of motivation as I worked to complete my thesis and master's degree. From 2,000 miles away she has guided me through every moment of doubt and stress from unexpected personal and academic setbacks. Mummy, this is for you: *eyalama noi noi, Toto*.

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TABLE OF CONTENTS

LIST OF TABLES

Table Page

LIST OF FIGURES

Figure Page

Chapter 1
INTRODUCTION

Background.

"Beef. It's what's for dinner." (National Livestock and Meat Board, 1992)

"Eat mor chikin." (Chick-fil-A, 1995)

"Pork. The other white meat." (National Pork Board, 1987)

These are all recognizable slogans that have not only helped the meat industry grow, but also enter millions of households as a way to promote the typical diet in the United States. The rise of meat consumption has been dramatic over the past half century. In the United States alone, annual meat consumption reached 270.7 pounds per person in 2007, nearly double the 138.2 pounds per person figure from the 1950s (Barclay, 2012; USDA, 2000). On a global scale, meat consumption has risen across the board. The United States ranks second only to Luxemburg in total meat consumption (Barclay, 2012).

Many factors contributed to the rise in meat consumption. From an economic standpoint, the relative price of meat has decreased while the amount of disposable income per household has increased, allowing a larger population the ability to purchase meat. Additionally, social changes include increased markets for out-of-home food purchases, increased advertising (much like the above slogans), and new, convenient, value-added products to the market. Demographic changes leading the shift in food choice over the past 50 years include the rise in two-earner households or single parent households, smaller household size, a taller population, and most relevant to this study, the increase in ethnic diversity within the United States (USDA, n.d.). The supply of beef is

also at record highs, due to new production methods such as higher use of antibiotics that increase the amount of meat a cow can produce (Barclay, 2012; Tavernise, 2014).

The increase in meat is visible in Mexico as well, where there is an expanding economic interest in cattle production. More than half of Mexico's 196 million hectares of land are designated to livestock production, with cattle consuming the majority of available forage resources on that land (Peel, Mathews & Johnson, 2011). The United States relies on a portion of the nearly 23 million heads of cattle in Mexico as an import to its markets. Rising demand for meat in Mexico can also be attributed to increased population and economic growth. The increase in global market demand and trade has resulted in higher quantities and qualities of meat, both domestically and internationally (Peel, Mathews & Johnson, 2011).

In 2009, per capita consumption of meats and poultry in Mexico consisted of 39 pounds of beef, 35 pounds of pork, and 65 pounds of broiler meat (Peel, Mathews & Johnson, 2011). However, Mexican's meat consumption has risen 10 percent in all meat categories in the decade from 2000 through 2009. The rise in meat consumption in the U.S. and Mexico, along with the expanding global meat production markets, adds to resource extraction and continued adverse effects of modern agriculture on the environment.

The rise in meat consumption has adverse effects on the environment due to the intensive amount of resources required to house and feed livestock, as well as to prepare final products for retail outlets. The roughly two billion people

consuming a predominantly meat-based diet amplify such effects (Pimentel & Pimentel, 2003). Agricultural production patterns heavily depend on resource intensive practices that degrade land, water, and biodiversity (Barclay, 2014; Pimentel & Pimentel, 2003). Agriculture takes up 30 percent of global land while half of fresh water supplies have been appropriated for human use, much of it to agriculture (Barclay, 2014; Reijnders & Soret, 2003). Within the United States, agriculture takes up half of all land area, 80 percent of fresh water, and 17 percent of total fossil fuel used (Pimentel & Pimentel, 2003).

Compared to a mostly plant-based diet, a meat-based diet requires greater energy usage and extraction of fossil fuels (Reijnders & Soret, 2003). Pimentel & Pimentel (2003) found that of all animal protein studied, the average fossil fuel energy input is 25 kilocalories for 1 kilocalorie of animal protein, with lamb requiring the highest ratio of 57:1, beef a ratio of 40:1 and chicken requiring the least at 4:1. The expansion of agriculture, particularly increased meat production, is unsustainable because such activities also contribute to increased greenhouse gas emissions and global climate change (Weber, 2008). Research has shown a direct link between food choice, agricultural production, and the level of environmental degradation (Reijnders & Soret, 2003).

With a rising population that is estimated to reach 9 billion by the middle of the twenty-first century, the world will face a rising food security dilemma as we put further stress on global resources (Tilman, Cassman, Matson, Naylor, & Polasky, 2002; Gossard & York, 2003). With meat being the most resource intensive food option, it is crucial that we turn our attention to both its production

and consumption in order to pave an alternate path towards feeding an expanding population. Given the rise in meat consumption and its unfavorable outcomes for the environment and society, research is needed that examines the underlying contributions to food choices generally and meat consumption specifically.

Research aim.

Research has shown that certain types of behaviors are more malleable than others. Sustainable food choices are harder to change compared to waste management practices, for example, at least partly because of the underlying cultural norms that constrain food choice decisions (Redman, 2013). Yet there is a gap in knowledge about food choices, because little research has examined the specific ways in which social and cultural norms affect meat consumption in particular. Social, physical, and economic surroundings play an important role in food choice as consumers make decisions based on factors such as family dynamics, social gatherings, or budgetary and time constraints (Larson, 2009). This thesis will contribute to existing knowledge by uncovering which factors affect food choice. It will look at consumption behaviors in diverse contexts in order to recommend effective strategies to promoting sustainable food options. The focus on meat will allow me to gather new information on consumption behaviors with the goal of finding new methods to advocate for eating less meat.

In the interview process with Mexican-American millennials, I intend is to discover how this specific dual identity impacts decisions. My research goal is to

find broad patterns among respondents while also gaining an understanding of individual choices. I hope that emerging patterns will highlight any dominant cultural drivers within this Mexican-American sample population. This specific demographic was chosen because it is a regionally dominant and influential immigrant group in the Southwestern United States.

Given the recent shift towards increased meat consumption in Mexico, this research will allow me to see how meat choices are made within this growing demographic sector. Next, this research will also look at equally important social drivers related to unique age group of those born after 1980—designated as millennials and marked by a generation of widespread use and proficiency with instant communication, media, and digital technologies (Pew, 2010). Looking at Mexican-Americans within the millennial cohort allows me to assess how increased exposure to other perspectives through media has changed their habits compared to previous generations that more closely follow traditional Mexican food patterns.

Among millennials, the reliance on electronic communication tools often leads to varied perspectives when compared to other age groups (Mashables, 2014). Millenials are more likely to be open to change and are more self-expressive than older generations given their use of social media and Internet outlets to connect with those around them (Taylor & Keeter, 2010). This age group is also known for their considerably influential purchasing power and exposure to sustainability issues (Vermeir & Verbeke, 2008). This is because millennials are in a transitional period as early adults and their young age makes

them more likely to change behaviors based on such exposure. Given their unique characteristics, this research will achieve new foresight in sustainable behavioral change amongst a critical age group.

A personal connection.

This research stems from a nearly decade-long experience I had balancing my own culture with my interest in health, nutrition, and environmental stewardship. In that time I spent over six years as a vegetarian and an additional three years as a vegan. My Ugandan family supported my decisions, though we are part of a culture that valued meat and defined it as almost a necessity. But the influence of my own social surroundings, especially studying environmental science and policy as an undergraduate, outweighed my cultural norms. As my final months as a vegan came to be, I found a new set of constraints and enabling factors directing me towards a more inclusive diet. The lack of proximity to grocery stores in the sprawling Phoenix valley, my new home during graduate school, and the lack of time and convenience in preparing vegan food led me to change my own food choices.

While sustainability, culture, and individual choice all have normative elements, culture and choice can be descriptive and socially relative, making the issue of behavioral change problematic due to varied cultural and individual perspectives. We need to fully understand how the food system works and how consumers make decisions (i.e., what motivations and constraints affect consumption patterns). Who is defining the normative “right and wrong” when

culture and social norms plays such a large part in individual choice? Individual definitions of what is good and bad in the world can change based on circumstance and lived experience, making the practice of a normative field difficult.

I want to see how others have shaped their meat consumption out of internal perspectives and external influences, because I have had the personal experience of suddenly changing my lifestyle and beliefs. Since meat production has many implications on sustainability, understanding choice might help practitioners in the sustainability field find ways to create needed change in the food system.

Research objective and questions.

The objective of this research is to better understand the underlying drivers of meat consumption. In order to meet this objective, I plan to explore the following question: What factors influence meat consumption? The answers will lead to a better understanding of whether respondents choose or avoid meat because of social, health, economic, moral, or other reasons. Given historical trends in increased meat consumption over the past 50 years, this research will enhance and confirm the recent patterns while possibly showing new patterns based on changing social perspectives on meat due to immigration to the U.S. This research will discover what overall trends or patterns emerge in food choices among Mexican-Americans, and by extension, what strategies might be best for fostering more sustainable food consumption.

With focus on cultural norms as a key driver of food choices, I plan to interview Mexican-Americans to discover motivations and constraints to eating meat. Mexican-Americans were defined broadly as people of Mexican descent living in the United States. Interviewing this group will reveal answers to the question: How do cultural and social norms influence decisions to consume certain types and amounts of meat, and how do the motivations and constraints differ within a dominant ethnic group in the U.S.? This research focuses not just on cultural and social norms broadly, but also on the extent to which acculturation is evident through the responses of those who have lived here for relatively long periods of time compared to those who recently moved to the U.S.

Answering the research questions will be accomplished through qualitative one-on-one semi-structured interviews. This method allows respondents to give their unique perspectives and experiences, allowing greater analysis of food choices as a key aspect of sustainable consumption. The interview protocol (Appendix C) included both open-ended and some detail specific closed-end questions. Unlike surveying, the qualitative interview method allows in-depth analysis of open-ended questions and descriptive responses to questions concerning an individual's lived experience.

To answer the research questions, qualitative analysis allowed for an understanding of overarching patterns in meat choice and how these decisions are attributed to social or cultural norms. Qualitative methods also reveal nuanced characteristics of meat consumption, such as the quantity of meat consumed per meal for different types of meat, rather than just the frequency of

meat consumption. Looking at consumption qualitatively allows the research to focus on how meat choice is situational to social and cultural settings.

In this introductory chapter, I have introduced readers to the sustainability context of meat consumption. I have quantified the level of meat consumption in the United States and Mexico, the relevant nations in this study. I also touched upon my personal connection to this study given my own experience as a consumer and a millennial looking for an alternative path towards more sustainable food choices. In subsequent chapters I detail the social theories surrounding food choice through a review of related literature. I will also discuss the frameworks for examining culture and social norms. Next, I will discuss my chosen analytical approaches in a detailed methods chapter. In order to relate my findings to previous research and to address the gaps in knowledge on the subject, I will include a chapter on my findings. The final chapter, the discussion and conclusion, will further analyze the significance of my finds and address further steps in consequent research and actions that can be taken given the knowledge produced through this work.

Chapter 2
LITERATURE REVIEW

Food choices are derived from a diverse set of drivers, and the specific effects of meat consumption highlight the importance of understanding humans as actors in the food system. Putting a lens on meat consumption in the sustainability context addresses the intense impact its production has on our environment, creating a need to closely examine the factors that influence food choice. In order to accomplish this task, a review of relevant literature is presented in this chapter.

First, to address the sustainability dimensions of food choice, the literature review discusses the devastating ecological effects of the conventional agriculture system, specifically the meat industry within that system. Next, the discussion moves to the drivers that influence overall food choice and the factors that have specifically led to increased meat consumption. Finally, this literature review summarizes the key findings on food choice from notable authors, demonstrating the wide range of dynamics involved in consumer behavior.

Food system sustainability and meat.

Modern agriculture is comprised of a food system of many actors resulting in widespread environmental impacts. The food system is complex in that it involves a range of actors—farmers, processors, advertisers, and consumers—that comprise a large part of our economy (Sundkvist, Milestad, & Jansson, 2005). While modern agriculture is an invention sustaining seven billion people,

its growth is largely due to unsustainable practices (Taylor, 2012; Tilman, Cassman, Matson, Naylor, & Polasky, 2002). The increase in the use of chemicals including pesticides, herbicide, and antibiotics has resulted in environmental degradation including polluted streams due to nutrient and waste runoff, pests and disease outbreaks when organisms become pesticide and antibiotic resistant, and continued concerns about the effects of conventional agriculture practices on human health (Tilman et al., 2002; Tavernise, 2014). These impacts all stem from the conversion of land from its natural ecosystem to agricultural use, ultimately decreasing the number of ecosystem services provided by the land's original ecological characteristics (Phalan, Onial, Balmford, & Green, 2011; Tilman et al., 2002).

The worst consequences of our modern food system are most evident in factory farming animals for consumption. The current production methods for raising animals for their meat requires a greater amount of resources than for producing grains, fruits, and vegetables. It takes three to ten kilograms of grain to produce one kilogram of meat, yet meat production is on an upward trend (Tilman et al., 2002). Meat consumption is no longer a marker of high socioeconomic status but is now a normalized part of Western culture. Due to agricultural policies that result in government subsidies on grain used for animal feed, meat is more affordable than it was in the past. In the United States alone, the increase in meat production mainly through factory farming (roughly 80%) has resulted in a tremendous rise in environmental degradation directly associated with climate change, as highlighted by Figure 1 (Taylor, 2012; Phalan

et al, 2011).

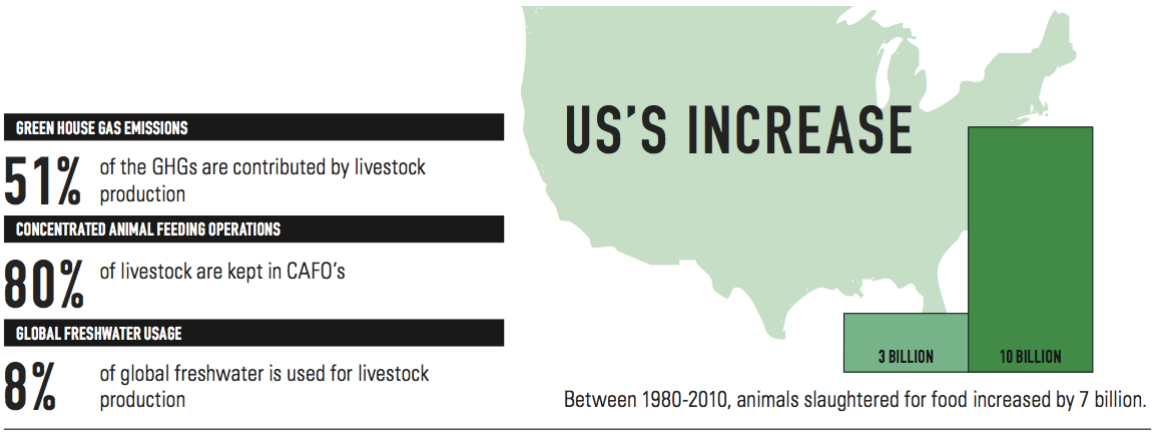

Figure 1. Environmental effects from increased livestock production. (Taylor, 2012)

While demand is increasing due to behavioral norms that favor high meat consumption, the global population is on the rise, meaning that we will need to sustainably feed a larger population in the future. The global population is estimated to reach 9 billion people by 2050, but every consumer on Earth cannot move towards the typical western diet—laden with high amounts of meat consumption—in a sustainable agricultural system (Chappell & LaValle, 2009). This is where behavioral change plays a critical role in altering perspectives on meat. Such changes can only occur by first understanding how initial choices are made.

Drivers of food choice broadly.

Food choice is often influenced by a multitude of environmental factors associated with people's surroundings. An individual's consumption patterns are

subject to social environments, such as family or peer networks, and by physical settings, such as proximity to different types of food and restaurants (Larson, 2009). One example is the frequency of sitting down to family mealtime during adolescence. Behaviors surrounding food choice are often established at this time in life because learned patterns from teenage years often influence long-term patterns in adulthood (Neumark-Sztainer, Story, Perry & Casey, 1999). Research found that 18 to 24 year olds who ate regular family meals growing up consumed more fruits, vegetables, and crucial nutrients, while also consuming less soda, compared to young adults who did not sit down to dinner with their household as frequently. This age group plays a key role in my research because they are often transitioning away from home and forming individual consumption habits that either mimic or deviate from behaviors during a childhood at home.

Family settings also lead to a set of cultural norms that are critical in molding perceptions of food and health based on shared beliefs (Neumark-Sztainer et al.,1999; Larson, 2009). Familial gatherings dictate early patterns of food consumption, along with their purposes, like in times of celebration and holidays when specific foods are eaten (Larson, 2009). In Mexico, for example, meat is the main component of an *asada*, or barbeque, when families gather to celebrate or simply spend time together. Specific foods like *tamales* and *pozole* are common during Christmas time and on Independence Day. Traditional food patterns are a significant part of Mexican-American food preferences, which can vary from standard American diets or those of other ethnic groups (Carrera, Goa, & Tucker, 2007).

While Carrera et al. (2007) found a traditional Mexican diet pattern among a sample of Mexican-American adults, they did not find a distinct “healthy pattern” with relatively high intakes of fruits, vegetables, and fiber like they did in other ethnic groups. Contrary to the researchers’ hypothesis, those with traditional Mexican diets had high BMI and waist circumferences, both of which are established indicators of obesity. Respondents that ate a traditional Mexican diet were also consuming the most calories of the other diet patterns in this study, likely due to sizeable amount of fat used to fry traditional Mexican dishes.

The physical environment in which an individual lives greatly impacts availability and access to certain types of foods. Food deserts, particularly in low-income neighborhoods, are caused by areas that have a lack of access to grocery stores with fresh produce (Chappell & LaValle, 2009). Thus, residents of ‘food desert’ neighborhoods are left with corner stores filled with junk food and cheap, widely available fast food as the most convenient and affordable options (Chappell & LaValle, 2009; Larson, 2009). Accessibility to a healthy food supply that is both in close proximity and inexpensive is a key concern in addressing food deserts in areas with food insecurity.

Beyond physical environments, a set of nontangible macroenvironments like institutions play a large role in individual food choice because they govern systems of social conventions (Larson, 2009). In a study by Larson (2009), people with a lower socioeconomic status were more likely to have diets with inadequate micronutrient intake. Lower income and education impacted overall health, resulting in higher instances of obesity, diet-related disease such as type

2 diabetes and cardiovascular disease, and poorer diets (Larson, 2009). A debate exists over structure of physical environments like food deserts versus agency of individuals in making food choices. Studies have found that lower income is a more dominant factor than lack of access in the likelihood of high obesity rates (Kolata, 2012; McGeeney & Mendes 2013).

Food marketing plays a large role in food choices as well, since sixty nine percent of marketing expenditures by food companies are used to promote nutrient-poor foods, especially towards younger populations. Only 3.4% of this corporate budget goes towards advertising fruits, vegetables, and dairy (Larson, 2009). Food policy is beyond consumer control and awareness, resulting in decisions that make some healthier options more expensive and unhealthy options, like sugars and fats, inexpensive.

Given the wide range of physical factors, marketing ploys, and larger institutions dictating food choices, it is no surprise that consumers have a limited range of knowledge about their food (Hoogland, de Boer, and Boersema, 2007). One study looking at consumer confidence in sustainable food purchases presented participants with packaged chicken, part-skim milk, and salmon labeled with: 1) an organic logo with additional information about the product's standards, 2) packaging with just an organic logo, or 3) a "control" label stating the food came from the world market (Hoogland et al., 2007). Consumers were more inclined to choose the packaging with additional information because they did not know that the organic logo alone already represented all the information listed. The products with the logo and additional details were rated as

environmentally friendlier and healthier. Still, because of skepticism and unfamiliarity with new products, their previously limited range of knowledge superseded the importance of the label and led them to purchase familiar brands instead. Because the current food system lacks transparency, consumers only had the option of relying on the narrow amount of information that exists about sustainable food options, keeping them from deviating away from familiar brands (Hoogland et al., 2007).

Drivers of meat consumption specifically.

Meat consumption in the U.S. has risen dramatically due to increased meat production from agricultural advancements and higher household incomes that allow more people to afford purchasing meat (USDA, n.d.; Tilman et al., 2002; Gossard & York, 2003). With these changes, the price of meat paid by consumers has decreased, allowing greater market accessibility (Tilman et al, 2002). Yet varying factors influence individual meat consumption and sustainable food choice as a whole. Table 2 summarizes the diversity of findings research has concluded from studying factors driving consumption.

Research has shown that a set of value priorities linked to promotion and prevention behaviors influence the decision to eat sustainable food, specifically less meat and free-range meat (de Boer, Boersema, and Aiking, 2009; de Boer, 2007) Higgins' Motivational Theory (Figure 2) helps explain these behaviors and their associated values. The theory posits that consumers aim to feel content in their meat choices by creating enjoyable experiences when eating specific types

of food. In pursuit of positive outcomes, promotion behaviors result in consumers seeking out nourishing or pleasant food for personal enjoyment, like the pleasure of eating meat at a large family barbeque (de Boer, Boersema, & Aiking, 2009, p. 851). The theory also describes prevention behaviors that prioritize the value of safety, which can manifest in the reassurance that eating less meat has both health and moral benefits. Conversely, others feel positively about the taste of eating meat yet negatively about the moral consequences. This dissonance leads people to seek information that justifies their behaviors, like articles about the health benefits of a high protein diet, while ignoring information the creates faults between their actions and knowledge about the negative consequences of meat consumption.

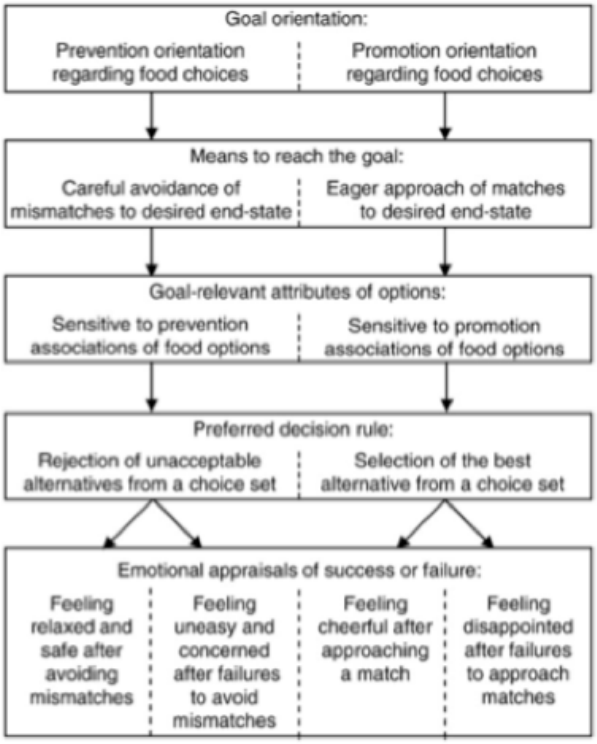

Figure 2. Higgins Motivation Theory applied to consumer choice. (Boer, Boersema, and Aiking, 2009)

Role of norms in meat consumption.

Norms are also important considerations for consumption choices. For the purpose of this study, cultural norms will include patterns and customs regarding food and meat choice set forth by Mexican culture and customs. Social norms will include the standards and expectations set forth by society, including the influence of friends, lifestyles, and U.S. customs more generally.

Broadly, social norms significantly influence internal decisions. Two types of social norms influence behavioral choices broadly. Descriptive norms describe and establish a standard that society must stick with while injunctive norms give individuals a perception of what is acceptable or desirable versus unacceptable or undesirable (Shultz, Nolan, Cialdini, Goldstein & Griskevicius, 2007; Larson & Brumand, 2014). When given together, these two norms have constructive potential to create changes that are socially desirable. But when consumers are given descriptive information alone, they may respond in a way that creates a "boomerang" counter to the intended goals. For example, if people made decisions that subscribe to the descriptive norm of high meat consumption alone, without an injunctive message, they may increase their consumption to meet the norm.

Surrounding social and cultural environments influence the establishment of such norms. Gossard and York (2003) analyzed the social structural factors of meat consumption. These included social characteristics (e.g., demographic factors), such as race or gender. They conceptualized that social structure was

linked to the psychology behind consumer choice because such characteristics and positions in society are involved in developing an individuals' social patterns, life experiences, and psychological traits (Gossard & York, 2003). They measured quantities of both all meat consumed (beef, poultry, pork, and seafood) and beef specifically as it is the most resource intensive meat to produce.

Research has also found that Hispanics eat greater amounts of beef than non-Hispanics (Gossard and York, 2003) and Mexican-American consume higher averages of beef (Guenther et al., 2005), which indicates that ethnicity or culture matter. Gossard and York note that their findings for race and ethnicity suggest that meat, which is more costly than other food products, might represent a measure of affluence for groups that have been historically marginalized in the United States. This further exemplifies the importance of context because, per capita, Mexicans eat less meat than Americans (see Table 1). In 2009, per capita consumption of meats and poultry in Mexico consisted of 39 pounds of beef, 35 pounds of pork, and 65 pounds of broiler meat (Peel, Mathews & Johnson, 2011). However, Mexican's meat consumption has risen 10 percent in all meat categories in the decade from 2000 through 2009.

Table 1.

2009 per capita meat consumption in the United States and Mexico (in pounds)

Type of Meat	**United States**	**Mexico**
Beef	89	39
Pork	64	35

Broiler Meat	94	65
Total	247	139

The role of culture.

Culture plays a large part in diet choice as well. Culture is a shared system of values, meanings, and beliefs that can be shaped by experience (Larson et al, 2011; Larson, 2009). This system results in specific cultural traditions, customs, and norms forming a unique ethnic identity (Shelhas, 2002). Enculturation, the accession of these specific identities, between generations teaches youth to prefer and perceive certain types of food as desirable or not, as well as also determining how and what food is prepared and when it is eaten (Larson, 2009). In contrast to enculturation, acculturation is defined as the extent of adoption of behavioral patterns to match those of a culture an individual is surrounded by (Larson, 2009; Carrera et al., 2007; Neuhouser, Thompson, Coronado, & Solomon, 2004). Acculturation results in some groups or individuals retaining traditional food choices or adopting preferences of the dominant culture.

Age and generational effects from dietary acculturation may result in young immigrants opting for foods that emulate American culture (i.e., compared to their parents; Larson, 2009). However, there is variation in how acculturation negatively or positively affects food choice, as the diets of some Mexicans worsen after acculturation while others get healthier following immigration (Carrera et al., 2007). Generational differences were seen with first-generation Latino adolescents, who have been found to consume greater amounts of fruits

and vegetable and lower amount of soda than their white counterparts (Larson, 2009). Specific research in Washington State found that highly acculturated adult Mexican immigrants ate fewer fruits and vegetables than less acculturated Mexican immigrants, but overall both groups ate more produce than non-Hispanic white residents (Neuhouser et al., 2004). This might indicate that the age of acculturation plays a significant factor because research has shown that as Latino generations born in the U.S. follow, the number of fruits and vegetables they eat decreases and the amount of soda increases until their diets are less healthy than white adolescents (Larson, 2009). This diverse set of environmental surroundings cause consumers to eat based on external pressures that formulate internal decision to eat healthy or unhealthy foods.

After interviewing United States respondents for 24-hour recall of their 2-day meat consumption patterns, one finding suggested that the cultural significance of meat is based on the social setting or context in which respondents are embedded. This was particularly seen with high meat consumption in Asian respondents who live in the U.S., even though traditionally the diets of Asian citizens are not as laden with meat (Gossard & York, 2003). In other words, by living in the United States, Asian Americans have a set of western norms that differ from their ancestral heritage, with even higher consumption compared to white respondents. Macroenvironments also influence meat consumption because people with higher education level often eat less beef and meat overall (Gossard & York, 2003; Guenther, Jensen, Batres-Marquez, & Chen, 2005). Highly educated Mexican-Americans eat healthier diets

than those with less education that eat more traditional diets typically containing more meat (Carrera et al., 2007).

Despite the importance of cultural and social norms on food choices, few studies have examined related dynamics in sustainable food consumption in detail. In particular, meat consumption choices in the U.S. have been largely neglected even though the American diet includes relative large amounts of beef and other types of meat (e.g., chicken and pork).

Table 2.

Findings of sustainable food choice

Author(s)	**Factors Studied**	**Participants**	**Findings**
de Boer, J. J. (2007)	Behavioral motivators of food choice and meat specifically	Representative sample of Dutch consumers via online survey	Promotion and prevention orientations lead to eating meat for enjoyment or less meat for precautionary reasons, respectively.
de Boer, J., Boersema, J. J., & Aiking, H. (2009)	Motivators of free range or less meat consumption	Representative sample of Dutch consumers via online survey	Based on Higgins Motivational Theory, participants followed chronic behavioral patterns to “feel right” by eating more (promotion) or less/free range meat (prevention)
Carrera, Goa, & Tucker (2007)	Dietary patterns in Mexican-Americans and their link to obesity	Mexican-American adults over age 18	Mexican-Americans ate in 4 main dietary patterns: (1) poultry and alcohol, (2) milk and baked products, (3) traditional Mexican, and (4) meat. There was no clear “healthy pattern” diet of relatively high amount of fruits and vegetables, unlike studies with other

			ethnic groups. Contrary to authors' hypothesis, the traditional Mexican group had the high waist circumferences and BMIs.
Gossard, M. H., & York, R. (2003)	Social structural factors of meat consumptions, categorized by gender, ethnicity, other key demographics	In-person interviews across the US with varying demographics and point of comparison	Varying demographics of race, gender, and ethnicity influence consumption. Cultural context greatly affects meat consumption nationally and regionally. This is seen with Asian respondents living in the US who ate more meat than white respondents in the US, though Asian cultures traditionally consume less meat. Because Hispanics ate greater amounts of beef than non-Hispanics, ethnicity plays a large influence. Findings regarding race/ethnicity indicate that meat is a social marker for historically marginalized groups in the U.S.
Guenther, Jensen, Batres-Marquez, & Chen (2005)	Influence of knowledge and attitudes about nutrition and awareness of diet and health on meat consumption	National sample of children and adults of varied demographics (race, income, gender, region of US) giving 24-hour recall of consumption on nonconsecutive days	Sociodemographics influence likeliness of consuming certain types of meat. Mexicans consumed above average amounts of beef.
Hoogland, C. T., de Boer, J., & Boersema,	Understanding and effects of sustainable	Supermarket customers in Amsterdam,	Consumers differentiated organic logos and the same logo with additional

J. J. (2007)	food labels	varying degrees of organic food knowledge among consumers	information even though they signified the same information. Consumers still used preformed preferences to make ultimate purchases, usually not for the sustainable alternative
Kolata (2012); McGeeney & Mendes (2013)	Whether food deserts were still a leading driver of obesity rates	National sample of areas with low income, areas that are food deserts, and the two characteristics combined	Rather than structure alone (i.e. living in a food desert), agency, including being lower income, had a significant role in obesity rates.
Larson, N. N. (2009)	Environmental surroundings of general food consumption	Snowball of case studies focused on food choice and eating patterns, nutrition, surroundings, policy, youth and adults within the US	Social environments (peer groups, family), physical environments (school/work or proximity to food retailers), and macroenvironments (income, cultural norms) all influence food choice positively and negatively. First-generation Latino adolescents consumed more fruits and vegetables and less soda than their whites counterparts. Acculturation led to the following generations eating fewer produce and more soda. As each generation goes on this pattern follows until Latino youth are eating less produce and drinking more soda than white youth.
Neuhouser, Thompson, Coronado, & Solomon,	Effect of higher acculturation on fat, fruit, and vegetable	Mexican and non-Hispanic white residents of Yakima	Mexicans that were acculturated to the United States, consumed less fruits and vegetables and

(2004)	intake	Valley, WA	more fat per day than less acculturated Mexican immigrants.
Redman, E. (2013)	Influence of knowledge on sustainable behaviors	Grade school students in Phoenix metropolitan area	While behaviors like waste may change after sustainability summer program, food behaviors are more rigid, likely due to social understanding regarding consumption
Vermeir, I., & Verbeke, W. (2008)	Influence of confidence in products and personal values on sustainable food choice	Young adults aged 19-22 in Belgium with varying views on sustainable foods	Consumer confidence in sustainable products is based on a set of values. Notably, chances of buying the sustainable product are based on participants following social norms prompted by friends and family that give them confidence in the alternative products

Overall, the literature has shown that food choice is rooted in a broad spectrum of motivations and constraints. Food choice can be driven by external factors like lack of access inside food deserts or lack of agency within low income households, though there is skepticism about the influence of food deserts on obesity. Knowledge and familiarity play a large role in the likelihood of consumers purchasing sustainable and alternative products, but lower costs from subsidies and convenient fast food hinder such shifts. Most crucial to this study, the literature describes how culture norms linked to ethnic identity and societal norms create two sets of rules for what type of food is appropriate. A large part of deviating from or adopting Mexican cultural norms is the degree of acculturation to more dominant United States social customs. However, there is conflicting research on the congruence between adoption of healthier diets and

acculturation as some researchers have found that diets are healthier after acculturation while others show that worse patterns are formed following immigration.

To further build on what previous research has already established about the complexities of consumer behavior and individual choice, I intend to explore the specific cultural and social drivers in greater depth. This will root the discussion of food choice in norms, specifically in how these norms are driven through social interactions and a distinct upbringing tied to Mexican culture. To answer the research questions, qualitative analysis allows for an understanding of overarching patterns in meat choice and how these decisions are attributed to social or cultural norms. Cultural norms will be defined as the standard traditions of Mexican culture. The study will look at the extent Mexican culture, including respondents' families, and acculturation to American customs influences consumption patterns. To discern the influence of social norms, this study will look how friends, specific lifestyles (i.e. fitness, vegetarianism), and societal expectations impact food choice.

Chapter 3
METHODS

The methods chapter will first outline the steps taken to define the target population used for this study, including the reasoning behind choosing a specific age and ethnic demographic. A narrative of the recruitment process highlights the challenges and solutions to recruiting human subjects. A breakdown of key identifiers of the final sample size shows the demographics of the final respondents. After data collection, a qualitative analysis tool was used to explore patterns and highlight key findings of this study. This chapter concludes with an explanation of the steps taken to further investigate the collected data.

Case population.

Mexican-American respondents were chosen as the population of interest because of their regional dominance in the study area and because of the high prevalence of meat in their cultural diets. This also allowed the research to focus on the influence of cultural norms among a specific population. This case population was chosen with the aim of analysis of acculturation in food choice among respondents living outside of their cultural context and surrounded by another dominant ethnic group in the U.S., particularly in the study state of Arizona.

To qualify for the research, self-identified Mexican-Americans participants must be born in Mexico or the United States. This basic requirement allowed for variation within this specific demographic. Such variation will demonstrate the

degree of acculturation or influence of social and cultural norms based on each respondent's experiences and upbringing.

The population was comprised of Mexican-American millennials with a sample frame taken of Arizona State University students and recent college graduates between the ages of 20 and 29. This provided an age range of participants that were transitioning into independence or had already established such autonomy, including learning to feed themselves as young adults. This age group, a segment of the millennial generation born after 1980, also has unique social characteristics including increased familiarity with mass communication and social media (Mashable, 2014).

Research looking at millennials is crucial because as the first generation born with technology and Internet as a constant, they have formed unique characteristics like being open to change and new perspectives, never before seen in previous generational cohorts like baby boomers (born 1946 to 1964) or Generation X (born 1965 to 1980) (Taylor & Keeter, 2010). This is important for my research on food choice because being exposed to more information about health and diet through the Internet might have different consumption patterns than their parents' generation since they are connected to a wider range of people and social groups through media. Behavioral change is also easier with young ages in general, because as we age habits become more engrained (Redman, 2013). Given the transitions that occur during this phase of young adulthood, previous research has considered them a unique sample size with varying perspectives (Larson, 2009; Vermeir & Verbeke, 2008).

Interview participants lived in housing that included kitchens, rather than traditional dorm settings for students. In part, this sample population was chosen because it targets young adults who are living away from home and are responsible for their own groceries. Some respondents lived at home with their families, which is common in Mexican culture since some children do not move out of the home until marriage (Blank, 1998). The informants that lived at home still fit into the transitional demographic of college-aged individuals, so including them allowed further variance in the study. The sample was expanded to include those that lived at home because it was difficult to identify and recruit enough participants that lived on their own.

Unlike other college students in traditional dormitories, the apartment dwellers and those living at home had access to kitchen space and therefore the flexibility and freedom to cook at home as part of their individual habits. Examining the responses of participants that live away from home allows me to examine how the range of factors discussed in Chapter 2 impact respondents that are making food choices without the direct influence of family members. Now that they are buying and preparing meals on their own, I will be able to see if they acculturate to typical U.S. foods or maintain the eating patterns of their families, including the frequency of eating traditional foods and high amounts of meat. The role of agency as millennials will be analyzed in respondents that live at home and are exposed to cultural eating patterns every day.

Recruitment.

Respondents were partially recruited through flyers (Appendix A) promoting the research study, with additional recruitment done through email to student lists and professors with large class sizes. Ultimately, a snowball sampling approach was the most successful recruitment technique to overcome the challenges of recruitment through flyers alone. These challenges included the lack of students around campus during the summer when fewer classes are offered and student email lists are unresponsive. Given that recruitment started on ASU's campus during the summer months, very little response was received from the flyers until late August 2014, as students started returning for the start of the fall semester.

Eventually the combination of word-of-mouth recruitment plus flyer distribution to classrooms and bulletins around ASU's campus resulted in a total sample population of 15 participants, eight women and seven men. Table 3 outlines the sample population including how they were recruited and other key identifying information.

The first respondent was recruited in person, when by chance I heard her speaking Spanish after seeing her on multiple occasions at her campus job and decided to simply ask if she fit the criteria and was interested in my study. Next I asked multiple friends, noted in parentheses under the "Recruitment" column, if they knew of anyone who would be able to participate in my research. Two participants were classmates I briefly met in past courses while two other respondents contacted me over email or the phone after seeing my flyers around

campus.

Each participant was asked if they knew anyone who fit the sample population criteria and would also be interested in participating in this research. This resulted in four more respondents, whose referrers are noted in parentheses as “R” and the respondent number. Table 4 displayed the geographic origin within Mexico of the respondent cohort, specifically where each participant was born (see also Figure 3), what region their families are from, and how frequently they travel to Mexico.

Table 3.

Demographic and recruitment breakdown of respondents

Informant No.	Gender	Birth Year (Age)	Education	Recruitment	Housing
1	Female	1994 (20)	Junior	In person	Family
2	Male	1989 (25)	Graduated	Snowball (Friend)	Own
3	Female	1985 (29)	Graduated	Snowball (Friend)	Own
4	Female	1991 (22)	Senior	Snowball (Friend)	Family
5	Female	1993 (21)	Senior	Snowball (Friend)	Own
6	Male	1993 (21)	Junior	Snowball (Friend)	Family
7	Female	1992 (21)	Senior	Snowball (6)	Family
8	Female	1993 (21)	Senior	Snowball (Friend)	Own
9	Male	1990 (23)	Masters	SOS Classmate	Own
10	Male	1990 (24)	Senior	Snowball (8)	Own
11	Male	1992 (22)	Senior	Snowball (8)	Own
12	Female	1991 (22)	Junior	Flyer	Family
13	Male	1989 (24)	PhD	Former Classmate	Own
14	Male	1992 (22)	Graduated	Snowball (12)	Family
15	Female	1992 (21)	Junior	Flyer	Own

Table 4.

Geographic demographics in Mexico and years in States

Informant No.	Place of Birth	Mexican Region(s) of Family's Origin	Time in U.S.	Frequency of Visits to Mexico
1	Arizona	Sinaloa	Since birth	More than annually
2	Texas	Sierra Madre	Since birth	Annually
3	Texas	Jalisco & Chihuahua	Since birth	More than annually
4	Mexico	Michoacan	Since age 7	Less than annually
5	Arizona	Guadalajara	Since age 5	More than annually
6	Arizona	Hidalgo	Since birth	Annually
7	Arizona	Sinaloa, Oaxaca	Since birth	Less than annually
8	Arizona	San Luis Río Colorado & Mexicali	Since birth	More than annually
9	Mexico	Ixtlahuacan Del Río (Jalisco)	Since age 10	Less than annually
10	Arizona	San Luis Río Colorado	Since birth	More than annually
11	Arizona	San Luis Río Colorado & Los Angeles, CA	Since birth	More than annually
12	Mexico	Durango	Since age 5	More than annually
13	Mexico	Monterrey	Since age 11	Less than annually
14	Arizona	Durango, Navajo Nation (mother is not Mexican)	Since birth	Once
15	Arizona	Sinaloa & Chihuahua	Since birth	Annually

Figure 3. Origin of respondents' families. Note: See brackets for totals within each STATE label. The cities that were identified are also included with number of respondents.

Qualitative interview process.

Data was collected using qualitative one-on-one semi-structured interviews. After reading the consent form (Appendix B) and agreeing to the interview process, each respondent was asked a set of mostly open-ended and some detailed closed-end questions about their frequency of consuming different types of meat.

Two initial pilot interviews were conducted with Mexican-Americans that fit the target demographics and were recruited through assistance of my advisor. These pilot interviews were used to assess the cohesion between questions, addressing the need for follow-up prompts or the elimination of redundant

questions. Following these two pilot interviews, a final interview protocol was created (Appendix C). The most crucial changes to the initial protocol were including an introductory section asking respondents about their personal and family backgrounds. This allowed the interview to be framed with an understanding of what region of Mexico their family is from and how their upbringing, including the frequency of visits to Mexico, shaped family and personal decisions.

Unlike surveying, the qualitative interview method allows in-depth analysis of open-ended questions and descriptive responses to questions concerning an individual's unique perspective. Further, interviews are a central method in social science's ability to engage with main issues of concern (Rapley, 2004). Through the interview process, I was able to extract what Rapley (2004) describes as "'authentic accounts" that allow the interviewee to have a voice that reflects their unique "lived experience."

To answer the research questions, qualitative methods and analysis allow for an understanding of overarching patterns in meat choice and how these decisions are attributed to a set of norms. Qualitative methods also reveal specific characteristics of meat consumption such as the quantity of meat per meal rather than just the overall amount consumed in a day.

The interviews were transcribed using Express Scribe Transcription Software to slow down the pace of the recorded content and analyzed using MaxQDA Qualitative Data Analysis Software to organize and categorize the interview responses. This process involves creating a deductive, theory-driven,

coding scheme that allows for an analysis of emergent patterns and themes throughout interviews as well as distinct ideas between individuals. The subsequent codebook with sample responses for each code can be found in Appendix D. In addition, a set of codes will add consistency to the analysis of each interview transcripts. The coding process allows testing of theories and thorough cognition of types of themes through intra-coder consistency.

In the next chapter the findings from these methods will answer the research questions outlined earlier. The extent of culture on food choice and meat consumption can be seen from these findings. The results from the qualitative interview process will include not just what respondents consume, but why they consume specific foods by looking at the range of factors involved in their consumption patterns.

Chapter 4
FINDINGS

This research aimed at answering two key questions. First, the goal was to uncover and better understand the key drivers of meat consumption by investigating the following question: What factors influence meat consumption, particularly among Mexican-American millennials? What was found was a range of drivers tied to the unique identity as a college student or recent graduate focused on the cost and convenience of specific foods during a time of transition out of childhood homes. Additional factors including taste and familiarity based on tradition impacted what foods and meat were eaten.

Second, this study assessed how cultural and social norms influence decisions to consume certain types and amounts of meat. A range of normative beliefs emphasized societal standards of health, social gatherings among friends, and the prevalence of a traditional Mexican food in a cultural setting. These situations all led to specific meat consumption patterns. Finally, some Mexican-American respondents were unique due to familial situations that placed them outside of the dietary patterns discovered in the majority of the interviews conducted for this study.

Cultural background of sample.

Though the sample of Mexican-American millennials I spoke with was standardized through key identifying characteristics, there was a diverse range of identities and perspectives due to varied life experiences and specific family

traditions. Responds were all Mexican-Americans between ages 20 and 29, in addition to being current ASU students (12/15) or recent graduates from ASU (1/15) and other universities (2/15). The regions respondents were from represented a vast geographic and cultural spectrum across Mexico (Figure 3; Table 4).

Growing up in the Southwest, in close proximity to Mexico, played a role in how strongly respondents identified as Mexican. Many respondents grew up in border towns in Arizona and Texas. This close proximity to Mexican culture resulted in strong preferences for Mexican food, demonstrating the significance of growing up in the Southwest. The ability to experience the facets of Mexican culture was crucial in how respondents formed their identity:

> *"I lived in border town, San Luis. So, I feel like I am more Mexican in some ways because I was exposed to that culture more often than people that are in other states. Because I lived literally one mile away from the border, I went often" [Respondent 8].*

> *"Being in the U.S. hasn't really changed how I eat meat because there is a lot of Mexican culture inside the U.S., so it is easy to find everything" [Respondent 10].*

Because of this proximity to the Mexican border, some respondents even travelled to Mexico as often as weekly because of the short distance and reduced cost of products and services in Mexico. One respondents was part Navajo, and while the Phoenix Valley has elements of Native American culture, he identified as Mexican because the Phoenix "area is more immersed in Mexican culture" [Respondent 14]. His response along with other respondents shows the dominance of Mexican culture in the lives of participants within the

region of the United States this study focuses on. None of the participants, including those born here or with Mexican parents that were born here, identified solely as American, but instead as either Mexican or Mexican-American.

Consumption patterns.

As expected, meat was a significant part of nearly all respondents' diets (13/15). This majority ate meat on a daily basis during each main meal. After being showed a deck of cards, respondents said they ate more than one deck-sized serving of meat during each meal. Chicken and beef were the most commonly preferred and consumed types of meat among respondents. Many ate chicken because it was a leaner, cheaper, and the most versatile animal protein to cook with.

> *"Chicken is easier because you can do a lot more stuff with it so I eat more of it.... I love steak but budget-wise it is a little more expensive and it doesn't last as long. The chicken we (my live in boyfriend and I) freeze but if you freeze [red] meat it easily gets frostbite. Chicken is just a preference for it not to go bad and money-wise, but if [red] meat is there we would totally eat it" [Respondent 5].*
>
> *"Chicken is often, maybe about four to five times a week.... A serving is maybe about three or four decks. Here at school meat is mainly during dinner and once a day. Sometimes when I am at home back in San Antonio, it can be three times a day but it is mainly chicken" [Respondent 9].*
>
> *"Chicken is cheaper so it's easier to buy as a college student and it's easier to cook" [Respondent 12].*

One respondent identified as a vegetarian of three years but eats fish once or twice a week. "I do that for my protein. I don't eat meat" [Respondent 1]. It is important to note here how Respondent 1 still saw the significance of getting

protein from an animal source. Also, like many other respondents, she defined "meat" very specifically. While Respondent 1 considered anything other than fish as meat, many only considered red meat (beef or pork) as "meat." Respondent 5 called steak "meat" and refered to chicken separately. Respondent 12 also referred to meat as red meat specifically before I clarified that for the interview process "meat" was defined as any animal protein. This was due to the large prevalence of red meat in the majority of Mexican dishes.

> *"We do consume pork, or red meat if you may, but that is mainly when we have those main typical dishes like* pozole *or* tamales*. You know, those big dishes" [Respondent 9].*

This prevalence could also be a leading reason why red meat was consumed frequently among the respondents.

Immigration and acculturation.

An initial aim in the study was to include a comparative analysis between Mexican immigrants and Mexican-American whose families have lived in the United States for some time. This analysis would demonstrate the degree of acculturation among respondents. Yet even with a wide range of stories, the prevalence of a traditional Mexican diet during each participant's upbringing was a constant in each interview session.

Respondent 13 moved to the U.S. at 13 years old, the oldest age of all the Mexican-born respondents. His family ate traditional food after moving to Texas: "we ate a lot of the Mexican dishes like *enchiladas*, *pozole*, *quesadillas*, a lot of the traditional dishes." In comparison, respondent 7 was born and raised in

Phoenix by Mexican parents who initially immigrated as teenagers to Oregon, far away from the Mexican influence we see in the Southwest. After years in the U.S. her family still ate a mostly traditional Mexican diet, including specific regional dishes from the North where her dad is from and the South where her mother is from:

> *"Yeah, we eat traditional food often. My mom cooks Southern food, which is funny because the Southern dishes are really spicy and are based a lot on chile, which my dad doesn't like because he is from the North and he isn't used to that kind of spice but my mom sneaks it in a little bit. My siblings and I think it's really good but my dad, of course, hates it.... Northern food is basically the same thing, but not as spicy, it's more savory.... In the south it would be like* mole*, it's a chocolate and chile dish and some people make it really spicy. In the northern part, people make a* caldo*, a broth soup where you can taste the actual soup and vegetables" [Respondent 7].*

The differences between Northern and Southern Mexican did not play a role in food choice among respondents overall when they were asked if the region they were from influenced their consumption. However, respondents from southern states in Mexico mentioned that the large presence of agriculture meant that it was possible to eat a more vegetarian diet than further north, where cattle ranching is more prevalent.

While reviewed literature showed that the degree of acculturation happens as immigrants spend more time in the U.S., there was only a small degree of acculturation in the respondent pool. Eating traditionally was the norm for all participants, especially during their youth and adolescent years. Those that still lived at home continued to eat traditional food. Even after immigration, the Mexican diet was commonplace and the transition to purchasing their own food

during college was one of few drivers away from traditional cooking due to time and financial constraints.

Others who ate a less traditional diet were exposed to new health concerns that spurred lifestyle change towards less or certain types of meat. The motivations for diet changes, mainly from health concerns, are outlined in the section *Changes over time*. While some respondents had a personal desire to change their eating habits, others had parents with health issues that resulted in an altered family diet.

Motivations and constraints to meat consumption choices.

Convenience and cost were the major drivers behind what type of food respondents bought. Given that the sample was primarily students, they felt they did not have the time to prepare traditional meals in the same manner that their parents had during childhood. Respondents that lived at home ate according to what was cooked for family meals, but when they practiced independence in their food choices, they were quick to choose what was inexpensive and easy to make or take to campus (e.g., pasta, chicken breasts, sandwiches). Respondents who lived outside of the home and cooked the majority of their own meals were equally money conscious.

> *"Balance of fruits, vegetables, and protein. Lean protein [like chicken, low-fat beef, and fish]. And stuff that's easy to cook" [Respondent 2].*

> *"The food that I eat.... How I much am spending on it, how much time it will take, how it will fill me up for being in college trying to save time and wanting to be full so I don't have to spend more money" [Respondent 8].*

> *"Growing up I hated pasta, I didn't want to eat it growing up but now I eat it every day because it's the easiest, the fastest.... In grad school a lot of people eat a lot of rice and pasta....because pasta and rice is not that expensive and for me I can cook it quickly" [Respondent 13].*

Many have come to the same realization of how costly and time consuming food purchasing and preparation is, so they chose items that fit into their present need and restrictive budgets. When prompted about their vigilance for alternatively labeled products like organic, free range, and antibiotic free, most respondents felt that such items were not a part of their thought process because of the expense associated with alternatively labeled items.

> *"My dad is really into the free range chicken and eggs. I think he has this idea that it is better quality, but I'm not sure that means that it is. But he will buy more organic stuff because he has high cholesterol and I think in his mind he thinks it's healthier. And I guess in a way, as far as additives, it is better" [Respondent 15].*

> *"I am a bit ignorant about how [organic, free range, etc.] work or the benefits of it. Obviously I know it has a nice word attached to it but I don't have the education for me to figure out the difference between having something organic and something that isn't, and if there is an incremental benefit in eating those things. Also there is a difference in price, so again at some point, it costs more so I have to go with what is convenient" [Respondent 13].*

> *"I notice if it is organic. It tends to be more expensive so I just don't even. It's pricey, I wont buy it. I would love to. Also, I don't like to buy stuff and experiment. What if I don't like it? Then I stay hungry because I didn't like it. No time for that" [Respondent 8].*

The lack of knowledge of any additional benefits that eating organic or alternatively presents also plays a barrier in addition to the cost. At this stage, alternative products are an inconvenience and not the norm, driving consumers to continue buying conventional items based on familiarity.

Changes over time.

Moving out of the home was a great catalyst for changes in consumption patterns. The key changes that occurred among all participants were (1) new concerns about cost now that they are buying their own food and (2) focus on convenience now that they are living under time constraints. Four respondents from the sample I spoke with were engaged in lifestyle transitions towards time constraints and healthier eating. Change in type and amount of meat over time was due to the challenge of cooking Mexican food because it: is time consuming, requires many ingredients, and respondents felt they could not make it as well as their elders. These respondents were additionally concerned about cost, but the change in their relationship with meat was mostly due to health concerns or goals.

Some respondents reportedly eat differently on a situational basis due to specific family health concerns. For instance, one respondent had a family member with dietary needs from medical issues that resulted in decreased meat consumption. In particular, their father had a gastrointestinal issue that decreased the amount of red meat and spicy food the family consumed. Thus, for them: *"Fish and chicken are more common now than red meat" [Respondent 4].* They tended to eat traditional Mexican food less often because red meat and spices were a large part of their past meals. Another respondent's father had high cholesterol:

"*My parents have started cutting down on the red meat because it has a lot of cholesterol, in the past 4 years. My dad found out he had high cholesterol 2*

years ago. My parents tell me they cut down because they didn't want high cholesterol" [Respondent 11].

Other respondents were attempting to reach fitness goals after observing lifestyles that emphasized cleaner eating (i.e., lower intake of fat and processed foods). This resulted in respondents changing from heavier red meat to primarily leaner white meat and fish. The importance of animal protein did not change as they worked towards their goals, and in fact, meat became a crucial part of their lifestyle changes.

> *"I like fish, salmon, tuna. I'm getting into tuna lately. They are healthy and have omega-3 fatty acids, they are lean, and it taste good…. With focusing on meat, probably less beef but not less meat. I think I still eat a lot of meat because it's protein and it's important. At least I'm educated through my trainer and other people like the nutritionist tell me there's other sources of protein but they are not as common" [Respondent 3].*
>
> *"In this stage in my life, I work out a lot so I try to eat a lot of protein. Right now I'm buying a lot of chicken breast, I eat a lot of fish and turkey sometimes. Right now just really healthy foods, like low-fat, high with protein…. I'm not eating beef too much because with working out, red meat had a lot of cholesterol so it's a high fat food" [Respondent 11].*
>
> *"Just seeing how society is an overweight population. I'm just saying that I wanted to take care of myself and I noticed that eating better you feel better. I think I eat more meat now than I did before because when I was younger my parents were the ones cooking so they were the ones who chose what we ate. But now I have a say in what I eat. I'm trying to increase my protein intake recently just because I work out more" [Respondent 14].*
>
> *"I definitely eat more meat now with trying to be healthier. Growing up I ate a lot of junk food and would be hungry still. So I eat protein so that I'm not hungry and eating everything all the time. So it's trying to keep myself full. For the past year I really tried to get focused on [being healthy]. When I was younger I was always overweight" [Respondent 15].*

Familial resistance to changes.

The responses from families to changes in informants' food choices were largely either surprise or resistance. But respondents were able to continue with their changes regardless of how far they deviated from tradition. One respondent's traditional grandmother did not approve of her switch to healthier eating because it did not fit with the grandmother's traditional cooking style, which included the use of lard when cooking. This respondent noted*: "Well my grandma doesn't get it. She's like, 'why are you eating this? It doesn't taste good'" [Respondent 15].*

The respondent that identified as a vegetarian faced challenges from a family that was wholly unfamiliar with her choices. Ultimately, her immediate family has made strides to recognize and support her decision to exclude meat.

> *"They thought I was crazy. They were like 'how could you do that?' because every single family member eats meat over there. Especially when you go to Mexico. That's like the first thing you would go eat over there. But they kind of respect my choices, so my mom cooks sometimes towards my choices" [Respondent 1].*

Most (12/15) adopted a dual set of eating habits: for when surrounded by traditional settings (either being at family's home or in Mexico) and when outside of their cultural context. When away from their childhood homes, they focused on convenience foods, which usually results in eating common American fare such as pasta, chicken, pizza, or at restaurants like Applebee's and fast food places, and in some cases eating less meat because of the high cost and preparation time involved. "*Meat takes a little bit of time to cook so I eat a little bit less, but not because I want to, but because I don't have the time" [Respondent 13].*

When visiting home or Mexico, respondents generally took the opportunity to eat the familiar Mexican food they grew up with. This resulted in higher meat consumption during these visits, as meat is more prevalent in traditional dishes than the food they consumed in their own living spaces. Some examples of the dual behaviors included:

> "*But when I go home, I revert back" [Respondent 13].*
>
> *"In Mexico I get crazy over there, I cheat. I eat everything they try on me,* tacos*,* pozole*, I go crazy. I think it's because I don't go home too often and right now I'm not eating that traditional Mexican food too often, I just miss my mom's home cooked meals" [Respondent 11].*

Respondents also felt that the food they ate during such visits was fresher, especially in Mexico, and tasted better because it was made authentically from traditional or family recipes. It was also a chance to immerse themselves back into the traditions they grew up with but are unable to continue as they transition out of their childhood homes.

Cultural and other drivers.

Respondents were asked outright how their Mexican heritage influenced their food choice and meat consumption. For many it did because it was embedded in the traditional foods that were a staple at family tables.

> ***"**My Mexican heritage has impacted my consumption just because it's tradition" [Respondent 4].*
>
> *"I mean I think it influences it a lot. It's really the whole tortilla thing is such a Mexican thing. The whole eating meat, beans, rice as the main dish are the foods we eat during the holidays. For Christmas everything is like* tamales*,* pozole*,* birria*. It's all Mexican…. With meat, again, a lot. Because*

it's always there. It's always part of our meals. It's something I'm used to" [Respondent 8].

"Mexican culture we like a lot of meats and a lot of what I used to eat was traditional food so I think it did influence me to eat meats" [Respondent 11].

"Everything has to have meat in it. It's kind of like if you are trying to make a sandwich, and it doesn't have meat in it, you have no sandwich anymore, it's just bread" [Respondent 15].

In short, without meat, you remove the culture tied to it, as well as any semblance of an actual meal. Food is a deep expression of culture (Figure 4); the two cannot be separated and for many respondents a plate was not a meal unless it included meat.

For some, living in the US context led to greater accessibility to meat. Meat consumption in Mexico is growing but not yet at the level of access that exists in the US.

"I think for one it makes it more accessible and the culture here, when you put a meal together it is usually meat, vegetables, and something starchy like mashed potatoes or rice" [Respondent 14].

However, greater access to meat did not alter overall food consumption. This is because the regional trend towards Mexican food allowed for food customs to be easily practiced in the U.S. When asked if his diet changed since immigrating to the U.S., one respondent noted that his choices was consistent with previous patterns in Mexico:

"Not really. I think that I have been eating on the same trend as I had before [I moved to the US]" [Respondent 13].

When asked what their favorite food in the US was, many respondents indicated their love of pasta (10/15). This was a very interesting pattern, yet none could fully explain why this particular food was their favorite beyond the taste. One respondent noted that it is simply not a large part of Mexican culture, so the novelty makes it an enjoyable "American" staple.

> *"I think pasta, because it's not something we ate a lot. If you think about it, Mexican food does not have any pasta or noodles… so I think it was definitely something that I didn't get to eat a lot. So when I eat it I'm like "oh my gosh, this is so good." I don't even think that is considered U.S. (because pasta is Italian)" [Respondent 14]*

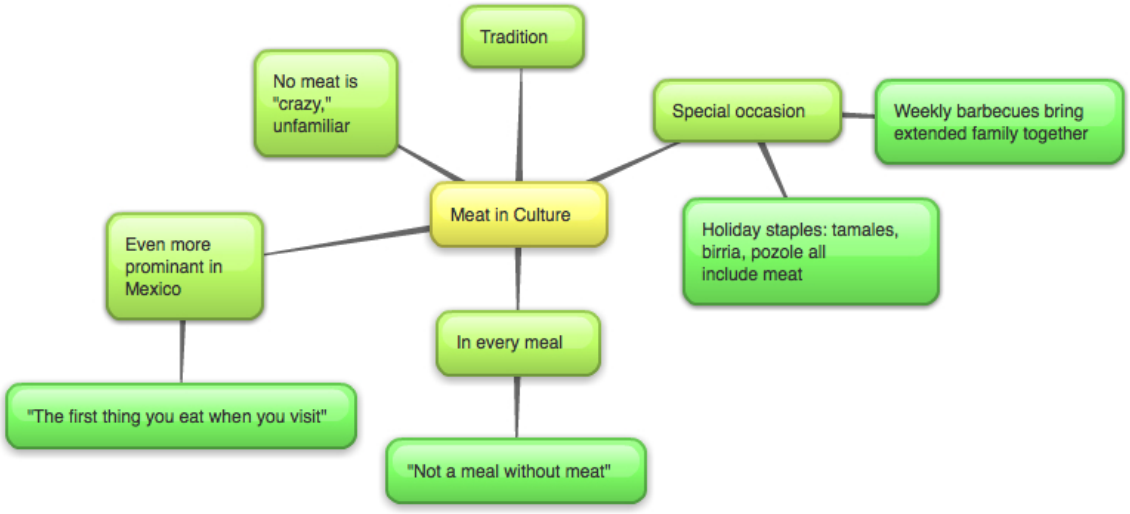

Figure 4. Mind map summarizing the close tie between meat and culture seen in interviews

On sustainability.

I took a final step to ask participants about the familiarity with sustainability, and to what extent, if any, their familiarity influences their daily lifestyle. Interestingly, none of the respondents fully equated food choice with sustainable actions. Instead their responses ranged greatly:

> *"The study of the way people live and how it effects the Earth and the people around us. How to make better choices not only for the individual but for the population in general. I don't think [it influences me]. I do my part, I recycle and I don't litter" [Respondent 5].*
>
> *"I do not really know what it means" [Respondent 10].*
>
> *More efficient ways to use our fuels and resources, not waste so much resources. I'm conscious of it but right now I'm not caring about it too much. I want to be, maybe buy a hybrid car or more organic food but they are expensive and right now with my student budget I can't afford them. Maybe when I'm a rich accountant with a higher income maybe I will start buying more [organic] and a hybrid car" [Respondent 11].*
>
> *"All I think about when I think of sustainability is how the population got to 7 billion and we need to figure out how we are going to be able to support that many people without trashing the Earth. I thinking about it but I don't know how much it influences me because if it did really influence me more I would probably take the light rail and bus to work" [Respondent 14].*

Informants' discussions of sustainability show a greater focus on fossil fuels resources, energy use, and water. Interestingly the realization of increased population was tied to resources and not specifically to feeding such a large population, even after spending an hour discussing food. Though the general population can see that resources are scarce, there is little acknowledgement of how the food system utilizes these limited resources.

One respondent, a former classmate in my food systems course, had a greater breadth of knowledge on the correlation between sustainability and food:

> *"Yes I have, I have heard it plenty, throughout my degree and current classes that I have taken here. I think to define this work gets a little tricky because it can be applied to so many different things. I have grown to have more of an awareness in terms of lowering my contributions to the degradation of the world, meaning becoming a more conscious citizen. Do I base it on recycling? No. I base it more on protecting the environment, not trashing things and trying to consume more organic stuff, not because it might be healthier, but because of the inputs that go into it through agriculture" [Respondent 9].*

With the last exception, these responses show an overall limited view of the far reaches of sustainability. During the interview process, there was confusion regarding how my research on meat consumption tied directly into sustainability given respondents' previous notions of what it meant. Even the vegetarian and meat-averse respondents did not equate their avoidance of meat as a sustainable practice. Though I was only able to engage with these 15 individuals, the responses I received indicate that lack of public knowledge on the correlation between food choice and sustainable outcomes. Since the majority of respondents (13/15) were educated at ASU, where sustainability dominates university policy and goals, knowledge and behavioral awareness concerning food choices is likely even lower among millennials that are not in ASU's environment.

Based on these findings, we must be cast sustainability beyond the buzzwords of "going green" through recycling or driving a hybrid car. For true behavioral change to occur, the impact of an action as intrinsic as food choice must be taught and discussed more widely, especially given how engrained food

is in our daily lives. The following chapter will discuss potential solutions, including marketing less meat to the study population based on the motivations discovered above.

Chapter 5
DISCUSSION AND CONCLUSION

Food choice is a unique and important part of sustainability research. As we continue to assess the role of humans in transitioning to a sustainable future, understanding behavioral choices and change is crucial in making tangible transformations to our food systems. In the quest to understand motivations and constraints to consumer behavior, this research demonstrated that culture plays a large guiding role in food choice. External factors such as health concerns can change personal food choices, but not perceived health benefits of meat, and ultimately the constraints of cost and convenience dictate what food in consumed.

Discussion.

The findings in this study aligned with much of what the literature discusses regarding key drivers to food choice. The main drivers of cost and convenience, including both financial and time constraints, limited the kinds of foods people purchased (Larson, 2009). Respondents mostly purchased low-cost items, including inexpensive, versatile options like chicken and pasta. The taste and familiarity of meat in Mexican dishes that respondents ate throughout childhood resulted in continual choices in favor of meat (Gossard & York, 2003; de Boer et al. 2009; de Boer, 2007), which was seen as a staple in meals even after moving out of the home. Participants in my study consumed beef in particular because of taste and tradition, since *carne* (beef) is central to many

Mexican dishes. In line with Hoogland et al.'s (2007) work on the understanding of sustainable food labels, respondents had very limited knowledge on the benefit of alternatively source food items and instead ate familiar conventionally produced foods.

While other studies noted that acculturation plays a role in food choice over time (Neuhouser et al., 2004; Larson, 2009), participants in my study held traditional eating patterns in their families' homes regardless of if they were born in the U.S. or how long ago they immigrated to the states as a child. The rich Mexican culture that largely influences the American Southwest has stayed embedded in the food choice of the Mexican-Americans I interviewed. Traditional food was the norm, and given that many staples involved meat, the idea of avoiding meat was unheard of and unfamiliar. For most, a meal was nonexistent without meat, a key part of enjoying and celebrating family and culture. However, when Mexican-American millennials move out of the home, they do choose more convenient food choices (e.g., pasta) given the time and other constraints associated with preparing traditional meals.

These findings build on previous literature about food choice by adding new knowledge on motivating factors, especially how meat ties into culture. While previous research showed quantitative data of the prevalence of meat in the diets of Mexican-Americans, my research showed qualitatively that meat consumption was an expression of culture. This information was uncovered because the qualitative interview process asked why respondents ate meat, rather than just quantifying how much meat is eaten. Additionally, my research

demonstrates that sustainability is not at the forefront of consumer behavior because it does not directly influence their daily lives like cost and convenience factors, nor do people make the connection between their food choices and the complex effects on the environment or other aspects of sustainability.

Recommendations.

Given the key findings of cost and convenience as key drivers to overall consumption choices, the centrality of meat in traditional Mexican food, and the lack of knowledge on sustainably produced foods, I offer the following set of recommendations to foster sustainable behaviors towards lower meat consumption. In essence, the crucial point is to find simple ways to get consumers engaged in better food choices given the perceived constraints preventing them from consuming less meat and purchasing sustainable products.

1. Policy changes to address accessibility and cost.

Many respondents were constrained financially and unable to purchase organic items, especially higher amounts of organic produce. Given this research finding, changes in agricultural policies could decrease subsidies on grain that feeds livestock so that the real costs of meat production are reflected in the price at markets. Instead, for a more sustainable agricultural policy, subsidies toward whole foods (such as fruits and vegetables) or towards organic or sustainably produced products would make such foods more affordable and accessible to a wide range of people.

While respondents looked for leaner cuts of meat, they did not feel comfortable purchasing alternative products, including sustainably raised meat and organics. Some apprehension was due to lack of knowledge regarding these products. Thus, clearer rules about labeling of food can help consumers identify how it was produced. Such policies would need to be coupled with marketing and outreach to ensure people understand what the certified organic label, among others, actually means.

2. Marketing lower meat consumption to millennials.

Because this study found that convenience and familiarity were major drivers in eating meat, new marketing techniques could demonstrate alternative ways of creating traditional Mexican meals with smaller portions of meat or with chicken or other substitutes that are healthier and less resource intensive. One strategy for marketing lower meat consumption is direct facts to consumers on the benefits to their schedules and to their health from eating less meat. Infographics comparing plant-based and meat-based meals could include information on the preparation time, cost per serving, and caloric and protein content.

Assuring adequate amounts of protein in plant-based meals would be beneficial, because protein was a concern for respondents that viewed meat as the only adequate source of this macronutrient. This marketing must address how these slight changes can still preserve traditional flavors while saving money and time from easier preparation. Since meat is central to the dietary choices of

Mexican-Americans, it may very well be easier to promote eating less beef or eating chicken or other kinds of meat that consumer fewer resources (e.g., land, water, energy) to produce. In combination with emphasizing concerns about protein, promoting the low-fat, low cholesterol benefits of chicken or fish could help shift people's choices toward more sustainable ones.

Marketing lower meat consumption to Millennials specifically can be done through food applications (apps) for smart phones that give strategies towards lower meat consumption directly to consumers in this age group. These food apps can give healthier and easier choices that fit into cost, time, and health concerns. This technique could help address the fact that labeling as done in experimental studies may be unrealistic in the context of grocery stores.

3. Contextualize behavioral change through consumer values.

Contextualizing outcomes of specific behaviors is a key strategy in marketing changes among the millennial generation that is more open to change and new perspectives. A recent study found that teenagers in the United States responded to labels that warned how much time was needed to burn off the calories from a bottle of soda (Bleich et al. 2014). Calories are normally labeled alone but consumers do not understand the context of these numerical values. When placed on a scale like time in the busy lives of young adults, people understand that eating calorie dense foods or extra calories impacts their lifestyle because to maintain their health, they would need to spend more time burning off excess calories.

In this study, some respondents were concerned about their individual health or their family members had specific health issues that led to diet changes over time. However, respondents who changed their lifestyles for health continued to emphasize a pattern of heavy meat consumption as essential for maintaining good health. The marketing seen in Bleich et al.'s (2014) work—which used infographics that resonated with people's understanding of how it impacts them (e.g., by using time to burn off calories, instead of calories themselves)—could be used to advocate lower meat consumption.

These policy and marketing recommendations encourage behavioral change by focusing on the respondents' values of cost and convenience. Few respondents were familiar with the defining characteristics of sustainability or how food choice was related to sustainability. My research along with previous research showed that consumers lack knowledge of the benefits associated with organic labeling (Hoogland et al., 2007; Vermeir & Verbeke, 2008), so it is no surprise that giving consumers information outside of their values is not enough to create longer term, sustainable changes. Instead, forms of consumer communication like Community Based Social Marketing (CBSM) can be used as a means of fostering sustainable behavior changes. A key aspect of CBSM is working in direct contact with communities and their values rather than solely through marketing techniques like broad advertisements (McKenzie Mohr, 2011).

Limitations of the study.

This study had limitations that inhibited the scope of knowledge gained

through interviews. For example, the interview process was unconventional and unfamiliar to most respondents. Rather than more common methods like surveys, respondents were exposed to qualitative interviews. Their lack of familiarity with this type of data collection made prompting questions an essential part of the interview protocol. Prompting questions allowed respondents to answer questions with further depth and thought, which they did not initially realize were essential parts of the interview process.

Because food choice comes naturally after years of conditioning, the amount of critical thought needed in responding to questions was a challenge. Most respondents were reflecting on and communicating their food choices for the first time ever. Their responses were based solely on memory recall since there were no prior exercises like food journaling to engage them in describing their consumption patterns. By the end of interviews, some respondents noted how interesting it was to have to reflect on a specific aspect of their lives that they do not frequently consider. Thus, the use of food journals or other techniques could help encourage behavioral shifts in consumption patterns by making people more aware of their choices.

Additionally, the sample size of 15 was small and focused only on Mexican-American millennials. In depth interviews allowed each respondent's story to show through, but the small sample may not fully express the entire Mexican-American community. Also, the unique circumstances of the individuals I spoke with reflect a wide range of variation, preventing widespread generalizations about meat consumption in Mexican-Americans.

Future research.

A few unanswered questions remain following this study. The lack of general knowledge on the food system, sustainability, or health concerns connected to both greatly altered the richness of responses. In the findings chapter, we saw that many respondents had a limited range of knowledge regarding alternative products that were aimed at changing how food is produced. In additional to the higher cost associated with these products, there is little knowledge regarding the actual benefits of meat and other foods that are produced sustainably. What changes would occur if respondents were exposed to the range of benefits attributed to organic, free range, non-GMO, and antibiotic free food? Could enhanced understanding of food production change people's choices? Experimental and other research is needed to test these questions while also examining people's knowledge about broader food system dynamics and sustainability, including production processes and environmental and social outcomes.

This study painted a picture of meat consumption among Mexican-Americans living in a part of the United States that was regionally influenced by Mexican culture. Given the urban Southwestern context of this study, further work would look at the significance of meat consumption and the frequency of a traditional diet in parts of the U.S. that are not in close proximity to Mexico or do not have a significant Mexican community. Would acculturation from living in the U.S surpass enculturation from past generations passing along their knowledge about food norms? Further work within Mexico would prove beneficial in seeing

how life experiences related to food vary among millennials living in Mexico compared to the cohort of 15 that I spoke with in Arizona. This is especially pertinent given the rise in meat consumption within the Mexican population.

In closing.

This research found that food choice is primarily driven by cost and convenience, with taste and familiarity driving aesthetic preferences. Cost and convenience drove most respondents to eat a less traditional diet outside of their families' homes or outside of Mexico because of lack of knowledge on traditional cooking. The prevalence of meat in Mexican culture and special occasions growing up resulted in its role as a staple in respondents' daily food choices even after leaving their childhood homes. While some respondents adopted healthier eating habits, they continued to include meat as an important part of their definitions of healthy eating.

Given the centrality of meat in Mexican culture, advocacy for lower meat consumption must work with cultural norms and traditions. Rather than communication focused on sustainability perspectives, which respondents did not equate with food, policy and marketing must look at the values that consumers hold much more closely. The implications of these findings and recommendations include a new awareness of how sustainability must address behavioral change. While sustainability recognizes the immense role humans play as actors in the food system, addressing the challenges of this system must include an understanding of why consumers demand specific products. This will

lead to responsible changes in how we grow, govern, market, and ultimately consume food.

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APPENDIX A

RECRUITMENT FLYER

Paid Research Study

What is involved? Research study exploring food, meat, and culture. This study involves talking with a researcher about your food choices. Approximately 1-hour interviews will take place at ASU's Tempe campus.

Who qualifies? **people from Mexico or of a Mexican background, ages 20-29,** enrolled in college or recent graduate.

Must live in housing on or off campus with a kitchen, not in a traditional dorm.

What will you get in return? **$5 gift card** to Starbucks or Chipotle AND be entered for a chance to win a **$25 gift card**.

If interested, contact Debbie at (240) 654-2019 or dnamugay@asu.edu before or by September 12th, 2014.

Debbie: (240) 654 – 2019 or by email at dnamugay@asu.edu	Debbie: (240) 654 – 2019 or by email at dnamugay@asu.edu	Debbie: (240) 654 – 2019 or by email at dnamugay@asu.edu	Debbie: (240) 654 – 2019 or by email at dnamugay@asu.edu	Debbie: (240) 654 – 2019 or by email at dnamugay@asu.edu	Debbie: (240) 654 – 2019 or by email at dnamugay@asu.edu	Debbie: (240) 654 – 2019 or by email at dnamugay@asu.edu	Debbie: (240) 654 – 2019 or by email at dnamugay@asu.edu	Debbie: (240) 654 – 2019 or by email at dnamugay@asu.edu	Debbie: (240) 654 – 2019 or by email at dnamugay@asu.edu	Debbie: (240) 654 – 2019 or by email at dnamugay@asu.edu

APPENDIX B

CONSENT FORM

Title of research study: Social and Cultural Drivers of Meat Consumption in Tempe, AZ

Investigator: Deborah Namugayi under the direction of Professor Kelli Larson

Why am I being invited to take part in a research study?

We invite you to take part in this research study because you meet the research's demographic requirements as a Mexican or Mexican-American student between the ages of 20 and 29, living in apartment housing on or off campus that includes a kitchen.

Why is this research being done?

The purpose of this study is to discover the social and cultural drivers of meat consumption among Mexican and Mexican-American students aged 20-29 in Tempe, AZ.

How long will the research last?

We expect that individuals will spend approximately one hour participating in the proposed activities.

How many people will be studied?

We expect 15 people will participate in this research study.

What happens if I say yes, I want to be in this research?

If you say yes, then you will participate in a one-hour interview with the research discussing your food choices. I would like to audio record this interview so the interview can be transcribed. The interview will not be recorded without your permission. Please let me know if you do not want the interview to be recorded; you also can change your mind after the interview starts, just let me know.

You will be given a $5 gift card to either Starbucks or Chipotle and entered into a drawing for a chance to win a $25 gift card as compensation for your time.

What happens if I say yes, but I change my mind later?

You are free to leave the research at any time and it will not be held against you.

What happens to the information collected for the research?

Your responses will be confidential. The results of this study may be used in reports, publications or presentations, but your name will not be used. Interview data will be retained after the study for analysis purposes. This data will be stored for approximately one year following the study in a secure computer that can only be accessed by the research.

Who can I talk to?

If you have questions, concerns, or complaints, talk to the research team at dnamugay@asu.edu or kelli.larson@asu.edu or by phone at 240-654-2019.

This research has been reviewed and approved by the Social Behavioral IRB. You may talk to them at (480) 965-6788 or by email at research.integrity@asu.edu if:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You have questions about your rights as a research participant.
- You want to get information or provide input about this research.

Please let me know if you wish to be part of this study. Participating in the interview will serve as your consent to participate.

APPENDIX C

INTERVIEW PROTOCOL

Opening script

Debbie: Hello, thank you again for taking the time to speak with me today. First to just go through some formalities whenever doing research I want to remind you what I mentioned in the email/over the phone. I want to take some time to speak with you about food and meat in particular. I want to know why you eat the way you do.

If you are willing to participate, I will conduct an hour-long interview with you, asking questions about your daily meat consumption choices and how your culture, including your family, influences these choices. I will also ask about ways your friends' choices and general habits among society impact your decisions. This interview in completely voluntary and though I ask you to answer all the questions thoroughly, you are free to skip questions that you are not comfortable with. You can end the interview at any point if you are no longer willing to continue or feel uncomfortable.

The interview will be recorded and stored in a safe location for a year after the study. Your name and other identifying information will remain confidential. This information will be kept in a secure, password locked location by my supervising professor and myself.

Please take your time to read the consent form so that I know you understand this information before we begin.

Are you still willing to begin the interview?

Interviewee: (YES/NO)

I. Cultural Background

1. How would you describe your cultural heritage or ethnic background?
   How do you identify personally?
   E.g., as Mexican, American, Mexican-American or otherwise?

2. Where in Mexico is your family from?
   How long have you lived in Mexico, if at all?
   How long have you lived in the U.S.? Arizona?
   Have you ever lived anywhere else?
   Do you speak languages other than English?

II. Characterizing Consumption

1. In general how do you choose what you eat? What are the most important factors you consider when deciding what you eat?

2. How often do you eat meat?
   Is it a part of each meal? If not, how many meals a day include meat?[1]

3. For each of the below types, note **Daily; Weekly; Monthly; Less than Monthly**, **Never.** Choosing from the props provided, include narrative details about each type you consume.[2]

Chicken
Turkey
Pork
Beef
Fish
Lamb
Other: please specify

4. Do you prefer certain meats over others, and if so, why?

5. Do your family members eat the same way as you do? If not, how do you differ from them?
   What about your friends?

6. Are the types of meat you eat at home different from the types you eat outside of your home? Please explain.

7. When you purchase meat do you look for certain brands or qualities? Why or why not?
   Do you consider qualities like organic, free range, or antibiotic free?
   What qualities do you consider instead/as well?

III. Changes Over Time

1. Have you always eaten meat in the way you have described, or has your consumption changed over time (different types/amount of meat)? *If it has changed, how so and why?*
   Do you still eat this way?
   What about compared to your childhood at home?

2. When you changed your habits, how did your family and friends respond?

[1] All italicized questions are prompting questions in case interviewee response needs elaboration
[2] Examples of props I will bring from http://www.dietriffic.com/2007/05/07/a-visual-view-of-serving-size-using-everyday-items-2/

3. Have you ever felt pressure from your friends or family to eat in a certain way, and if so, how?
   What do you do in situations when the choices of your friends or family don't align with yours?

IV. Cultural and Other Drivers

3. Considering how you ate with your family growing up…
   What factors are most important to your family's food choices?
   Why do you think your family eats the way they have in the past, or the way they do now?

4. What foods were most prominent at mealtime and special occasions?
   Was meat an important part of meals and family events growing up?
   How so?

5. What are your favorite Mexican foods, and why?
   What about your least favorite Mexican foods?
   What are your favorite foods to eat in the U.S.?
   What about your least favorite foods in the U.S.?

6. How would you say your Mexican heritage influences your food choices, if at all?
   How has it affected your eating of meat?
   How do you think living in the U.S. influences your meat consumption, if at all?

V. General Information

1. In what year were you born?

2. What year are you in your education at ASU?

3. How long have you lived away from home?

4. Have you heard of sustainability? If so, what does it mean to you?
   Also, does it influence your lifestyle based on your familiarity with it?

Closing script

Debbie: Great, thank you for all your helpful responses! Do you have any questions for me?
…

Thank you again. When the final report is ready, I will be happy to share it with you. If you think of any more questions, feel free to contact me via email or over the phone [I will give them this information if they no longer have it from previous contact].

APPENDIX D

INTERVIEW CODEBOOK

I. Characterizing Consumption

Variable	Code	Definition
Type of meat	Chicken	If they eat this meat daily, weekly, monthly, less than monthly, or never. Also the serving size and context in which they consume the meat
	Turkey	If they eat this meat daily, weekly, monthly, less than monthly, or never. Also the serving size and context in which they consume the meat
	Pork	If they eat this meat daily, weekly, monthly, less than monthly, or never. Also the serving size and context in which they consume the meat
	Beef	If they eat this meat daily, weekly, monthly, less than monthly, or never. Also the serving size and context in which they consume the meat
	Fish	If they eat this meat daily, weekly, monthly, less than monthly, or never. Also the serving size and context in which they consume the meat
	Lamb	If they eat this meat daily, weekly, monthly, less than monthly, or never. Also the serving size and context in which they consume the meat
	Other	If they eat this meat daily, weekly, monthly, less than monthly, or never. Also the serving size and context in
Vegetarian	Eats vegetarian	Chooses vegetarian options to avoid meat entirely
	Eats vegan	Chooses vegan options to avoid meat, dairy, and eggs entirely
	Eats non-vegetarian	Chooses meat option and doesn't follow vegetarian diet entirely

Frequency of eating meat	Meat in each meal	Eating meat of any amount in breakfast, lunch, and dinner
	Meat in specific number of meals a day	Eating meat less frequently than the defined breakfast, lunch, dinner
	Amount and type of meat outside of the home in the US	If there are a specific set of characteristics to the meat an individual eats when outside of the home and might be influenced by external factors
	Amount and type of meat in familial setting/Mexico	If there are a specific set of characteristics to the meat an individual eats when in a familial setting or in Mexico

II. Characterizing Motivations & Constraints for Consumption Choices

Variable	**Code**	**Definition**
Familiarity/Tradition	Familiar staple foods	Chooses foods that are familiar, including specific types of meat, in purchase decision "It's what I've always eaten"
Tradition	Family tradition	Eats foods based on traditions set out over time through culture "This is what my mom always makes/made" "It's tradition in my culture"
Taste	Like	Eats foods that are palatable to their individual likes
	Dislike	Avoids foods that are not palatable to their individual likes
Cost	Expensive	Effect of price in decision to purchase food, generally, and meat, specifically
Environment	Water	Eats foods that require less water input (less/no meat and minimally unprocessed foods)
	Energy use	Eats foods that require less energy input (local,

		unprocessed, less energy intensive meat)
	Land	Eats foods that are not as degrading to the land (require less chemicals, less land intensive meat)
	Organic	Eats organic food and meat because it is produced in an environmentally sound way
	Pollution	Eats food with less chemicals in order to reduce their contribution to pollution
	Local	Eats food grown regionally in order to decrease carbon footprint/ support local farmers and community/get better quality produce
Animal Welfare	Free range	If an individual chooses meat that is free range
Health	Low-fat	Health benefits compared to unhealthier varieties, i.e., low-fat, low-cholesterol
	Organic	If an individual chooses meat that is organic for health benefits
	Antibiotic free	If an individual chooses meat that is antibiotic free for health concerns
	Contaminant free	Individual chooses meat that is free of contaminants (e.g. mercury in fish, pathogens)
Social Surroundings	Being around family	Choices in meat change based on family influencing food choices
	Being around friends	Choices in meat change based on friends influence food choices
	Being at work/school	Choices in meat change when at work
	Being at home	Choices in meat change when at home and free to make own decision
	Locational	Choices in meat change based on locational changes like being on vacation, at

		school or work, near fast food/sit down restaurants

III. Changes Over Time

Variable	Code	Definition
Change in consumption	Less meat	Respondent eats less meat than in the past
	More meat	Respondent eats more meat than in the past
	Different types of meat	Respondent eats different types of meat than in the past
	No change	Respondent eats the same types and amounts of meat as they did in the past
Reasons for Changes in Consumption (Motivation/Constraints)	Cost	Shift in meat consumption driven by price of meat
	Convenience	Shift in meat consumption driven by accessibility to meat options
	Health	Shift in meat consumption driven by concerns over health
	Environment	Shift in meat consumption driven by concerns over the effects on the environment
	Social changes	Shift in meat consumption driven by changing social environment, e.g., after entering university
No Change	Convenience	Respondent eats similarly to how they did in youth/over time because of the convenience of familiar options
	Cost	Respondent eats in a consistent way because of the cost of changing consumption
	Environment	Respondent eats the same because it is in line with environmental protection
	Health	Respondent eats in a

		consistent way because it is in line with personal health goals
	Taste	Respondent hasn't changed what they eat because of taste preferences
	Tradition	Respondent eats the same because it is a part of their cultural tradition
External response to change	Positive response from family	Family is accepting and supportive of diet shift
	Negative response from family	Family is unwelcoming and unsupportive towards diet shift
	Positive response from friends	Friends are accepting and supportive of diet shift
	Negative response from friends	Friends are unwelcoming and unsupportive towards diet shift
	Positive response from medical perspective	The response from doctor/health practitioners is in favor of diet change
	Negative response from medical perspective	The response from doctor/health practitioners is unsupportive of diet change

III. Cultural and Social Drivers

Variable	**Code**	**Definition**
Social and family influence	Cool/positive image	Family/friends drive food decisions because they are in line with trends
	Uncool/negative image	Family/friends discourage food decisions because they are considered uncool
	Injunctive norms	Respondent eats based on injunctive norms from friends of family (e.g. that it is good or bad to eat meat or types/amounts of meat).
	Descriptive norms	Respondent eats based on descriptive norms from friends of family (e.g. the

		amount of meat they should have in a given day/meal).
	Convenient	Family/friends drive food decisions because they are easy and convenient
	Inconvenient	Family/friends discourage food decisions because they are inconvenient
	Familiar	Family/friends influence food decisions towards choices that are relatable
	Unfamiliar/foreign	Family/friends discourage food decisions because they are unknown/new
Location: Country/Region	Living within the US	Changing eating patterns because of cultural surroundings in the US
	Living in/visiting Mexico	Changing eating patterns because of cultural surroundings in the Mexico
	Region in Mexico is vegetable-friendly	When visiting the region their family is from, respondent can maintain lighter meat eating patterns, if desired, due to locally available foods
	Region in Mexico is meat heavy	Respondent eats more meat in their region of Mexico because the regional diet is meat-heavy and less flexible

IV. Background

Variable	**Definition**
Age	Respondents age between 20 and 25 years
Gender	Identity of respondent as male or female
Year in school; ASU vs. other	The stage of education for the respondent
University	Where respondent attends/attended university
Years living in apartment/off campus	Determines the length of time respondent has been

	living in a setting more conducive to independent food choices
Years away from home (0 if still at home)	Years resident has been away from childhood environment, including years in an apartment or in dorm style living
Recruitment	How the respondent found out about the study, either by snowballing, responding to flyer, or my personal contact