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Cultural Culinary Wisdom: Combating the Nutrition Transition

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Cultural Culinary Wisdom: Combating the Nutrition Transition

A Dissertation

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Abstract

The nutrition transition is a rapidly developing global problem. The disparity between the rates of global obesity and malnutrition is diminishing. Westernization and industrialization are serious factors contributing to the global food and dietary epidemic. As a result, food cultures are threatened by dietary changes inflicted by Westernization. Moreover, rates of diet related non-communicable diseases are on the rise as never seen before. This study examines the problem of the nutrition transition through the context of the prevalence of food cultures, case studies, culinary recipes, dietary habits, and cultural transitions. Supporting this research is a dietary survey of study abroad and international students at Providence College. Additionally, dietary interviews with the refugees of the International Institute of Rhode Island illustrate the prevalence of the nutrition transition if present. This dissertation advocates that loss of food cultures is predisposed to the nutrition transition. Cultural dietary wisdom is affirmed to be the guide to good health and nutrition.

TABLE OF CONTENTS

I. Introduction:…….. 2

II. Literature Review:…… 4

III. Methodology:……. 56

IV. Findings:……. 59
i. Dietary Surveys:……....59

ii. Dietary Charts……. 75
Survey Findings…….. 99

iii. Ancient Food Cultures:……105

iv. Refugee Interviews:…….....110
Interview Findings……117
v. Recipes:……(see booklet)

V. Solutions…… 121

VI. Conclusion:…….. 126

VII. Bibliography:……. 128

Introduction

The global food crisis is a steadily growing humanitarian problem affecting both first and third world countries. Its presence takes the form of malnutrition, food shortages, adverse dietary habits, unequal food distribution, unbalanced food subsidies, dubious food safety, and industrialized agriculture. A successive transition among these components lies in the equalization of the rates of global obesity and malnutrition simultaneously. This dietary transformation is known as the nutrition transition. Due to accelerated globalization, industrialization, and the creation of a relatively uniform Western culture, nutrition and food cultures have faced the brunt of these forces. As many countries attempt to follow the globalization and industrialization trend, their cultures and peoples are left to balance the two different realities. Consequently, their food cultures attempt to retain their culinary tradition and identity. Numerous nations and peoples are lost amidst the two realities, unable to preserve their cultural and culinary heritage and adapt to their newly adopted culture and lifestyle. This cultural and culinary void harbors a juncture for diet related illnesses, obesity, and malnutrition.

Alternatively, food cultures hold the means to combat the dietary obscurity related to Westernization and industrialization. In their innate existence, ancient food cultures contain valuable culinary wisdom passed on through generations and traditions. Their own food culture contains unequivocally solutions to the rampant diet related diseases, obesity, and malnutrition from the nutrition

transition. Culinary wisdom differs uniquely to each culture, just as there is a variety of cultures around the world. This wisdom has stood the test of time and has continued to fuel these cultures today. Food cultures' wisdom remains to be a lucid antidote to the nutrition transition and its resultant harmful health effects.

This dissertation will prove the significant influence of cultural culinary practices in regards to health. Furthermore, these practices and dietary habits within traditional food cultures are the key to reversing the damaging effects of Westernization and globalization on health. What is necessary to distinguish is if culture theoretically induces dietary change and practices, or rather is it specific food cultures that produce these dietary habits. More importantly, the question remains to be tested whether cultures themselves are the guides to good health and nutrition inherently.

The study abroad students of Providence College are valuable subjects for dietary surveys and studies. In addition, the refugees of the International institute are a specific community in which their experiences will possibly address the presence of the nutrition transition and cultural culinary wisdom. These surveys and interviews will reflect the presence of dietary change induced by culture if applicable. Moreover, through a compilation of cultural recipes, series of case studies, and interviews, it will become evident if food cultures themselves have the possibility to alleviate and reverse the nutrition transition and the global food crisis.

Literature Review

The Nutrition Transition within Developed and Undeveloped Countries

Executive Summary

The science and study of adequate nutrition has evolved drastically over the course of history. As a result, dietary habits and customs have evolved as well. Malnutrition has plagued the world for thousands of years; however the transformation of the food industry, urbanization, rising sedentary lifestyles, and obesity has evolved to be an equally overwhelming global problem. This is known as the nutrition transition, affecting both industrialized and unindustrialized nations. From gathered research, I hope to demonstrate the presence of this epidemic as a result of many social, economic, cultural, and agricultural changes through various perspectives. Moreover, through the presentation of specific case studies, I hope to illustrate the dietary transformation, if present, and evaluate the occurrence of non communicable diseases---diseases of civilization. In addition, with specific case studies, I hope to apply these several influential changes and factors attributing to the dietary transition and disappearance of food cultures if present.

Introduction

As the world rapidly transforms in the wake of globalization and westernization, the ripple effects can be seen in every aspect of the global society---from technology to foreign trade. These effects have taken a toll upon the global food industry and the nutritional states of the affected countries. Within this process, countries rapidly advance in pursuit of the Western culture and ideology. Generally, industrialization leads to a dramatic increase in income that ultimately affects spending on food. This process in turn results in a distinct nutritional gap between the wealthy and poor nations.

Both developed and undeveloped countries are challenged by globalization's effects on nutrition. Industrialized countries that have a relatively high GDP, economically developed, for instance, are among the most nutritionally unhealthy, obese, with high rates of non-communicable diseases. Undeveloped countries on the other hand, struggle to balance dietary affects of the accompanied nutritional trends associated with Westernization. Obesity is such of an example of a distinctive nutritional causal effect of Westernization. Undeveloped countries on top of which, attempt to solve problems of malnutrition. Developed countries are experiencing a paradoxical change nutritionist describe as a 'nutrition transition.' This ironic nutritional transition is described as a shift from lack of food and world hunger, to a rising problem of overabundance and obesity. Furthermore, the obesity and dietary changes of developed world countries ironically lead to malnutrition. In addition, due to

poverty in undeveloped countries, the Western processed diet allows for consumption of readily available cheap food that inevitably produces obesity.

In the examination of the research, it became evident that the ironic dietary change in the global diet is caused by Westernization. Furthermore, various sources confirm and explain the initiating factor of income that generates this dietary transition. Pollan (2008), Wadley and Martin (1993), Popkin (2006), Grigg (1999), and Caballero (2005) agree that the change of lifestyle from rural to urban-provokes a sedentary life, directly contributes to the growing global problem of obesity. However, it became clear that Westernized countries are not the only ones plagued by non-communicable diseases due to obesity. Through several case studies and dietary analyses conducted on various Westernized, transitional, and undeveloped countries, it was affirmed this nutritional epidemic has distressed cultural lifestyles, traditional diets, customs, food dependence, and created preventable health problems. In this review, I have complied examples of scholarly case studies of several countries to compare and demonstrate the relation between income, dietary intake, culture, and health. These examinations and comparative studies simply present the scope of the problem statistically and culturally, without necessarily offering fundamental solutions. Although, a select few sources do provide viable solutions to the nutritional transition inadvertently, nevertheless they seem rather idealistic in their proposition.

What is Nutrition?

There are multiple definitions of nutrition. Nutritionist Susan Fairweather-Trait, for example, defines nutrition as "the branch of science that involves the processes by which living organisms take in and use food for the maintenance of life, growth, the functioning of organs and tissues, and production of energy" (Fairweather 1710). Author Michael Pollan makes a clear distinction in his book *In Defense of Food: An Eater's Manifesto* between nutrition and 'nutritionism'. Nutritionism is rather an ideology of reducing the food to its sum of nutrients (Pollan 2008). Nutritionist Marion Nestle acknowledges this rise of ideology which consequently brought about food science and 'processed food products.' Pollan's argument for explaining the global nutritional paradox is based on this ideology: in the development of nutrition science, people are concerned more than ever about nutrients which can be easily added to cheap processed foods that lead to obesity. However, Pollan's (2008) argument focuses on the American and Western obsession of nutritionism rather than a global perspective of diet related obesity. In both the definitions of nutrition by Pollan and Nestle (2007), the focus is primarily on the substance and natural quality of a given food.

What is the Nutrition Transition?

The nutrition transition is the dietary problem facing humanity due to the Western influences that stretch across the globe. These changes can be seen from the dinner table, supermarkets, and cultures themselves. "At a time when hundreds of millions of people do not have enough food to eat, hundreds of millions are eating too much and are overweight or obese" (D'Alusio-Nestle

2005). Pollan (2008), Popkin (2006), Grigg (1999), Caballero (2005), and Nestle (2007) claim that the problem stems ultimately from the globalization of food that allows for rapid, cheap productivity of processed food. This food is quick and convenient for fast-paced industrialized countries, while providing an abundant cheap source of 'energy dense' food for poor peoples and nations. A second additional cause is the marketing within the globalized food industries which desires to expand sales by increasing the numbers of new consumers, thus ultimately developing nations. Thirdly, the onslaught of obese related health problems prevalent in both developed and undeveloped countries is due to the Western culture. The social and economic transition between rural and urban communities produces a sedentary lifestyle and a disconnect between humans, food, and nature. Fourthly, Pollan argues that the developing field of nutrition and food science is a primary factor related to the globalization of the food industry that creates 'food products.' Finally, Pollan (2008), Nestle (2007), Grigg (1999), Popkin (2006), Fairweather (2003), Wadley-Martin (1993), and Caballero (2005), agree that the increased importation within the food industry reduces traditional grains and vegetable based diets, and gives way to higher consumption of fats and sugars (FAO).

What Brought About the Change of Global Food Consumption?

British geographer David Grigg analyzes the historical and geographical development of global food consumption. He argues that the industrial growth in the nineteenth century was a series of drastic transformations of lifestyle and

diet. "The consumption of nearly all foods increased as incomes rose and total calorie consumption increased as much as 50%"(Grigg 1999). With new technological developments such as refrigeration, improved transportation, and preservation, a food's 'lifespan' was extended. Nestle contends that these advancements enabled seasonal food availability year round; further catalyzing the move toward processed foods. This article published in 1999, however, fails to address the impending change seen in the twenty-first century. Alternatively, Pollan criticizes the development of food science in the twenty-first century as the initial precursor of global dietary change. Yet each of these views however, are related to one another, as they critique the industrial period that brought about food science and the Western diet.

The Agricultural Transition

What is crucial to understand according to David Grigg (1999) and Michael Pollan (2008), is the economical and agricultural transition within history. From hunter-gatherer societies, to rural farm communities, to urban cities, communities and lifestyles evolved, or rather devolved. Once agricultural and self sustaining, humanity has evolved from having a relationship with the land to a dependence on an insufficient industrialized food system. "People who move from rural to urban areas usually lose the ability to grow their own food and become dependent for their calories on a cash market" (Caballero 2005). Grigg explicitly presents the causes of the dietary evolution arguing that it leads to

increased calorie consumption. Dr. Benjamin Caballero goes further to state that working women who move to the city become less available to prepare meals, relying heavily upon cheap commercially prepared foods that fit within their working budget (Caballero 2005).

Obesity, Pollan argues is the inevitable result of this new socioeconomic evolution and American 'fast paced and convenient' lifestyle. Pollan's argument is heavily based on the disconnect within the intimate relationship between humans and food. Furthermore, he describes the transition as evolving from wholesome simplicity to processed complexity of humanity's diet. Pollan remains to be one of the few sources that overtly suggests a local and seemingly hunter-gather diet as a means to avoid the effects of the socioeconomic transition by reconnecting with nature.

Evolution of Civilization and Agriculture

Australian biologists Greg Wadley and Angus Martin conducted a critical examination, *The Origins of Agriculture: A Biological Perspective and New Hypothesis,* of the evolution of civilization and agriculture and raises an important reflection upon the Western diet. Their scientific study provides a unique perspective on the development of Western civilization. Pollan as well makes several arguments concerning the agricultural evolution, specifically within aboriginal societies. Wadley and Martin begin their study on the lifestyle and diet of the Neolithic man 10,000 years ago.

Their study concludes that the Neolithic lifestyle was successful and sustainable through means of gathering, cultivation, animal husbandry, and simple farming

methods. New crops and methods of farming were gradually developed which introduced a new diversity within Neolithic man's diet. These crops included principally of cereals, grains, tubers, and vegetables. What is interesting to consider within this study is Wadley and Martin's comparison of the Neolithic man's diet to today's modern man's. Additionally, the scientific study suggests that the change in agricultural practice ushered a new diet. Wadley and Martin's scientific analysis of the anatomical fossils of early hominids provides a useful perspective for the ensuing dietary change. "The modern human diet is very different from that of closely related primates and, almost certainly, early hominids"(Wadley-Martin 1993). Wadley and Martin suggest that the rise of cereal production resulted in the agricultural transition from the hunter-gatherer lifestyle. Within a few thousand years of the adoption of cereal agriculture, the old hunter-gatherer style of social organization began to decline. "Large, hierarchically organized societies appeared, centered around villages and then cities. With the rise of civilization and the state came socioeconomic classes, job specialization, governments and armies" (Wadley-Martin 1993).

Dietary Change as a Product of Civilization?

The hypothesis that civilization itself brought about the dramatic change in diet and agricultural practice is a radical notion, in comparison to Pollan, Grigg, Popkin, Fairweather, and Caballero. Many of which neglect to question the seed that brought about out population and dietary change. Furthermore, similar to Pollan, Wadley and Martin remain one of the few sources to take into account the functionality, ingenuity, and sustainability of humanity's ancestors, despite their

primitive comparison to modern standards. "While hunter-gatherers lived in egalitarian, autonomous bands of about 20 closely related persons, with at most a tribal level of organization above that, early agricultural villages had 50 to 200 inhabitants, and early cities 10,000 or more. People had to learn to curb deep-rooted forces which worked for increasing conflict and violence in large groups" (Wadley-Martin 1993). Wadley and Martin bluntly question what spurred the rise of civilization that which greatly affected our relationship with others, nature, and food. They ask:

"What animus impelled man to forego the independence, intimacies, and invariability of tribal existence for the much larger and more impersonal political complexity we call the state? What forces fused to initiate the mutation that slowly transformed nomadic societies into populous cities with ethnic mixtures, stratified societies, diversified economies and unique cultural forms?"(Wadley-Martin 1993). After raising these questions, Wadley and Martin stipulate that the rise in cereal production is the root of all civilization. Cereal production, they argue initiated an agricultural transformation from independent gathering to field cultivation for the community. Wadley and Martin question the existence of civilization as a product of agriculture. They pose the question if civilization is due to the production of cereal that brought about a poorer diet, then what relevancy does civilization have?

Scientific Explanation of the Origins of Civilization and Agriculture

Wadley and Martin also propose an examination of the origin of civilization through a scientific perspective. Wadley and Martin analyze the physiological effects of cereals and wheat. Within their scientific and medical findings, they found that patients who previously consumed cereals had periods of withdrawal after having removed it. They affirmed that cereals released exorphins, "similar to morphine and drug side effects—an addiction, that rewards with motivation, reduction, reduction of anxiety, and a sense of wellbeing"(Wadley-Martin 1993). In relation to the development of civilization, Wadley and Martin state that "Exorphins attracted people to settle around cereal patches, abandoning their nomadic lifestyle for a sedentary life, and allowed them to display tolerance instead of aggression as population densities rose in these new conditions"(Wadley-Martin 1993). This argument provides a unique perspective between civilization and agriculture. Additionally, Wadley and Martin suggest that due to the addiction to cereals, a new diet evolved. "The fact that overall health declined when they were incorporated into the diet suggests that their rapid, almost total replacement of other foods was due more to chemical reward than to nutritional reasons"(Wadley-Martin 1993).

Their argument also includes comparisons of various civilizations; for example 'large, hierarchal states consume more exorphins.' Analogous to Pollan's argument of the Western dependence on processed foods (the majority which are cereals), Wadley and Martin assert that "because of reliable, on

demand availability of dietary opioids to individuals, and a sedentary life, they become more easily subjugated by rulers"(Wadley- Martin 1993). In making a critical contribution to the theory and origin of diet and civilization, Wadley and Martin's study remains to be one of few that targets the core and unquestioned factor of the civilization through a systems thinking perspective.

Globalization

Pollan and Popkin also examine the effects of globalization on nutrition and diet. Popkin implies that "Globalization, with its focus on freer movement of capital, technology, goods, services, has had profound effects on lifestyles that are linked with diet, activity, and subsequent imbalances that have led to the obesity epidemic"(Popkin 2006). Pollan makes a similar statement about the American food industry. He criticizes factors such as food science, government corn and grain subsidies, and nutritionism as contributing to the growing obesity epidemic.

Popkin illustrates several contributions of globalization to the nutrition transition. Firstly, "the worldwide shifts in the trade of technology, transportation, leisure, and work. Secondly, globalization of the modern food processing, marketing, and distribution techniques (Western Diet), and thirdly, the vast expansion of global mass media"(Popkin 2006). Within his hypothesis, Popkin undoubtedly attributes the force of globalization as a significant cause within industrialized and unindustrialized nations.

D'Aluisio and Menzel's photography illustrate how various Western and processed products linger into families' weekly budget in lesser urbanized

nations due to globalization. In their book, *Hungry Planet: What the World Eats,* they examine diets and food expenditure of families within 24 countries with commentary from their experience. Their study includes the family's dietary weekly budget divided in categories such as snacks, beverages, vegetables, prepared foods and others. Within a country's profile, they include socioeconomic factors such as GDP, population, life expectancy, number of fast food chains, health expenditure, obese/malnourished percentage, and other unique facts.

Supermarkets

Globalization's effect within the food industry can be seen in development of supermarkets as well. Nestle (2007), Pollan (2008), Grigg (1999), and Popkin (2006) criticize large supermarket chains around the world as contributing to the obesity problem. As a consquence of urbanization, large supermarkets such as Walmart or Carrefour are replacing small outdoor markets that provide locally grown food. These large supermarkets match the size of the urban population within cities. Pollan (2008) gives an extensive criticism of American supermarkets that are fueled by nutritionism, convenience, and capitalism. These supermarkets embody the transition from quality to quantity as Pollan affirms.

Nestle's novel (2007), *What to Eat* is a guide for every food consumer within the vast expanse of the supermarket. She describes various foods and their nutritional value, labeling, and the supermarket layout that is organized for optimal spending. The spread of supermarket chains are not only within industrialized countries, but in less industrialized as well. Popkin states that

"Consumer demand for processed and safer foods are on the rise in developing countries. As countries modernize, the opportunity cost of women's time has grown; building a market for time-saving prepared foods has become important"(Popkin 2006). Furthermore, Popkin argues that the liberalization of direct foreign investments, global mass media, trade liberalization, and the saturation of Western markets that has pushed growing companies into other locales (Popkin 2006). Nestle, Pollan, and Popkin affirm that these supermarkets provide easy access to cheap, energy dense calories, which are ideal meal 'solutions' for low income families.

The Relationship between Agriculture and Caloric Intake

This agricultural-urban movement within civilization immensely affected the global caloric intake. David Grigg's analysis recognizes the caloric transition specifically within the last century of urbanization. According to his studies, developed countries within the nineteenth century consumed roughly between 1800 to 2300 calories on a diet of cereals and starches; in contrast to the 15% total energy supply derived from livestock (Grigg 2). Developing countries daily caloric intake ranged from 1700-1800 calories. Within this period of transition meat and livestock production, as Grigg argues, was relatively expensive to eat and produce for both groups. In the early twentieth century however, meat consumption signifigantly rose in developed countries to 30%; while only 1/5 of protein was derived from animal sources in undeveloped countries (Grigg). Moreover, within this period of economic development, Grigg maintains that there

was a 55% caloric difference between the two groups. While the undeveloped countries acquired their calories from cereals, roots, grains, and pulses; developed countries moved away from these basic sources not only to animal products, but to fats, oils, and sugars. According to the World Health Organization, daily total energy intake in developing countries is 2681kcalories, 2906 kcalories in transition countries, and 3380 kcalories in urbanized countries, of which 17% is meat products (WHO).

Transfer to Sugar and Fats

Both Grigg (1999) and Pollan (2008) believe that the rise in fats and sugars further ushered the nutritional transition. "American farmers have produced an average 600 more calories per person since 1980, therefore proportions sizes have ballooned—and 93% of these calories constitute sugars, fats—particularly High Fructose Corn Syrup, and refined grains" (Pollan 2008, 122). Pollan's argument chiefly is limited within the changing American diet, however, from his perspective serves as the foundation of the Western diet. His fine-tuned insight explores the Unites States' historical development of sugars and fats in the American diet. He criticizes that "In the mid-seventies Nixon's administration adopted an ambitious cheap food policy. Agricultural policies were rewritten to encourage farmers to produce corn, soy, and wheat—resulting in High Fructose Corn Syrup and processed refined wheat" (Pollan 2008, 121).

From Grigg's (1999) global perspective, sugar during the nineteenth century and earlier was an expensive commodity, thus the development of High Fructose Corn Syrup alleviated this problem. In addition, due to the rise in

incomes, people could now afford not only High Fructose Corn Syrup products, but sugar as well. Although, the higher consumption of High Fructose Corn Syrup, Grigg claims, was partially due to the health statements on the negative effects of sugar. Nestles' *What to Eat* expresses this dietary switch, "High Fructose Corn Syrup accounts for the 22-pound increase in caloric sweeteners…the average availability is about 700 calories a day from sugar alone"(Nestle 321). Similar to Grigg and Pollan, Nestle stipulates this rise in sugar consumption as a key component that led to the nutrition transition.

What is the Western Diet?

The 'Western Diet' is a term that nutritionist associate to typical diet of industrial and developed nations consisting of processed meat, high fat, high sugar, corn and grain based, and has minimal fruit and vegetables. In Pollan's novels, especially *In Defense of Food,* he articulates in depth the Western Diet by portraying what's on the American dinner table. He stipulates that the American obsession with nutrients (rather than food) and the rapid development of food science triggered shockwaves throughout the rest of the developed world. D'Aluisio and Menzel in their valuable photographic depictions of global diets, illustrate how processed food products have lingered onto families tables in undeveloped countries. In addition, traditional cultural foods slowly disappear from the dinner table. This extensive photographic portrait is a valuable visual resource for direct dietary information for various nations.

Furthermore, the cultural connection between food and humanity is lost due to the 'monoculture' diet of the West. Nestle stipulates "The problem with

nutrient-by-nutrient nutrition science is that it takes out the nutrient out of the context of the food, the food out of the context of the diet, and the diet out of the context of the lifestyle"(Nestle 245). Pollan argues that breaking down nutrients molecularly allows the reductionist science to re-add it to any food. Therefore, Pollan and Nestle state that any food now can be considered 'healthy'; for example they can make health claims on margarine or Froot-Loops on how they now contain beneficial omega-3s. In addition, Pollan insists that the rise in nutritionism and food science led to the development of 'food like substances' that attribute to seventeen thousands new products a year. Nestle and Pollan theorize that this reductionist science is part of the dilemma of obesity and non-communicable diseases. What happened to actual food? Pollan argues that the Western food culture has degraded itself from quality to quantity, simplicity to complexity, food culture to food science, leaves to seeds, and whole foods to refined (Pollan 2008). The Western Diet characterizes the lost sustainable agricultural inheritance from our ancestors and the dependence upon the processed food industry.

Contrary to Pollan's belief that the principal contribution to this development was the rise of nutritionism, changing meal habits, and Western diet, Grigg targets the rise in income as proportional to the rising caloric intake. He states that "The initial response to increased incomes was to eat more starchy staples—once this need had been satisfied the population ate more sugar, oils and fats, fruits and vegetables, and especially meat and dairy products…starch consumption declined"(Grigg 1999).

Within the context of Grigg's inference, Pollan's approach is rather intimate. The increasing detachment from food and meals within families and cultures epitomizes this socioeconomic nutritional change. Our biological ancestors thousands of years ago, cultivated and depended upon the land for survival. Pollan admires the relationship between food and the Paleolithic man. This relationship between the farmer, food, and eating was lost in the industrial age. Moreover, Pollan recognizes the intimate connection between cultures and food. "In many cultural practices, eating is deeply rooted in nature—the specific combination if foods in a cuisine and they ways they are prepared constitute a deep reservoir of accumulated wisdom about diet and health," Pollan concludes. (Pollan 2008) This knowledge, Pollan believes, has been lost amidst the Western diet.

In the Western diet, 'the meal's' important position as a social and cultural activity has dramatically been degraded to the car, the office, or in front of the television. In relation, the pleasure of producing and eating food has been replaced by convenience, consequently resulting in an unhealthy diet. Pollan asserts that the nutrition transition is rooted in the emerging divide between humanity and nature. Both of these arguments address the rising nutrition transition, however, Pollan's perspective is orientated around the shifting lifestyles, the emerging processed food industry, and the loss of cultural traditions of meals, primarily within America. Grigg's hypothesis remains rather statistical and objective with little discussion pertained to the evolution of meal habits and food detachment.

Prevalence of Obesity in Developed and Undeveloped Countries

A common key theme woven throughout the research is the prevalence of both obesity and malnutrition within one family and moreover, in one country. Dr. Benjamin Caballero and Chris Burslem studies exhibit this nutritional paradox. "This relatively new phenomenon in countries is seen in as many as 60% of households with that have an underweight family member and an overweight family member; the situation is dubbed the 'dual burden household'"(Caballero 2005). Likewise, Burslem of the International Food Policy Institute, and Caballero claim that this phenomenon occurs in undeveloped countries as well. Some of the highest rates of obesity are recorded in the South Pacific and Latin America. Surprisingly enough, Burslem states that up to 10 to 15% of adults in Sub-Sahara Africa are overweight. What is the common link between the rise of obesity and health problems between developed and undeveloped countries? Caballero, Burslem, and Meade identify income as the explanation for the global nutritional paradox.

Income and Food Expenditure

Agricultural economist Birgit Meade conducted a study that examined 51 countries in comparison of spending and consumption. She states that the private consumption expenditure (PCE), a term coined by the United Nations, reflects the economic status of a country and its diet. Differences in per capita income are the principal force behind differences in food expenditure shares.

Low income countries are forced to spend most of their income on food to survive. As income rise, they will buy more and better food—once foods are satisfied, income will be spend on other goods and PCE will generally decline (Meade 1996).

She divides the countries into three different categories based on the GDP per capita: high income exceeding $10,000, medium income between $700-$10,000, and low income less than $700. She writes that "The high income countries spend an average of 16% of their PCE on food, while middle income countries spend 35%, and the low income countries spend 55%" (Meade 1996). This is a significant ironic difference between the expenditure of a high income and low income nation. Pollan points out that the average American family spends roughly only 10% of their annual income on food, whilst countries such as Tanzania spend as much as 71%; how is this nutrition paradox possible? Meade attributes that food prices are a considerable component. "Efficient food production, marketing, favorable import conditions, and government subsidies can reduce food prices—such as efficiencies in the American meat industry that lower the cost of meat products"(Meade 1996). Caballero asserts that the PCE of developed countries is spent on cheap energy dense foods; contrary to the presumption that as GDP and socioeconomic rank increase so consequently does nutrition. This urbanization translates to the overabundance of cheap and readily available foods.

However, Meade presents a considerable argument pertaining to the caloric consumption within the various countries. "On average, the lower the

share of PCE spent on food, the higher the daily per capita daily consumption—for example the United States has one of the lowest PCE and one of the highest GDP, yet the daily caloric consumption is one of the highest in the world--3,732"(Meade 1996). Furthermore, caloric intake is proportional to the countries diet, Meade argues. The price of calorie within developed countries reflects the GDP and diet. Meade's study illustrates this relation; as most developed countries diets comprise of relatively more expensive meat, fish, and dairy products. Comparable to Pollan and Grigg's theory, Meade affirms that "as incomes rise, low and middle income countries are likely to replace some of the cereals, roots, and tubers in their diets with high value foods, such as meat, milk, vegetable oil, fruits, and vegetables"(Meade 1996).

This theory supports Nestle's argument that the rise of the processed meat and corn industry is a consequence of the socioeconomic status. The diets of undeveloped and low income countries reflect their socioeconomic status, the 'basic' foods similar to a hunter-gatherer diet. Developed countries move away from these basic foods inorder to keep to pace with their urban lifestyles. In addition, the generally rural and agricultural lifestyles of undeveloped countries constitute their 'earthy' and agrarian diets produced from their manual labor. The nutrition level within each does not directly correlate proportionally to their income. Economist Alan Berg in his article, *Increased Income and Improved Nutrition* states that "There is no question that diet changes with increased income, and higher the income the more noticeable the new foods. But this does not necessarily mean a noticeably improved diet"(Berg 1970). Berg's refutes

basic assumptions on the proportional relationship between income and nutrition.

The American Journal of American Nutrition, **Barry Popkin (1999) further extends his study to examine dietary habits and caloric changes. He writes"In higher income countries, these shifts are increased portion sizes, take aways, snacking…and the replacement of water and milk with calorically sweetened beverages"(Popkin 2006). Popkin affirms Grigg and Pollan's theories that higher income parallels a higher meat and processed food consumption. In addition, as GNP increased, sugar intake increased in urban areas. Consequently, fruits and vegetable consumption in decreased, however, there are exceptions.**

Various Diet Related Health Problems within Developed and Undeveloped Countries

Popkin writes an instructive commentary on the relationship between increased income and non-communicable diseases. His article, *Global Nutrition Dynamics*, begins with a discussion of the nutrition transition. His analysis of the nutrition transition affirms the theories of Nestle, Caballero, Meade, Grigg, Pollan, Berg, and Burselm. He similarly argues that major shifts in dietary change, physical activity, and socioeconomic change are associated with the nutrition transition, which consequently increases the risks of diet related diseases. Popkin produces an interesting study that correlates with the hypothesis of Wadley and Martin. He outlines a five step progression of the nutrition transition that is the heart of his theory.

Popkin's 5 Step Nutrition Transition Progression:

1. The first is linked to hunter-gatherer societies or the Paleolithic pattern that covers a long period of time. The diet was very healthy, but infectious diseases and other natural causes resulted in a short lifespan.

2. When modern agriculture and a period of famine emerged, nutritional status worsened.

3. Famine begins to recede as income rises.

4. Changes in diet and activity patterns lead to the emergence of new diseases and increases disability.

5. Behavior change begins to reverse the negative tendencies of the proceeding patterns and enable a process of successful aging.

A range of factors including urbanization, economic growth, technical change, and culture drives all the changes (Popkin 2006).

In addition to this analytical outline, Popkin includes ten specific characteristics of each developmental pattern. These categories consist of: nutritional diet profile, nutritional status, economy, household production, income and assets, mortality and fertility, morbidity, age structure, residency patterns, and food processing (Popkin 2006). Popkin's study examines obesity patterns throughout the world parallel to the country's GNP. He concludes comparably to Caballero and Meade from the 36 country study, that "Countries with high income and urbanization levels not only had high absolute levels overweight plus obesity, but also had small urban-rural differences. Overweight among women with low socioeconomic status was high in both rural (38%) and

urban (51%). Even in poor countries, underweight persists as a significant problem with high levels in rural areas"(Popkin 2006).

From this established evidence, Popkin observes the prevalence of obesity between adults and children within the 36 countries. Within his study, he compares the body mass index (BMI) of high and low income nations. He asserts that obesity is highest amongst adults, rather than children. However, diabetes was present not only in adults, but increasingly in adolescents as well. He concludes, "Overweight children are more than twice as likely to have high blood pressure, type 2 diabetes, or heart disease as children of normal weight"(Burslem 2004).

Coronary Heart Disease

A collection of six nutritionists and epidemiologists conducted a study portraying the profound relationship between diet and coronary heart disease between seven countries. The study, *Food Intake Patterns and 25-year Mortality from Coronary Heart Disease: Cross Cultural Correlations in Seven Countries,* analyzed sixteen men of various nations, diet, and health. The researchers evaluated caloric food consumption within different food groups. Their results indicate that "The present concept of a healthy dietary pattern is derived from the positive effects of the 'Mediterranean Diet' that is rich in plant foods and relatively poor in animal derived foods. A diet low in animal and dairy products and rich in plant foods may protect against coronary heart disease"(Journal of Epidemiology 1999). This study provides an in-depth and scientific examination of the correlation between diet and coronary heart disease.

Comparably, a study conducted by researcher Ansel Keyes desired to show the relationship between heart disease and the consumption of dietary fat. Keyes analyzed this proportional relationship within seven countries—Japan, the United States, Greece, former Yugoslavia, Finland, Italy, and the Netherlands. It consisted of a detailed dietary inquisition of 12,000 men between the ages of 40-59. From the gathered results, it was concluded that the type of fat consumed overrides the total amount of fat--the type of fat remains more important than the quantity consumed. For example, olive oil is an excellent source of a heart healthy mono-saturated fat; therefore it may be consumed in greater amounts. Research dieticians argue that all fats are not nutritionally equal, which is a significant nutritional understanding for heart health.

Cancer

The World Health Organization (WHO) carried out a scientific study of the connection between diet, physical activity, and cancer. They estimate that there are 20 million people presently living with cancer. "Dietary factors are estimated to account for approximately 30% if cancers in western countries, and the 20% in developing countries is projected to grow"(WHO). Furthermore, they assert that cancers are strongly related to social economic status and lower levels of education. "Dietary factors [associated with cancer], are obesity, excess alcohol consumption, salty drinks and foods, meat and animal fats"(WHO). This is a significant statement as 1/3 of Western countries caloric intake consist of meat products. This is an objective and valuable study that presents the links between poor diet and increased cancer risks.

Diabetes

According to a WHO recent study and survey, diabetes causes 5% of all deaths, furthermore 80% of all diabetes is within high to middle income countries (WHO). Diabetes is most prevalent among middle aged adults and is expected to rise 50% in the next 10 years (WHO). Diabetes is a result of being overweight, having little physical activity, and a poor diet. Type II diabetes accounts for 90% of all occurrences within high and middle income countries, however 80% of diabetes death occur in low to middle income countries due to lack of medical access. In addition, diabetes also increases the risk of heart disease, kidney failure, and stroke by 50% (WHO), which all can be avoidable largely through a healthy diet and lifestyle. Due to the connections between these ailments, it is projected that annually 2.9 million people die a year with diabetes related illnesses.

Case Studies: Nutrition Transition

A series of case studies of various countries help exemplify this proportional relationship between industrialization, culture, and diet. Furthermore, these case studies explore the significance of a nation's food culture and dietary habits in relation to health. These studies include facts gathered from the World Health Organization and D'Aluisio and Menzel's factors such as diet, GDP, population, obesity/malnutrition percentage, and others.

Japan:

Population: 127,333,002
Population of Tokyo: 33,750,000
Urban Population: 66%

Life Expectancy- Male/Female: 78/85 years

Daily Caloric Intake Available per Person: 2,761 Calories

Total Annual Health Expenditure per Person ($): $2,627

Obese Population: 2/2%

Percent of Population age 20 and Older with Diabetes: 6.7%

Meat Consumption per year: 97 pounds

Fish Consumption per year: 146 pounds

Food Expenditure for One Week: 37,699 Yen/$317.25 (according to one family)

No. of McDonald Restaurants: 3,891
(D'Aluisio-Menzel 2005)

Japanese Diet:

In the sixth century, the Japanese government forbade the consumption of animal meat. This Buddhist tradition lasted throughout the centuries and Japan closed its doors almost completely to overseas contacts of any kind and thus became the only non-European country to be colonized (Jonas 2000). As a result, the diet reverted to a more fish, seaweed, vegetable, fruit, soy, and carbohydrate based diet. Seaweed draws an extraordinary wealth of mineral elements that can account for up to 36% of its dry mass. The mineral nutrients include sodium,

calcium, magnesium, potassium, iodine, iron, zinc, copper, selenium, and many others. It accounts for 10% of the Japanese diet(Dharmananda 2007). The Japanese diet is one of the lowest in fat; only 26% of their calories are fat, and 65% of calories are derived from carbohydrates. These carbohydrates include rice (*gohan), udon* noodles, *soba* noodles, barley, millet, and sweet potatoes. Typical dishes include *Sashimi, Sukiyaki, Tempuras, Miso Soup, Ohitashi, Shumai,* and *Kaiseki.*

Dietary and Culinary Principle:

***Hara hachi bu* is a dietary principle followed by the Japanese. It simply means to eat until you are 80% full. Additionally, Japanese regard food as a culinary art visual presentation to stir an appetite. "The visual aesthetics of food presentation is a central element of the culture. It is meant to be 'eaten by the eyes' through shapes, forms, colors, textures, and tastes" (Jonas 2000). In addition, every food has a specific dish and is coordinated appropriately. Fish and vegetables are bought and prepared fresh. Mealtimes are set aside accordingly and ate slowly. Japanese chain fast food restaurants are present, however, they serve mainly sushi, seaweed, sashimi, and vegetables.**

Notable Health Statistics:

On average, Japanese consume more than 45 pounds of fish annually. Consuming more protein rich fish correlates to higher consumption of essential omega 3s. Essential omega 3 fatty acids are not produced by the body and can only be obtained through diet. Omega 3s reduce the risk of heart disease,

clogged arteries, inflammation, blood pressure, neurological illnesses, and boosts brain tissue production (Jonas 2000,Stein 1999). Japanese consume fish at least once a day, such as *sashimi* or *sushi* for example. It is estimated that the Japanese consume 60% of the world's seafood that is harvested. As a result, Japanese rates of cardiovascular deaths, diabetes, breast cancer, are among the lowest in the world. In addition, they have the highest life expectancy in the world. Okinawa has the highest life expectancy and number of centenarians. This is due to daily exercise, stress free life, and a healthy diet (D'Aluisio-Menzel 2005). Further, only 7% of Japanese are clinically depressed. Furthermore, 30 out of 100,000 people suffer from heart disease. Moreover, only 10% of Japanese suffer from diabetes.

Daily Recommendations:

Grains: 6-11 servings

Vegetables: 3-5 servings

Fruits: 2-4 servings

Milk: 2-3 servings

Fish (Meats): 3-4 servings

France:

Population: 60,424, 213
Population of Paris: 11, 264,000
Urban Population: 76%

Life Expectancy, Male/Female: 76/84 years

Daily Caloric Intake Available per Person: 3,654 calories

Total Health Expenditure per Person: $2,109

Obese Population Male/Female: 7/6%

Annual Wine Consumption of per person: 52.8 quarts

Annual Cheese Consumption per person: 52.4 pounds

Annual Meat Consumption per year: 222 pounds

Food Expenditure for One Week: 315.17 Euros/$419.85 (according to one family)

No. of McDonald Restaurants: 973

Annual Cigarette Consumption per person: 2,058
(D'Aluisio-Menzel 2005)

French Diet:

The French diet is characterized as being rich, indulgent, and high in saturated fat. The French are extremely proud of their food and its culinary art. "Eating well is an integral part of the national heritage of the whole of France"(Jonas 2000). The French have an exquisite taste for fine foods and appreciate the extensive and detailed process of production. Many French consider themselves culinary connoisseurs. Traditional French foods consists of various *fromages, patisseries, crepes, canard d'aioli, foi gras,* and rich sauces. One question raised is how is it possible for the French to maintain their health and figure? This is known as the French Paradox, "despite their attachment to fine and rich foods, they are some of the healthiest and perhaps guilt free people

on the planet"(Jonas 2000). On average, the French annually spend 17% of their income on food.

Despite their love of quality wine, the French drink in moderation; around one to two glasses daily. "Studies show that wine may contain antioxidants that raise 'good' levels of HDL cholesterol, that prevents fatty deposits from building up on artery walls, and preventing blood clots, and boosting longevity"(Jonas 2000 Pollan 2007). Because of their appreciation for wine and food, they usually drink and eat slowly, and enjoy their meal. The French are known even to give their children small amounts of wine as well. "Wine is part of life and part of food. You can't have a great meal without wine"(Jonas 2000).

Dietary Habits:

The French consume 4 or more servings of vegetables a day, even though their diet consists of 35-38% of fat—far above the recommended daily intake. Scientist and nutritionists argue that the mystery behind the French Paradox, is moderation, not their genes. From wine to buttery pastries, the French savor exceptional foods in moderation. Furthermore, proportion size is an important factor in every meal, so too is quality.

A typical French meal is spread between four courses. The first usually begins with a small soup or salad, followed by the main course, and a cheese and bread spread. Rich deserts are usually reserved for special occasions. Breakfast includes a *croissant* or *morceau du pain* with jelly or butter and coffee. Lunch is by far the largest meal of the day; the French consume at least 60% of their

calories already by 2 pm (Jonas 2000). They allocate on average around 2 hours for lunch (at a table) to enjoy and converse. By consuming 60% of daily calories by 2pm allows them to burn the majority of their calories during the day by walking. Dinner usually is served around 8:00 pm and is a rather small meal. In addition, it is a habit of the French not to snack during the day. This dietary principle is apart of the mystery of the French Paradox.

Notable Health Statistics:

France, according to the World Health Organization has the lowest, second to Japan, rates of breast cancer and cardiovascular diseases. According to the WHO, 286 people out of 100,000 have cancer. Dieting is a taboo within the culture as well, and only 8% qualify as obese. In addition, 83 per 100,000 French are living with coronary heart disease. Nevertheless, 35% percent of the French population smoke and lung cancer remains to be the highest occurring disease. However, despite France's smoking addiction, it is predicted that by 2050, 150,000 centenarians will be living in France (Jonas 2000).

Dietary Recommendations:

Grains: 6-8 servings

Vegetables:3-4 servings

Fruits:3-4 servings

Meat/Fish: 2-3 servings

Dairy: 2-3 servings

Other: limited

Chad:

Population: 9538,544

Population of Dar Es Salaam: 210 approx.
Urban Population: 25%

Percent of population as subsistence farmers: 80%

Population with access to safe water: 27%

Years of ethnic warfare since gaining independence from France in 1960: 35

Annual Total Health Expenditure per person in USD: $5

Physicians per 100,000 people: 3

Life expectancy Male/Female: 46/49 years

Caloric Intake Available Daily: 2,114 Calories

Food Expenditure for One Week: 10,200 CFA Francs/$18.33

Undernourished Population: 34%

Number of Oil Reserves in Southern Chad: 1 Billion Barrels

Number of Years Oil Reserves would supply Chad if used at a current rate and not exported: 4,110 years

Percent of Oil that is Exported: 100%

Obese Population: .3/1%

Annual Meat Consumption: 31 pounds

No. of McDonalds: 0
(D'Aluisio-Menzel 2005)

Due to the civil war that erupted in 1965 after the country's declared

independence from France, Chad has been left perpetually in turmoil and poverty. Chad still relies heavily on France's foreign aid, which accounts for 30% of the national budget. Furthermore, an additional 230,000 refugees from the neighboring Darfur region of Sudan inhabit the primarily arid desert region. The oil companies and reserves continually sap the country's wealth, leaving it continually unable to sustain itself and develop. Its land locked position leaves it vulnerable, forcing it to rely on foreign aid. The majority of the population is subsistence farmers. Subsistence crops include millet, grains, legumes, and sorghum. Many families raise and herd goats, cows, donkeys, and chickens commercially and personally. Animal husbandry is the predominant means of the family's meat source. "Self sufficiency is the best means to guard against hunger when there is no government safety net." (D'Aluisio-Menzel 2005) As a result of subsistence farming and self sufficiency, food security remains vulnerable to the environment—such as to droughts, infestations, and heavy floods. Water is precious and rare to come by, as most travel many miles to find suitable drinking water for their families, crops, and animals.

Chadian Diet:

Unlike many countries, there is no distinct food culture due to the limits of food sources and Chad's economic and social state. Rather, there are staple items within the diet. The primary crop is millet which constitutes a large portion of the Chadian diet. *Boule,* a millet and sorghum based porridge is a staple dish. Peanuts are another abundant crop which are usually added to dishes such as

boule **for seasoning or sauces. Milk is very rare as many of the families' animals can not produce a substantial amount. Stews with meat such as dried goat, beef, or chicken are widely consumed. Families usually slaughter their animals for food, and the meat will usually lasts for a week or more. Okra is a stable vegetable providing a base for many dishes and a** ***gumbo*** **sauce. Other essential crops include maize, beans, potatoes, rice, tubers, spices, sesame, and some fruits. Around the river and lake regions, fish such as tilapia and carp provide other meal variations. Dinner is the most important meal of the day, as men and women gather on separate mats for a one dish meal. Cooking preparation is rather simple, consisting of a wood and fire pit. Food preservation is usually a method of natural drying.**

Notable Health Statistics:

Chad's wide range of health problems are derived from malnutrition, lack of food, and poverty. The most common diseases prevalent are tuberculosis, malaria, leprosy, diarrhoeal diseases, and spinal meningitis. Annually, over 100,000 people are diagnosed with tuberculosis. Malnutrition plays a significant factor as a precursor to many of these diseases. According to the WHO, 10% of children under the age of 14 are malnourished, of which 30% have stunted growth. Moreover, it is approximated that 11% of all children are considered to be emaciated. Another rampant disease, AIDS/HIV, affects not only Chad, but Africa as a continent. As of 2005, 150,000 people died from the AIDS/HIV virus. Furthermore, 5% of the population between the ages of 15-49 are infected with the disease. As a result, there are 96,000 orphaned children under the age of 14, of

which 16,000 are infected. It is estimated that out of all married couples, only 4% use a form of contraception.

United States:

Population: 293,027,571

Urban Population: 80%

Life Expectancy Male/Female: 75/80 years

Daily Caloric Intake Available per Person: 3,774 calories

Daily Caloric Intake Available from Animal Products: 1,047 calories

GDP per Person: $35,750

Food Expenditure for one Week:$341.98 (according to one family)

Total Health Expenditure per Person: $4,887

Annual Sugar and Sweeteners Available per Person: 158 pounds

Annual Meat Consumption per Person: 275 pounds

Percent of Processed foods with some genetically modified ingredients: 75%

Percent of soy/corn raised that is a genetically modified variety: 80/40%

No. of McDonalds: 13,491
(D'Aluision-Menzel 2005).

American Diet:

Because of the diversity of cultures and influences, the American diet is product of the wide variety of cultural influences. However, there are specific

"American foods" that are clearly distinguished as being truly American. Hamburgers, hot dogs, macaroni and cheese, french fries, and fried chicken are characteristic of American cuisine. Due the diversity of cultural influences, specific dishes are usually associated to a specific region within the United States. For example, in the South West, Mexican and 'Texican' style foods are the traditional specialties. Every corner of the United States culinary specialties vary. These American dishes, such as hamburgers, mimic their fast food obsession that is rapidly spreading around the world. This aspect of the American diet corresponds to the Western Diet present in many cultures. Culturally, the American diet matches the generally fast paced urban lifestyle with a superficial relationship to food. "As France lives to eat, the United States eats to live"(Jonas 2000). With this disconnected relationship to food, there is little thought or appreciation for quality and enjoyment.

Dietary Habits and Industry:

Americans are widely known for their love of meat. Four meat producing companies control 80% of all domestic beef production. Moreover, 40% of American beef is imported from various countries. In order to sustain and feed the beef population, five grain and corn farms provide for not only the American beef production, but the world as well. Not only does the grain sustain domestic and global meat production, it is the basis for High Fructose Corn Syrup and other sweeteners that highly occur in American processed foods. Therefore, the grain and corn industry fuels the typical American diet. "A typical farmer on the American corn belt feeds single-handedly 140 people"(Pollan 2008).Similar to the

concept of the French Paradox, reversely exists the American paradox. Due to the development of nutritionism and food science combined with the American fascination with dieting and nutrients, how is it that there is such an overwhelming problem of obesity? The problem revolves around the cultural disconnect with food, little diversity, and "taking the food out of the nutrient"(Nestle 2006). Moreover, the habit of snacking that may cause one to skip a meal is very common. There is an entire industry dedicated to the production of processed snack foods to aid the 'on the go' American lifestyle.

Only one in four Americans eats breakfast, lunch, dinner, without snacking. Large and unnecessary proportion sizes are typical. In relation, Americans on average consume at least half of pound of meat a day. Red meat contains high levels of saturated fat. "30% of American daily calories are derived from fat, and 10% is from saturated" (Jonas 2000). This high consumption of saturated fat increases risks of high blood pressure, cardiovascular diseases, and heart attacks.

Notable Health Statistics:

The American Cancer Society estimates that 1/3 of all cancers reported are diet related (Jonas 2000). Breast, prostate, and lung cancers are ranked amongst the highest. Moreover, 3.8 million Americans are over 300 pounds, or 31%. Among children, 1 out of 3 are considered obese. As a result, cardiovascular diseases are the leading cause of death, which are directly related to obesity and diet. In addition, 20 million Americans are currently living with diabetes.

Significantly connected to diet, it is estimated that 19% of American adults are clinically depressed.

Daily Food Recommendations:

Grains: 6-11 servings

Vegetables: 3-5 servings

Fruits: 2-4 servings

Meat/Fish: 2-3 servings

Dairy: 2-3 servings

Fats, Sugars, Oils: Eat sparingly

Bhutan:

Population: 2,185,569
Population of Shingkhey Village: 96 approx.
Urban Population: 9%

Percent of population as subsistence farmers: 85%

Population with access to electricity: 30%

Life Expectancy Male/Female: 60/62 years

Annual Total Health Expenditure: $9

Food Expenditure for One Week: 224.93 Ngultrum/$5.03

Obese population: 5/13%

Annual Meat Consumption per person: 6.6 pounds

Land of 10,000 feet in elevation: 44.5%

No. of McDonalds: 0

No. TV Stations: 1 since 1999 (last country in world with TV)
(D'Aluisio-Menzel 2005)

Isolated amidst the Himalayan Mountains, Bhutan's diet and culture are relatively untainted by Westernization and remains steeped in tradition. Through the legalization of television with one station, the country is beginning to struggle combating and guarding against Western influences (Frontline PBS 2002). The Bhutanese government regulates tourism to only allowing 6,000 visitors per year. It is the only democratic monarchy in the world. "Since 1972 the Kingdom of Bhutan has been trying for GNH, or Gross National Happiness. His majesty, said that 'it is needed to ensure that prosperity was shared across society and that it was balanced in preserving cultural traditions, protecting the environment, and keeps a responsive government. The ultimate goal of Bhutan is to obtain maximum levels of happiness than any other material'"(Ramachandran 2007).

Bhutanese Diet:

Based around small farming villages at high elevation, many Bhutanese are subsistent farmers. A typical family of 5 will live in a small earthen house with dirt floors. Many farmers raise and herd their own livestock, such as yaks and cattle. The Bhutanese diet is rich in fruits, vegetables, dairy and grains, of which an average family produces themselves. Vegetables constitute most meals and include cabbage, spinach, cauliflower, ferns, eggplant, chilies, tomatoes, potatoes, and radishes which are simply prepared. Spices remain to be the primary way to supplement dishes. The national dish is *emadatse,* a chili and cheese stew. Chilies are a staple produce and it's 'spiciness' categorizes Bhutanese food. There is an ethnic diversity amongst dishes as well; such

influences include Tibetan and Indian for example. "Almost all the family's meals consists of cheese, vegetables, and red rice—of which they consume almost 70 pounds of a week"(D'Aluisio-Menzel 2005). If necessary, local markets and out door vendors provide locally harvested produce and meat. Meat is usually eaten dry, roughly once or twice a month, usually from their own livestock. Fish is consumed much less frequently than meat.

Notable Health Statistics:

Only 2% of the population suffers from heart disease. According to the WHO statistics, 6% of the population dies from diarrhoeal diseases. In addition, 7% of the population dies from cerebral disease annually. There roughly only 146 physicians for the entire country (excluding paramedics). However, WHO estimates that 90% of the populations are adequately nourished. Nevertheless, 56% children face stunting in development growth and 19% of children are underweight (Ramachandran 2002). In addition, according to the FAO, 56% of pregnant women suffer from anemia. However, the lack of direct medical attention enhances these ailments.

Australian Aborigines:

Population approx. of Torres Strait: 458,000

Percentage of Australian Population: 2.9% (remote)

Australian Aboriginal Diet:

Aboriginal peoples have been present on the Australian continent for at least 30,000 years. "Each clan stayed within its own prescribed area, except to participate in religious ceremonies or to share in particularly bountiful harvests of foods like shellfish or nuts"(Enig 1999). They resort to a hunter-gathering lifestyle whether in arid plains or subtropical areas of Australia. Various groups rely on seasonal foods. Men primarily hunt for wild game, kangaroo, boars, birds, and fish. The men usually track wild animals through scent, droppings, tracks, and rarely hunt at night except in search for possums, bats, and koala bears (Enig 1999). Other wild animals supplement to a wide variety to their diet, such as iguanas, lizards, frogs, snakes, ducks, and even parrots. Women usually gather wild fruits, vegetables, insects, honey, and nuts. In general, aboriginal diets are diverse. In addition, women prepare the food for the family through various processes.

"The great challenge for the Aborigine was to obtain enough dietary fat. They are close observers of nature and knew just when certain animals were at their fattest such as kangaroos"(Enig 1999). Aborigines usually consume every part of an animal to obtain optimal fat consumption and use; from intestines to skin, and many times raw. The consumption of organ meats of every creature and various seaweeds provides a great source of vitamins. Few tribes however, do not raise livestock. Eggs also provide a great source of protein both from reptiles and birds.

Another integral aspect of their diet are insects. "Chief among them are witchety grubs, or moth larva, found in rotting tree trunks. They are often over six

inches long and are eaten raw or cooked. They provide an excellence source of fat, almost as high as 67% and are additionally a significant source of calcium"(Enig 1999). Aborigines also collect various barks and leaves. "The Aborigines also use fruits like tamarinds and native lime to make refreshing beverages. Flowers are gathered in the morning and steeped in water and left to ferment"(Enig 1999).

Early explorers, and modern scientist agree, that overall "the aboriginal diet is left them well formed, with their limbs straight and muscular, their bodies erect, healthy teeth, more than acute eye sight, and agile"(Enig 1999). However, through the seeping influences of the Western Diet, many aborigines have left their native habitat and adopted the Western Diet. Pollan remarks on a study conducted by Kevin O'Dea on the Western Diet and 'diseases of civilization' amongst aborigines.

> **"Ten aborigines returned to their traditional home land, isolated in North West Australia, with no access to food except exclusively from what they gathered. They divided their seven week stay in the bush between a coastal and inland location. Their diet consisted of seafood, insects, plants, crocodile, birds, kangaroo, yams, and honey anything they hunted and gathered themselves. After seven weeks, O'Dea drew blood and found striking improvement in every aspect. All lost weight, an average 17.9 pounds, and all metabolic abnormalities of type II diabetes were greatly improved or normalized. However, after returning back to Western civilization, many health problems and weight returned" (Pollan 2008).**

This study exemplifies exactly the 'diseases of civilization' and agricultural transition. They were removed from the basic components of the Western Diet, such as refined flour, soda, cheap meats, and sugar. In turn, the risks of the 'diseases of civilization' such as heart disease and diabetes were signifigantly reduced. Many aborigines today battle balancing these two cultural lifestyles.

Notable Health Statistics:

1% of remote Aborigines are reported to be inflicted with diabetes. On the contrary, an astonishing 56% of Non-remote (Westernized) Aborigines of the Torres Strait area are categorized as obese (Garling 2004). 9% Remote Torres Strait islanders are estimated to have a cardiovascular illness. "Lung cancer was the most common specific cancer for Indigenous males and the second most common, after breast cancer, for Indigenous females. Lung cancer was responsible in 1999-2003 for 32% of Indigenous male deaths from cancer and for 21% of Indigenous female deaths from cancer"(Garling 2004). 20% of remote communities have access to doctors on hand which partially attributes to the premature deaths. The average life expectancy for indigenous aborigines is roughly between 45 to 60 years for men and women.

Findings

Through my research, it became apparent that the nutritional transition is a rapidly developing as a global epidemic. Furthermore, the nutrition transition is prevalent in both developed and undeveloped countries. By acknowledging

various factors such as income, diet, urbanization, socioeconomic status, and agriculture, evidence supports this theory of dietary change. Additionally, the prevalence of the nutrition transition and its seemingly inevitable effects of the 'diseases of civilization' vary accordingly to these factors. The discrepancies between case studies suggest the overwhelming correlation between urbanization, diet, and health. It also became apparent that regardless of socioeconomic status, dietary shifts are prevalent. The effects of globalization in combination with the Western diet appear to be credible explanations for the origin of the problem.

However, I have gained a new dietary insight which became apparent throughout the literature. It became evident that it is not just the 'Western Diet' or modernization that produces the nutrition transition. For example, France---a highly developed and Western country has a completely different diet and overall higher health statistics than that of the United States, which also is a developed Western country. In addition, Japan which also is highly industrialized, despite not being a Western country, is radically different in diet from both the United States and France. Nevertheless it has similar statistics and overall higher levels health than that of France. Therefore, I have concluded the present nutrition transition is related to Westernization, yet more specifically is rather based upon specifically the removal of cultural food tradition, income, and the food processing categorized by the Western Diet. These differences reflect rather the cultural dietary traditions, such of Japan and France— which are comparable in health statistics. Innate cultural dietary wisdom and knowledge and the

inseparable relationship between food and people appears to be the link between good health and diet.

The underlying antithesis of the nutrition transition amidst the research suggests that innate dietary knowledge within cultures transmits to good health. Research proposes that the food culture within the greater 'culture' contains dietary wisdom and knowledge that directly correlates to good health. For example, the food culture of France (the greater culture), inherently contains valuable 'secrets' of obtaining good health. The French consume daily an exceeded recommended amount of saturated fat through cheeses, pastries, and rich sauces—yet paradoxically they are on average extremely lean and healthy. Furthermore, it is suggested that despite France's smoking addition, the gross consumption of red wine counterbalances the affects of habitual smoking.

The Mediterranean diet is another example of innate cultural dietary knowledge. The Mediterranean diet consists largely of carbohydrates such as pasta, bulgar, rice, bread, and on top of olive oil. Olive oil, rich in essential fat especially for the heart, in combination with fresh vegetables, pasta, and white bread, equalizes the excessive carbohydrate consumption. The Greeks and Italians are among the healthiest cultures in the world despite their considerable consumption of olive oil and carbohydrates. Furthermore, research suggests that in addition to these food culture 'secrets', the combinations of specific foods enhance the beneficial chemical properties of each. For example, the lycopene within tomatoes in combination with olive oil enhances the nutritional benefits of each, as opposed to each being eaten alone. Pollan asserts that cultures

inherently understand, without scientific experimentation, these nutritional food properties. This innate dietary cultural knowledge theory is supported by the evidence in their exceedingly high health levels.

In relation to the consumption of fresh vegetables and produce, which are essential to these cultural diet secrets, lies the local food economy. Although vaguely addressed amid my research overall, few sources allude to local and unprocessed foods as the antithesis of the Western diet and a possible solution to the nutrition transition. Furthermore, research affirms that this alternative local food consumption translates to the grander and necessary fundamental relationship between food and humans as vital component of achieving good health.

Research Methods

For the general portion of my research, I have gathered my information from books, articles, journals, and dietary studies. Many of the books are written by nutritionists, doctors, and cultural anthropologists that provided a valuable introduction of my topic. The articles, journals, and dietary studies offered a more quantitative and scientific supplementation to the theories and arguments presented in the literature.

I began my research through reading and reviewing literature that provided me a fundamental knowledge on the subject. Firstly, I researched the basic study of nutrition—its definition, components, and principles. Upon my research of

nutrition, I came upon the ideology of nutritionism. It became apparent that I had to distinguish within my research the difference between nutrition and nutritionism. The ideology of nutritionism presented within my research addressed the technological, financial, and social stratifications of the food industry. In addition, I examined further the differences and variations between cultures in reference to these different factors. The quantitative studies conducted provided examples of the correlations between these factors.

From a grander perspective, I analyzed critical research that presented a larger scope of the argument. Scientific, agricultural, and cultural anthropologist journals and articles evaluated the overriding problem of the nutrition transition. These arguments fortified the foundation of the nutrition transition argument within the quantitative research. After reviewing various arguments, I applied these factors to case studies that negated or exemplified this nutrition transition. These specific case studies primarily originated from the literature and quantitative analyses I had found. Nevertheless, I found additional nutritional and cultural diet information to enhance the scholarly and quantitative analyses. Furthermore, the case studies provided me an insight into the cultural correlation of health and diet.

Conclusion

The nutrition transition is increasingly becoming a steady factor threatening global health and food cultures. In the advent of globalization, agricultural evolutions, and Westernization, this dynamic change has only been further fueled. The rise of global economies and the vast economic disparities

between cultures hinders a nation's food culture and health. As a result, obesity rates and preventable nutrition related diseases rise, which are further encompassed within the larger category of malnutrition ironically. Food cultures are increasing threatened by Westernization as they struggle to guard their unique cuisine's identity. These traditional food cultures contain the wisdom and means to reverse the global nutrition transition and its negative health effects.

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Methodology

The global nutrition transition problem and its remedy of cultural dietary knowledge encompass a vast and diverse scope of research. As it is a global problem stretching across borders and cultures, it limits the specificity of results. It became difficult to narrow the nutrition transition epidemic to specific individual subjects for analysis. Nevertheless, the examination of nations and groups of peoples as a whole deemed for more perceptible results and display of presence. Likewise, the study of particular nations, case studies, and individual experiences, rendered an effective demonstration of the larger dilemma of the nutrition transition in a more familiar fashion. Another limit to the individual examination conducted through the surveys of study abroad and international students of Providence College, was the scope and number of available participants. Nonetheless, any significant dietary change enabled for a general remark on shifting global dietary habits and food cultures.

The evaluation of specific case studies, dietary interviews, and surveys provided a narrower grasp on the subject. I approached these surveys and case studies through a quantitative perspective which directly articulated the essential facts of the subject. As it seemed necessary to distinguish the dietary changes of culture and food cultures, a broader qualitative approach aided this analysis. The examination of the nature of a food culture was observed in a qualitative manner. In addition, as supplements and reinforcing assessments, scholarly articles, literature, and other quantitative studies were used. These articles, literature, and

quantitative studies provided background information and underpinning knowledge for my dissertation. Furthermore, these articles and scholarly studies supported my personal quantitative research as overriding theories and principles.

Instead of tackling the prevalence of the global nutrition transition spectrum as whole, I looked to a familiar and local community within Providence College. As Providence College study abroad students have experienced both the American culture and have had an international experience, naturally these students allowed me to pose the question if culture itself produced dietary change. I conducted a sixty question dietary survey of their before, during, and post study abroad experience. These results formulated my data charts and research findings. Likewise, I utilized the counter population of international students at Providence College for a varied perspective on the same question. Despite the limited number present at Providence College, I carried out a similar survey directing the questions to their before, present, and when they 'return home' experiences. This data allowed me to comment on the cultural dietary differences and cultural dietary influences in general. I complied the data into various pie charts to demonstrate the present dietary differences or similarities within a cultural change.

As it became evident throughout my research that food cultures contain innate wisdom transpiring to good health, I wanted to create a resource that contained examples of this culinary wisdom. For that reason, I created a thirty recipe cookbook derived from case studies, ancient food cultures, and countries

represented by the International Institute. I complied these recipes from various sources, primarily from the internet, medical, and cultural cookbooks. Although these recipes were not individually original to me, it demonstrates the culinary wisdom within specific cultures as the guide to good health. Furthermore, these recipes are the antithesis to the nutritionism and nutrient obsessed theories that directly contribute to the nutrition transition.

For a further and broader perspective on the issue of cultural dietary change, I contacted the International Institute of Rhode Island. I proposed my thesis topic and study with the director of the Institute, Baha Sadr. I told him how I hoped to interview several of the refugees on their diet and their cultural dietary adaptation to the United States. He then directed my inquiry to Tyler Harmon, the director of the Providence School Liason and Minority Health. Tyler informed me that the International Institute was planning a minority health workshop on April 4, 2009 and welcomed me to participate with their initial planning and to contribute new ideas. The workshop was officially titled "Nutrition and Culture: Let Culture Be Your Guide," which was a celebration of diverse ethnic cuisines that suggests the power of cultural culinary wisdom to good health. I met with the workshop committee on March 19th at the International Institute, and helped brainstorm ideas and complemented their preliminary plan with my dissertation research. As a result, as was designated to produce a recipe booklet that represented the refugees' culinary demonstrations and cuisines at the workshop. This booklet was then distributed to all those attendees and refugees also. The workshop consisted of four cooking demonstrations from Burundi, Iran, Iraq, and

Eritrea. In addition, other displays were included from Mexico, Brazil, Cambodia, and India. A certified nutritionist also provided a unique nutritional perspective and supplemented the workshop.

The workshop primarily was the opportunity for me to interview the refugees on their diet and cultural adaptation. It allowed me to narrow my focus on the question of whether culture produces dietary change. Furthermore, these interviews provided me a sense of culinary ritual and cultural adaptation. The dietary interviews permitted me to explore the power of cultural culinary wisdom as the guide to good health and remedy of the nutrition transition.

Findings

This is the dietary survey conducted for the study abroad students at Providence College. It began my research process into the question of whether culture induces any dietary change.

Study Abroad Student Survey:

Cultural and Dietary Survey:

For my thesis, I am exploring the connection between culture and diet. Furthermore, I am hoping to demonstrate how the traditional and customary dietary habits within cultures correlates to good health—if present. Within my research I have found that the adoption of the Western culture and diet, (rather than modernization and income) is signifigantly influential in the growing global obesity epidemic.

As global studies majors all of us have experienced the cultural transition from our study abroad experience. Moreover, as global citizens and travelers we have experienced, participated in, and learned from other cultures and their customs, including from their

food. This survey will provide me a valuable insight of the difference or balance of your cultural/dietary transition during your study abroad experience, before, and after; a Western perspective in a cultural and dietary immersion and lifestyle.

I know this looks extensive and daunting, but the answers are short. Don't feel like you have to be super specific either. I really appreciate you doing this even if some of the questions are silly, they are really helpful.

Name:

Country(ies) of Study:

Duration: Circle: Semester/Year/Other

Cultural Heritage:
(for dietary background information)

Before your Study Abroad:

Did you consider food to be an essential component to your social life?

Do you or your family eat food/dishes related to your ethnic background?

Did you concern yourself with the origin of your meal or food in general?

Did you with your family or roommates have a sit down meal together at least once a week or more?

Did you cook? and if you did, did you enjoy it?

Did you eat fast food frequently, occasionally, or even at all?

How much time did you allocate for your meals?

Before, what was the largest meal of the day for you?

What time did you usually eat dinner?

Did you snack often or at all?

What are some of your favorite foods or dishes?

If applicable, while at school how many times did you go to the grocery store a week?

During your Study Abroad/Travels:

How was your living situation? Did you live with a family or on your own?

If applicable, did you eat with your family at least once a week or at all?

If you lived on your own, did you cook for yourself?

Did you do your own grocery shopping?

How many times did you food shop?

Was food expensive?

Where did you do most of your food shopping?

What was the biggest meal of the day for you?

How much time did you allocate for your meals?

What time did you usually have dinner?

Did you eat out a lot?

Did you cook?

What was some of your favorite foods/dishes (from anywhere)?

Did you enjoy your 'home country's' food (in general)?

Would you consider your lifestyle you had 'healthy' or 'active'?

Did you snack often or at all?

Did you miss “American food”?

Did you eat fast food frequently or at all?

Did you see any fast food chains or American related ‘food footprints’?

Did you ever have food poisoning?

Did you experiment and be adventurous with local foods and specialties?

Post-Study Abroad:

Do you consider food to be an essential component to your social life?

Do you concern yourself with the origin of your meal or food in general?

Did you and your body go into some kind of 'food shock' after you came back?

Do you with your family or roommates have a meal together at least once a week or more?

Do you cook? If you do, do you enjoy it?

Do you eat fast food frequently, occasionally, or even at all?

Do you consider your lifestyle “healthy” and “active?”

How many times a week do you food shop and how often?

Is there any food or dish in particular you miss?

Have you included any new foods from your previous culture into your daily diet?

Do you include or try to cook any dishes you made or had abroad in your diet today?

What are your favorite foods or meals?

Have you gained/lost any weight—both during and before your experience? (don't feel to be numerically specific)

How much time do you allocate for your meals?

What is the biggest meal of the day for you?

What time do you usually eat dinner?

Do you snack often, if at all?

If you have anything else you would like to add:

Thank you all so much! I really appreciate you filling this out and its going to be really helpful for me in my thesis research!

From another angle on the same question, here is my survey conducted on the few international students at Providence College.

International Student Survey:

Cultural and Dietary Survey:

For my thesis, I am exploring the connection between culture and diet. Furthermore, I am hoping to demonstrate how the traditional and customary dietary habits within cultures correlates to good health—if present. Within my research I have found that the adoption of the Western culture and diet, (rather than modernization and income) is signifigantly influential in the growing global obesity epidemic.

This survey will provide me a valuable insight of the difference or balance of your cultural/dietary transition during your international experience, before and presently; a Western perspective in a cultural and dietary immersion and lifestyle.

I know this looks extensive and daunting, but the answers are short-one word type. Don't feel like you have to be super specific either. I really appreciate you doing this even if some of the questions are silly, they are really helpful.

Name:

Nationality/Home Country:

Duration at PC:

Before your International Experience (PC):

Did you consider food to be an essential component to your social life?

Did you concern yourself with the origin of your meal or food in general?
Did you regularly eat food associated with your country's typical cuisine?

Did you with your family have a sit down meal together at least once a week or more?

Did you cook? and if you did, did you enjoy it?

Did you eat fast food frequently, occasionally, or even at all?

How much time did you allocate for your meals?

Before, what was the largest meal of the day for you?

What time did you usually eat dinner?

Did you snack often or at all?

Did you go out a lot?

What are some of your favorite foods or dishes related to your country's cuisine if any?

At home is there any fast food chains?

During you PC Experience:

Do you have roommates or live alone?

If applicable, do you eat with your friends or roommates at least once a week or at all?

If you live on your own, do you ever cook for yourself if possible?

Do you do your own grocery shopping if needed?

If so, how many times do you food shop?

Is food expensive?

Where do you do most of your food shopping?

What is the biggest meal of the day for you?

How much time did you allocate for your meals?

What time do you usually have dinner?

Do you eat out a lot?

Do you go out a lot?

Do you cook?

Do you have any favorite “American” foods/dishes?

Would you consider your lifestyle ‘healthy’ or ‘active’?

Do you snack often or at all?

Do you eat fast food?

Do you concern yourself with the origins or your food?

Have you had food poisoning?

Have you gained/lost any weight since you have been in the US?
(don't feel to be numerically specific)

When you travel back home:

Do you miss or eat any 'American food'?

Do you gain/lose weight when you come back home?

What is the biggest meal of the day?

Do you eat with your family?

Do you go out a lot?

How much time do you give yourself to eat?

Thanks again, I really appreciate it!

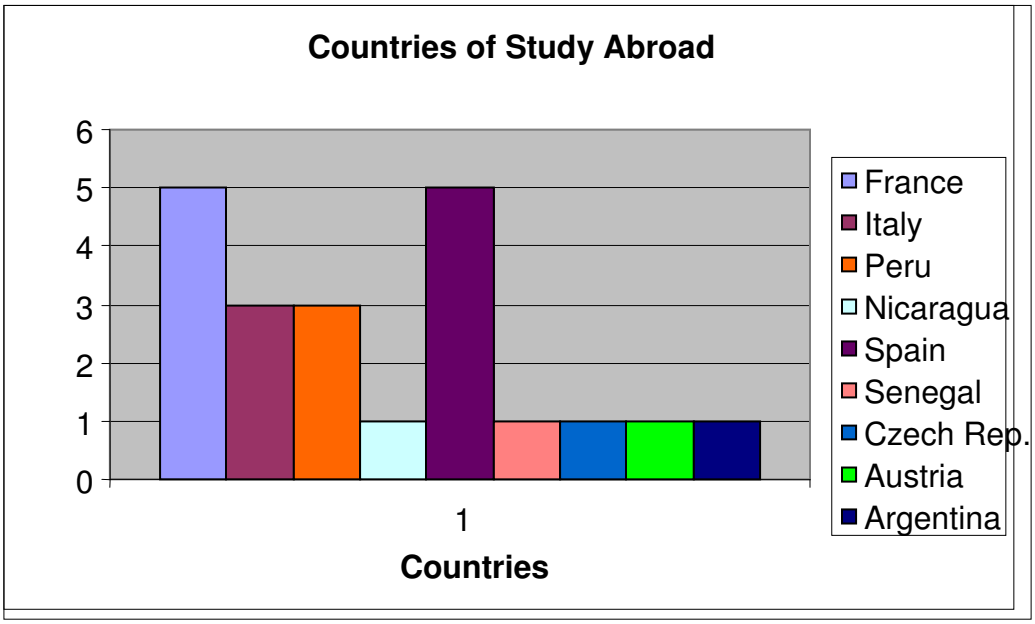
Survey Results:

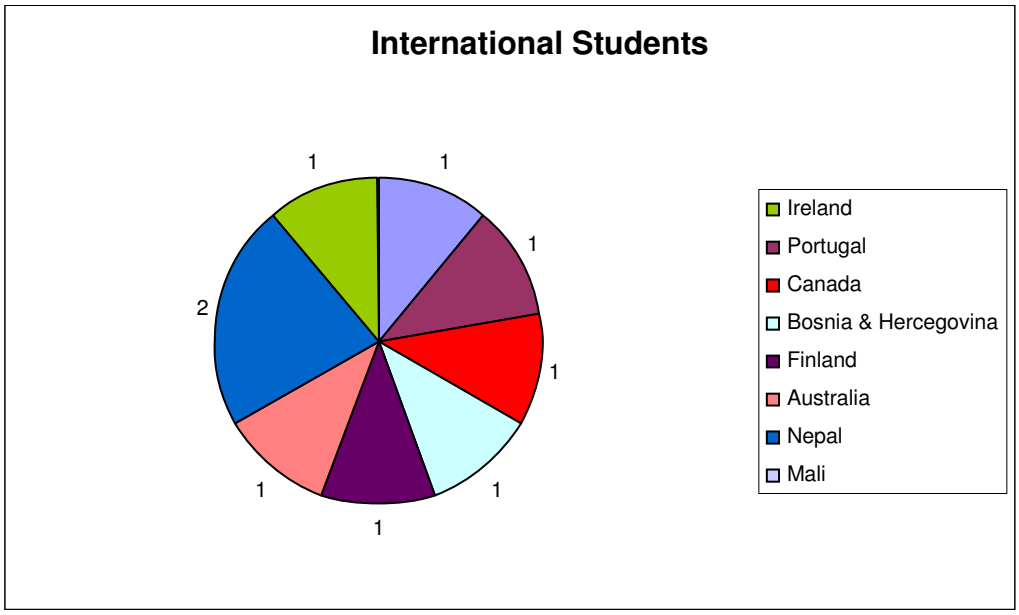
Both survey results are listed as following:

Does culture induce any dietary change?

I have conducted a dietary survey of Provide College students that have studied abroad to explore dietary change as they have lived within the American culture and experienced another. Furthermore, I have included, although I realize is rather limited due to the few number present, a survey of those international students at Providence College. Before I conclude that traditional food cultures hold the answer to good health, it appeared necessary to see if there is any dietary change in general. Therefore, the purpose of these surveys is to deduce if culture itself, influences dietary change--if any. The following are the results of a few pertinent questions from my survey.

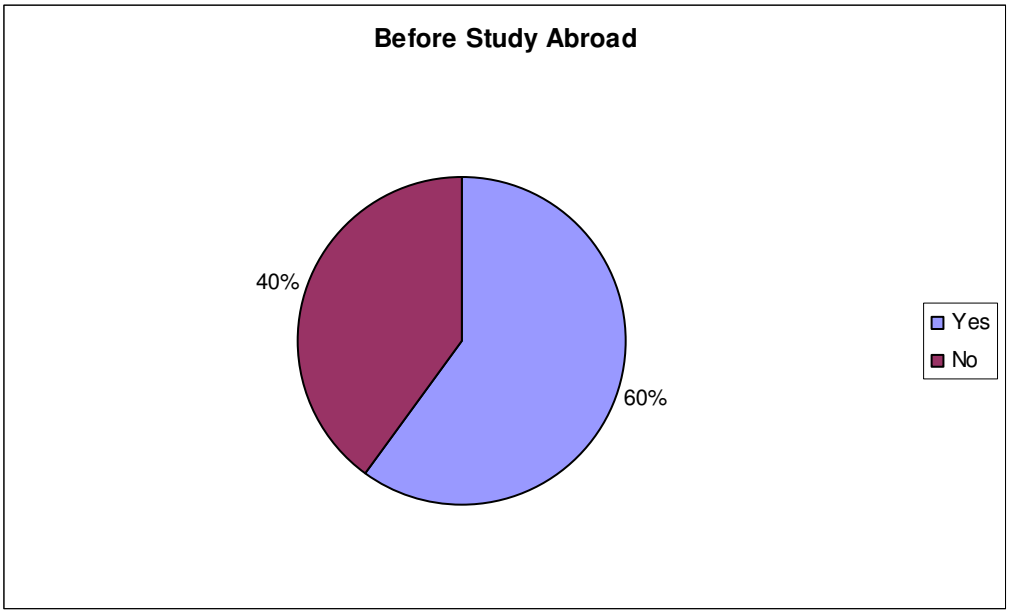
Number of Students and Countries:

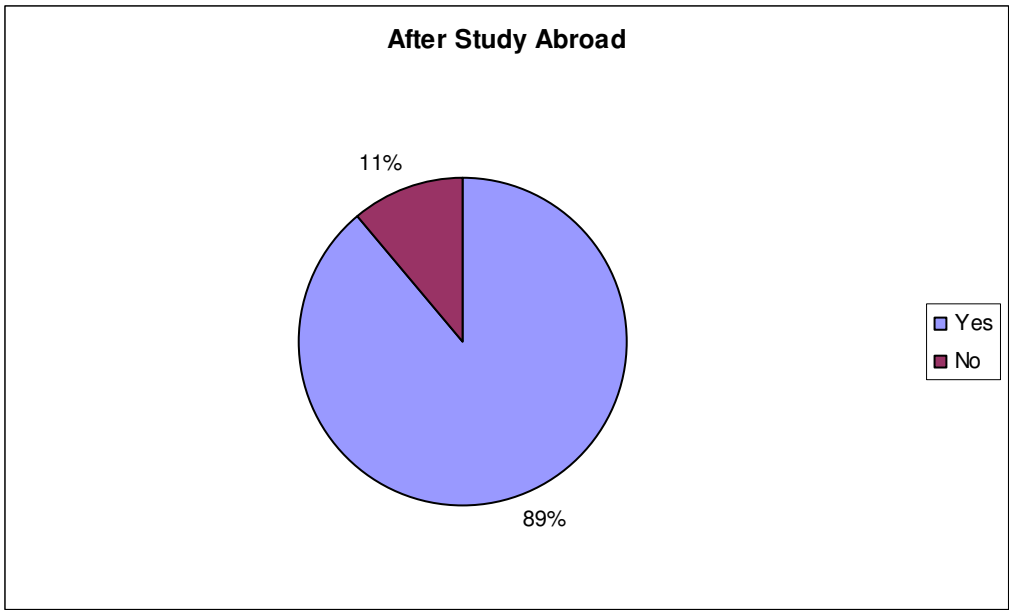




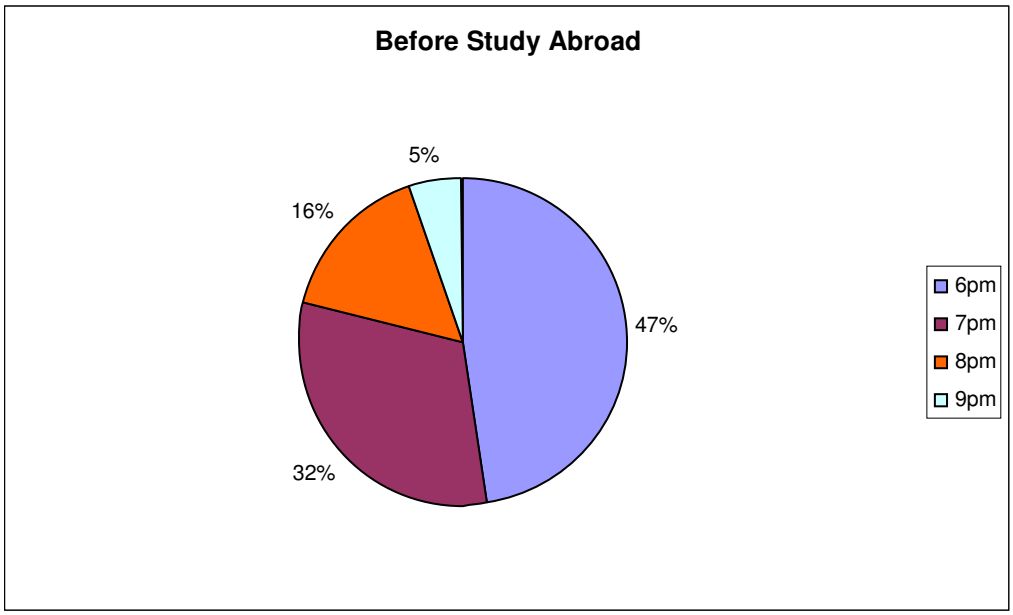
Study Abroad Student Results

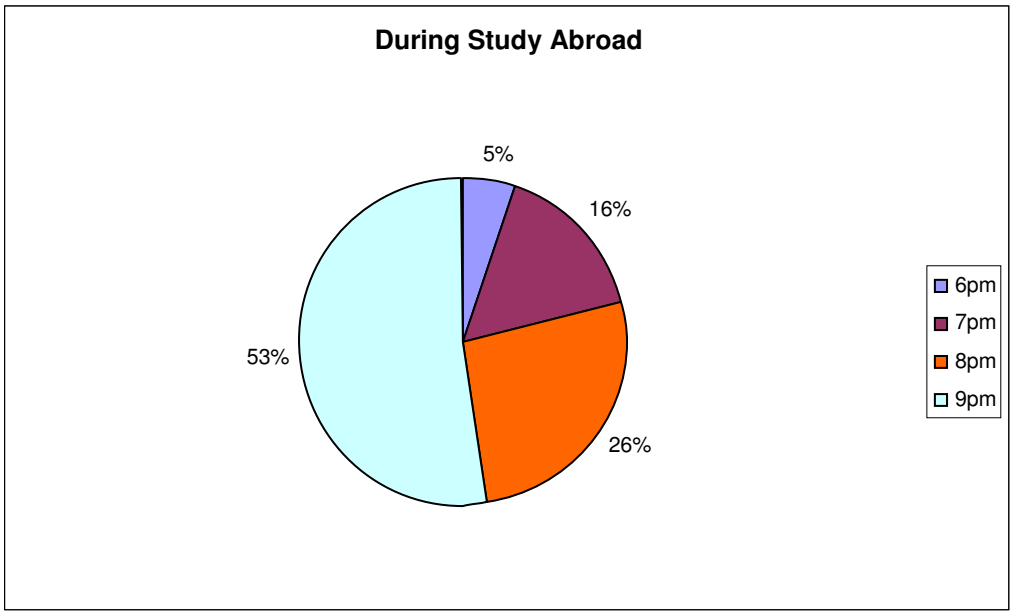
Do you concern yourself with the origin of your food?





What time did you usually eat dinner?

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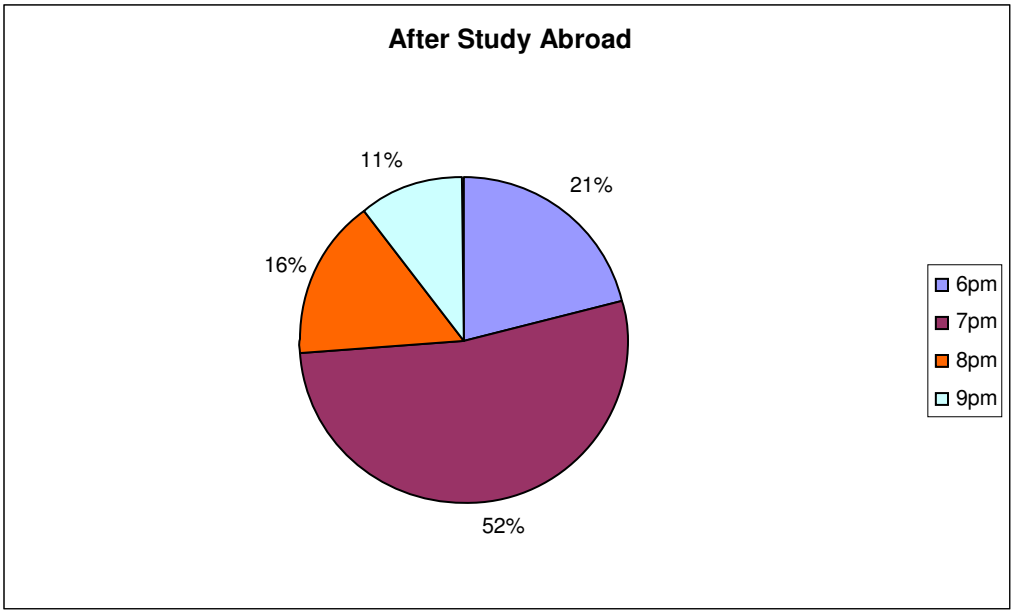
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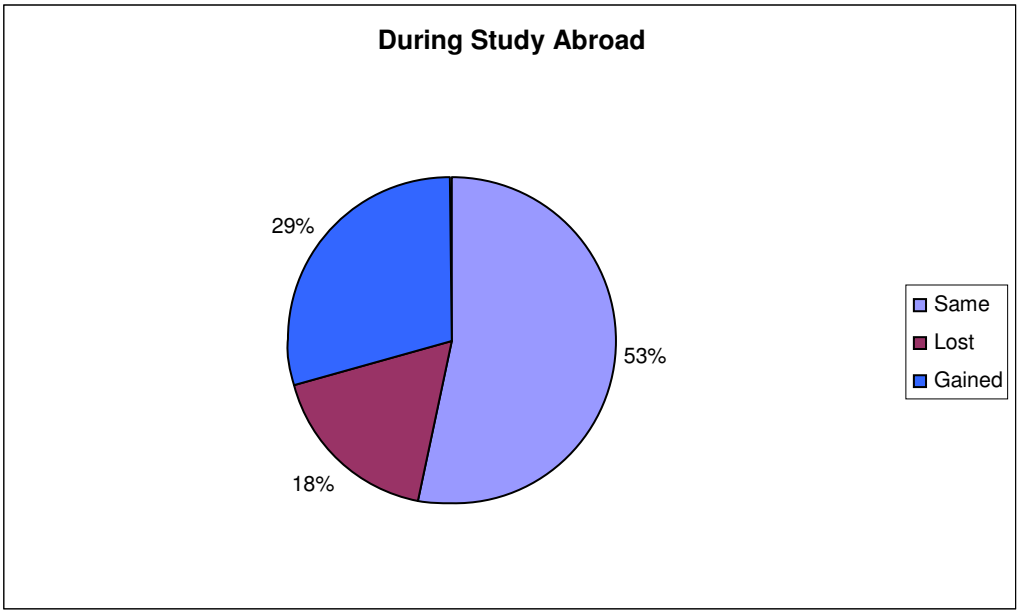
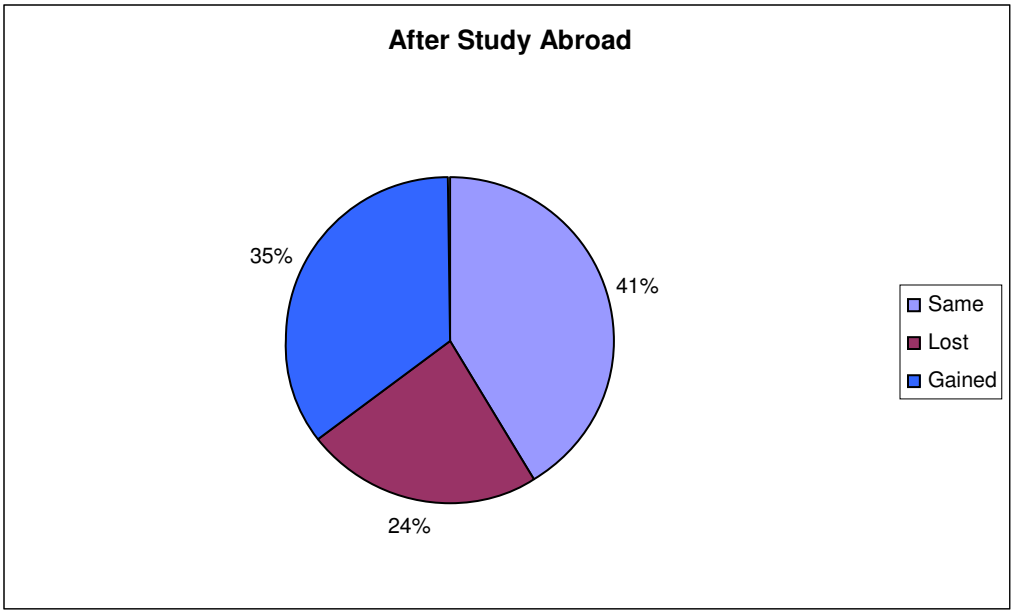
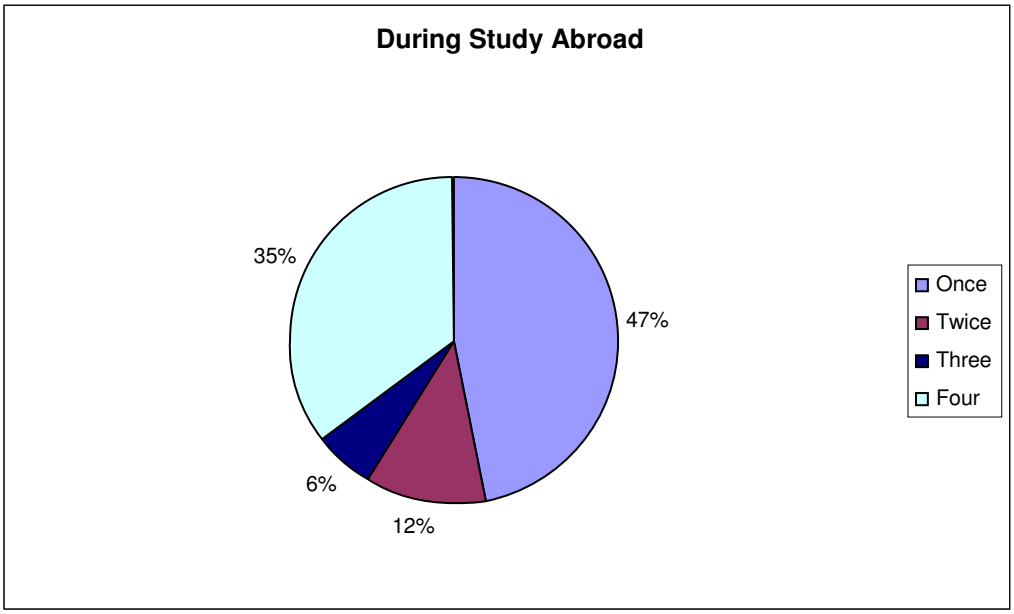
Did you gain or lose any weight?





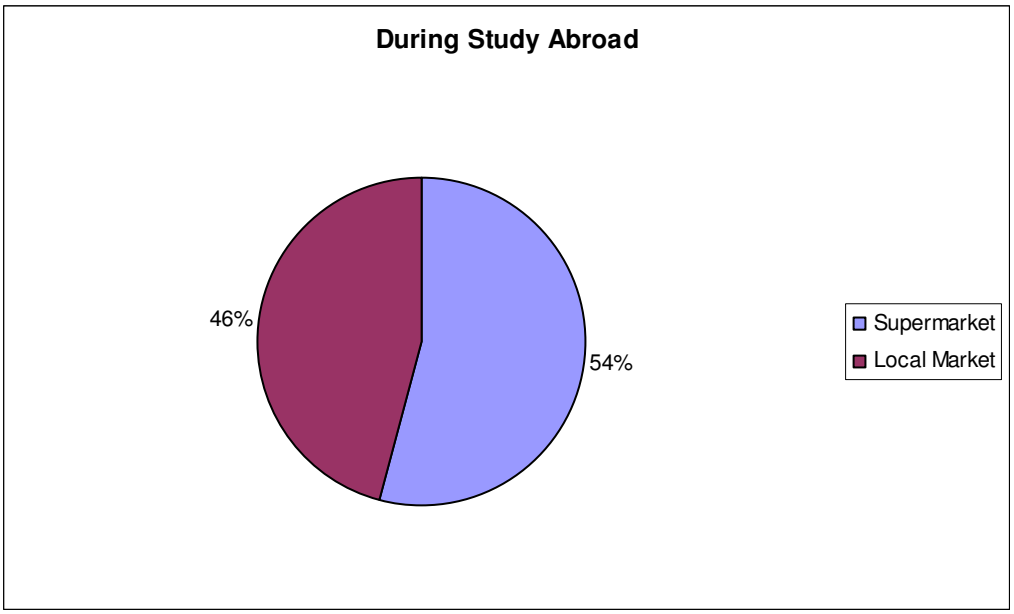
How many times did you food shop?

Before Study Abroad: Once – 100%

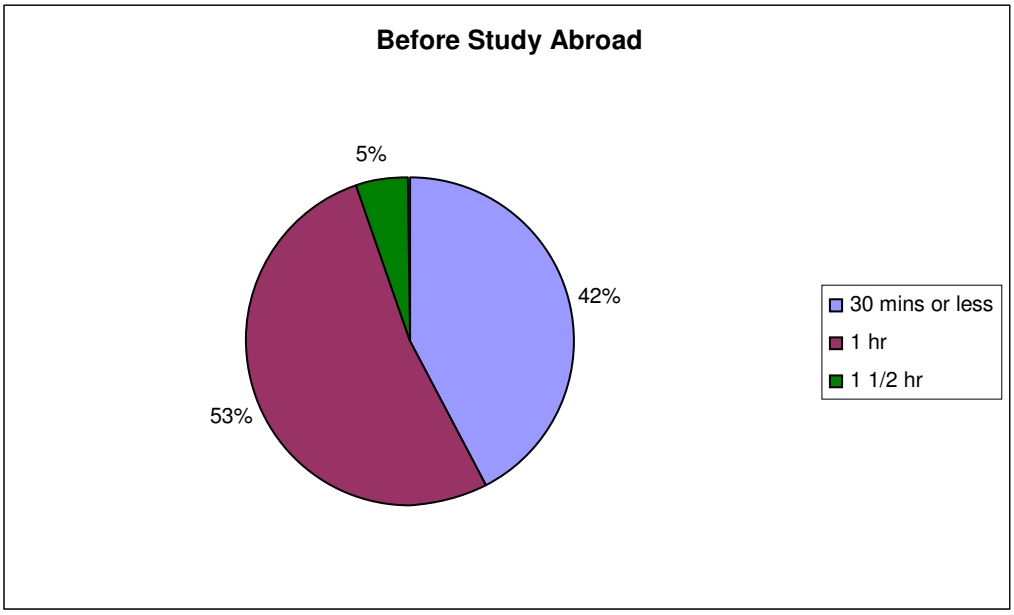


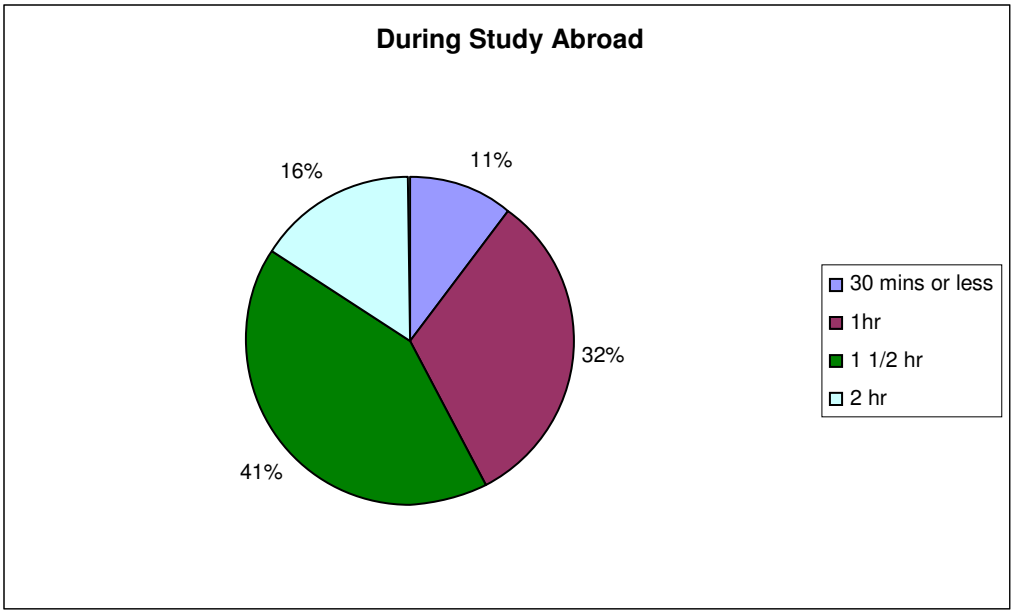
Where did you food shop?

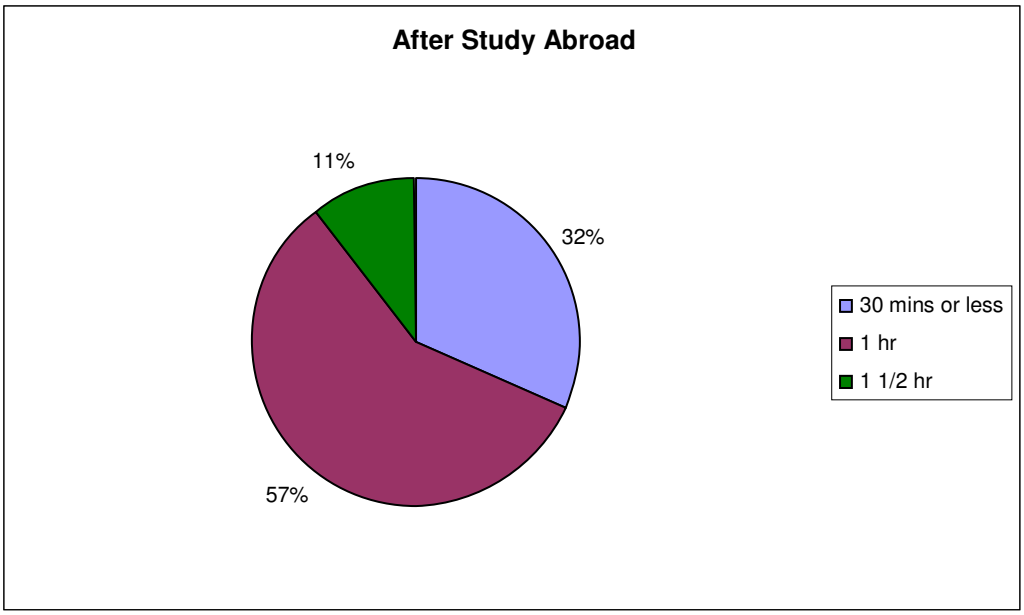
Before Study Abroad: Supermarket – 100%



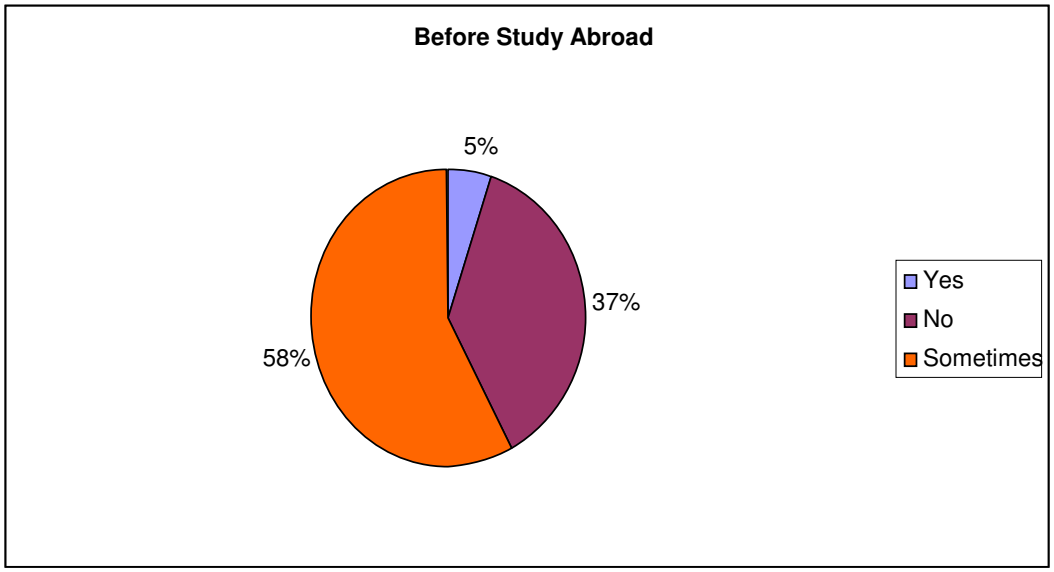
How much time do you allocate for your meals?

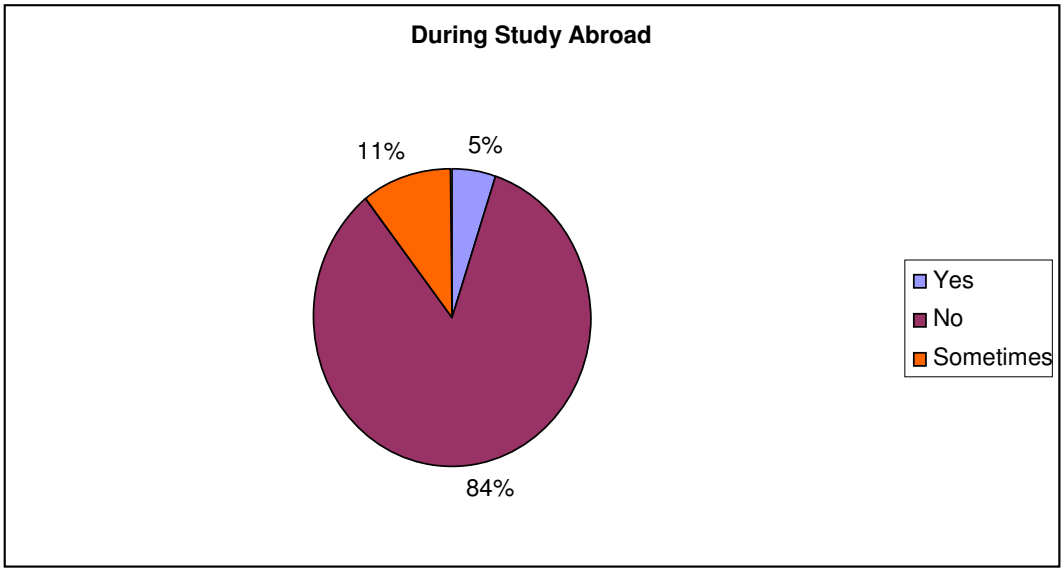






Do you eat fast food?

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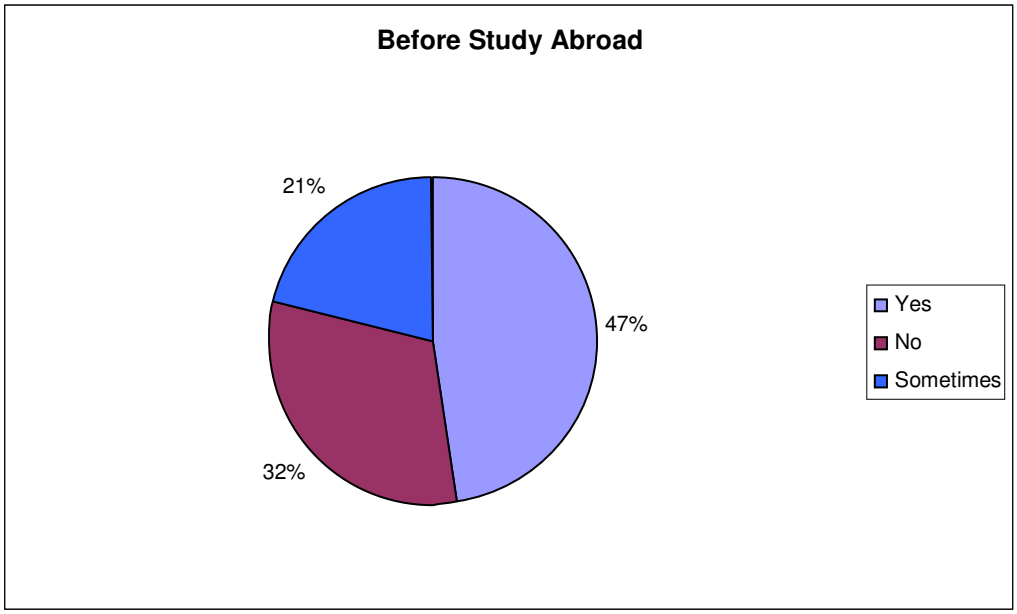
No
Sometimes

Do you snack?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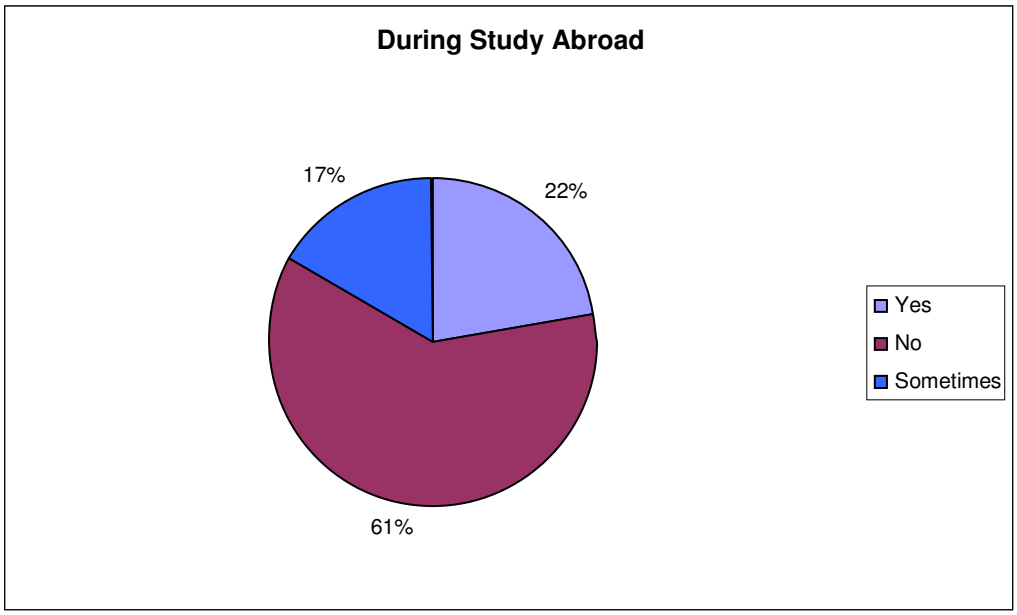
32%
Yes
No
Sometimes


During Study Abroad
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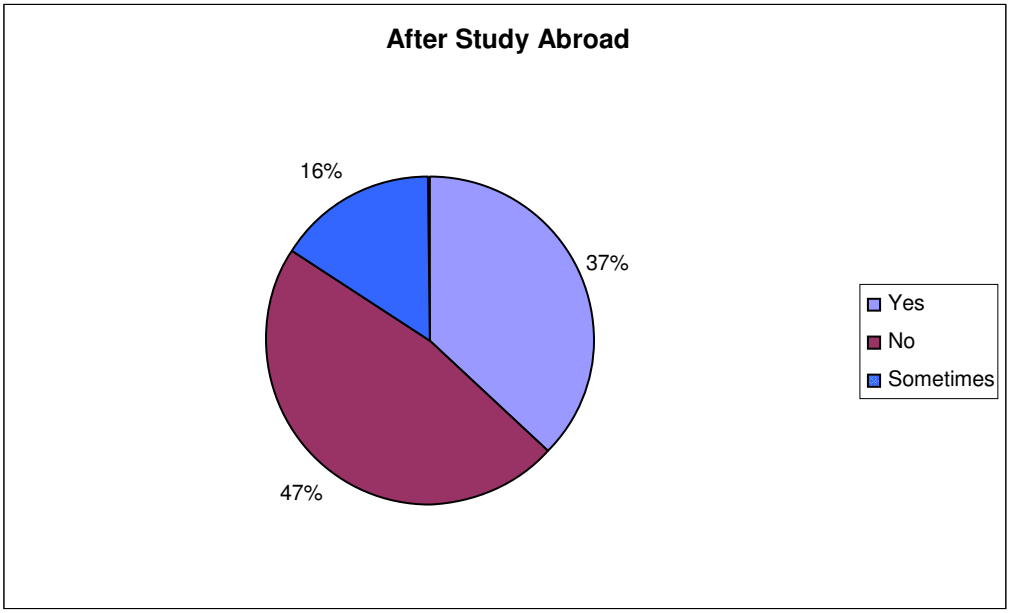
22%
61%
Yes
No
Sometimes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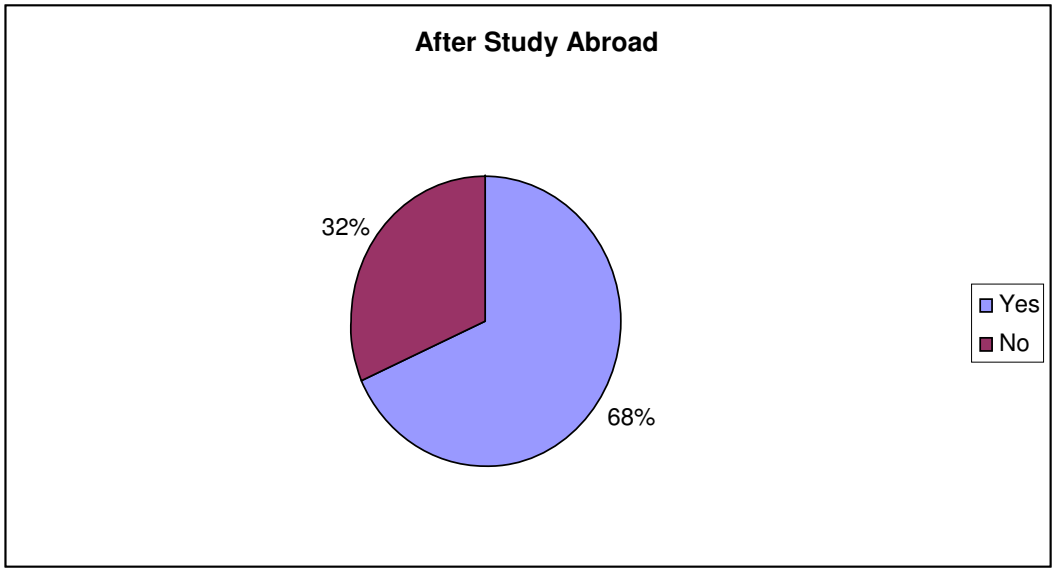
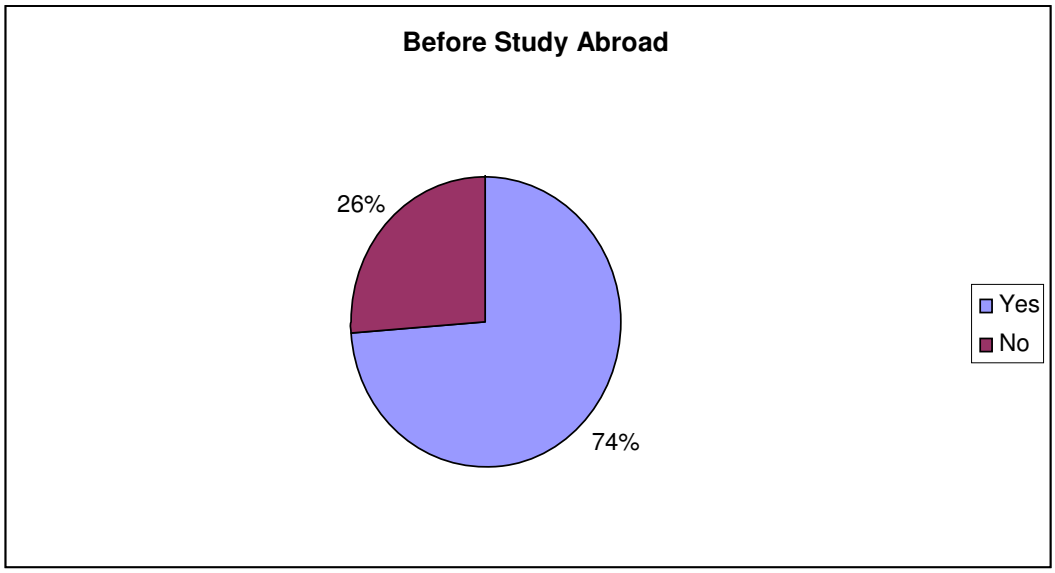
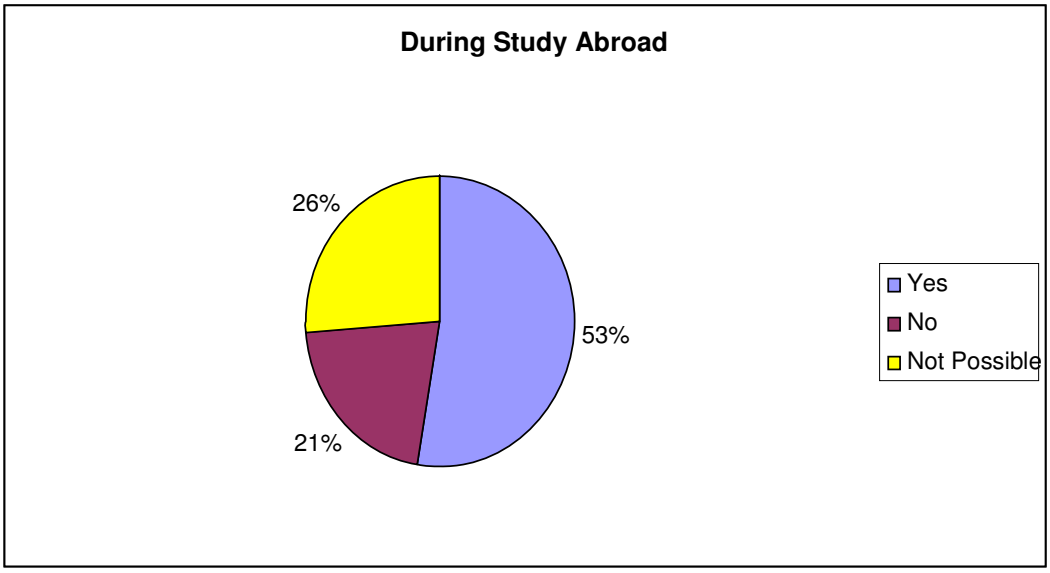
47%
Yes
No
Sometimes

Have you included any new foods or cook dishes from the culture into your diet?



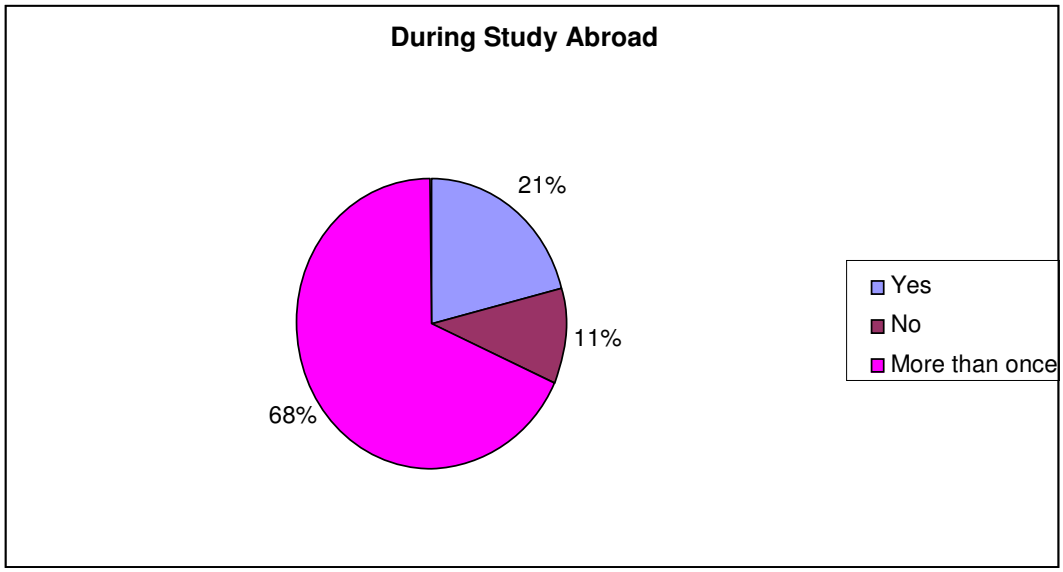
Do you cook?



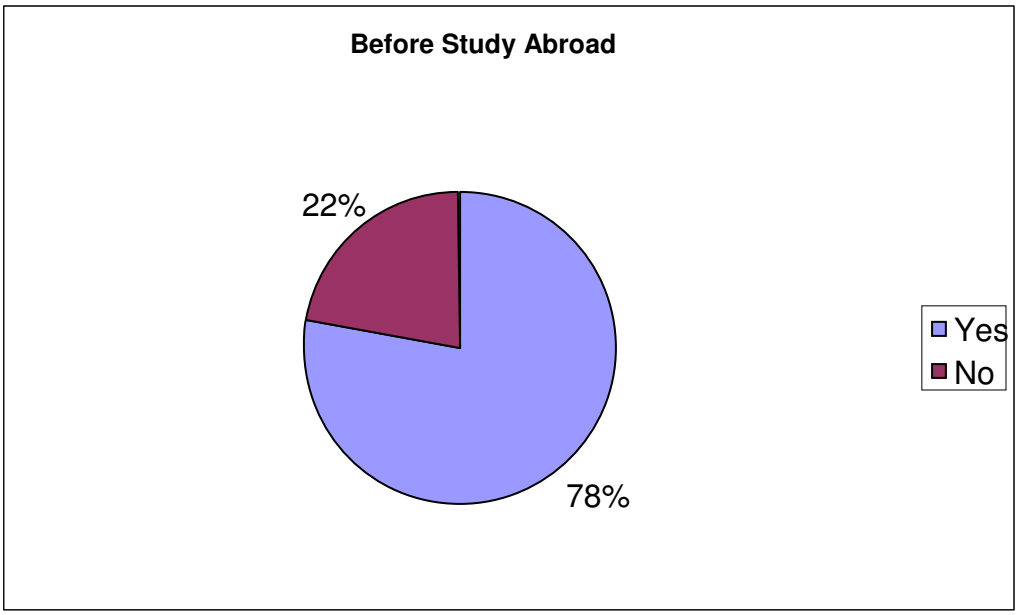


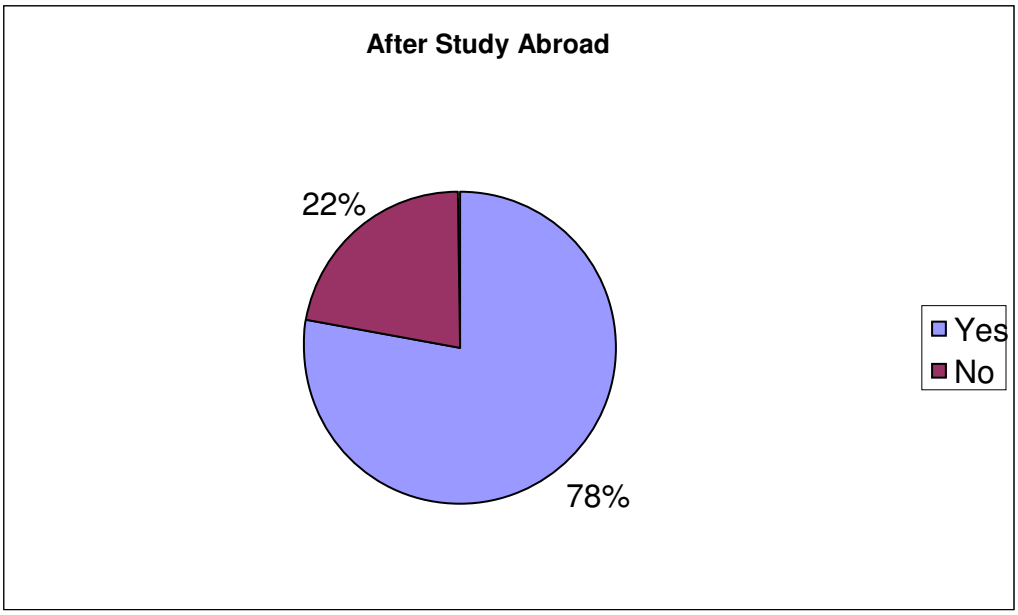
Did you eat a meal with your family or roommates at least once a week?

Before- 100 % Once

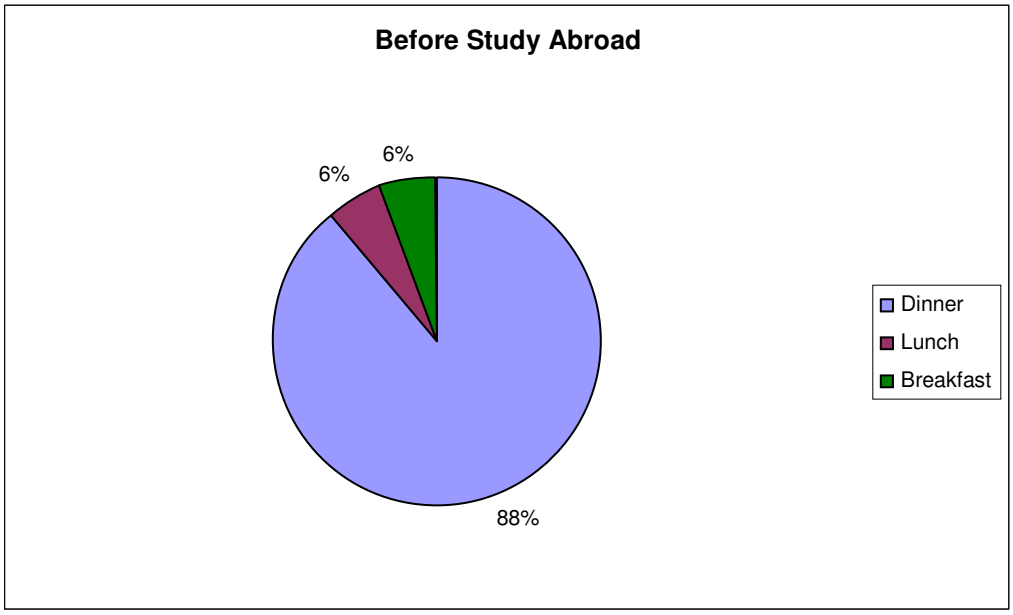


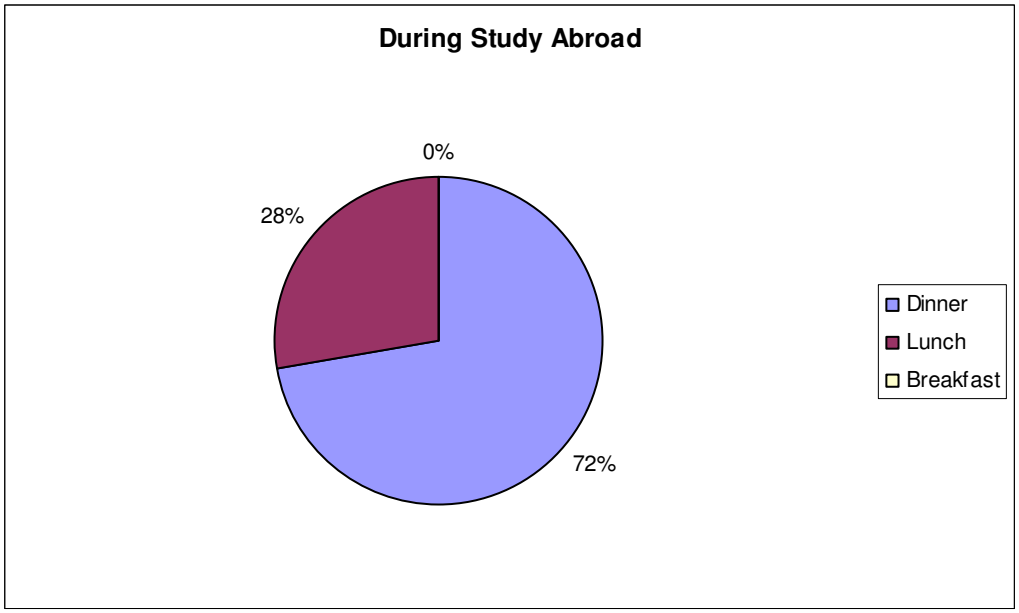
Do you consider food to be an essential component to your social life?

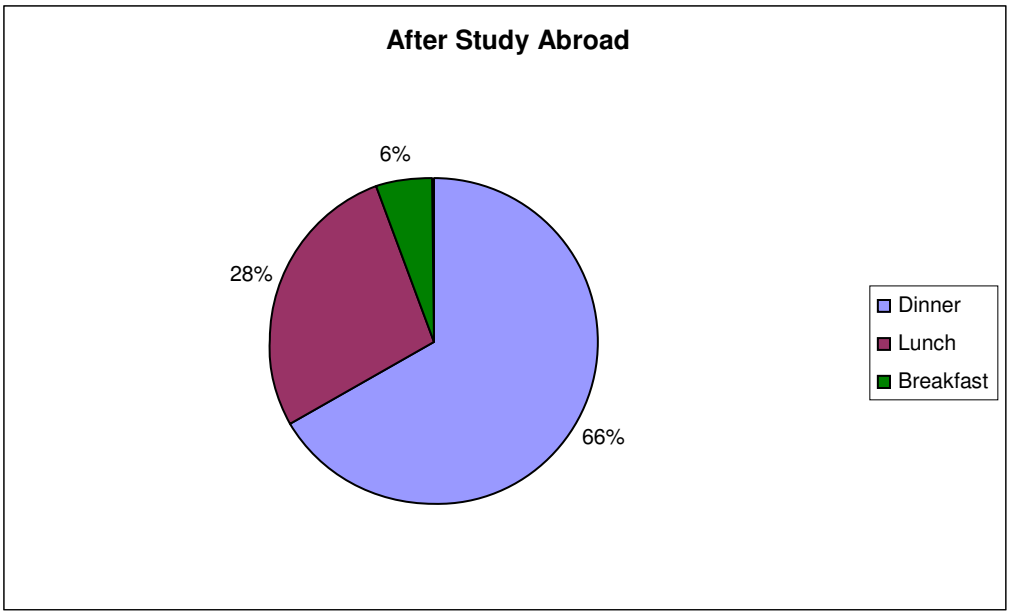




What is the largest meal of the day for you?



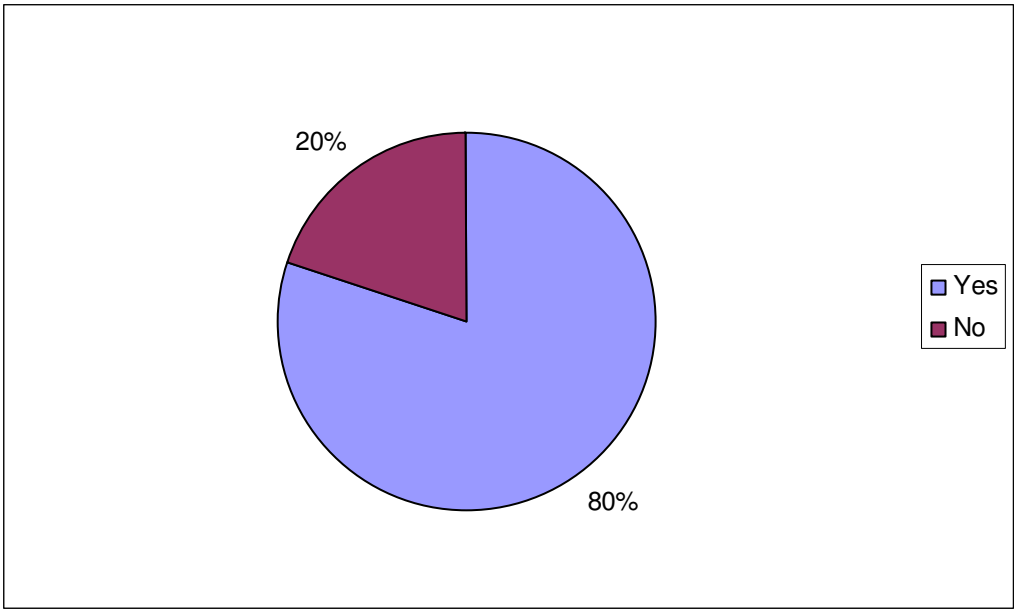




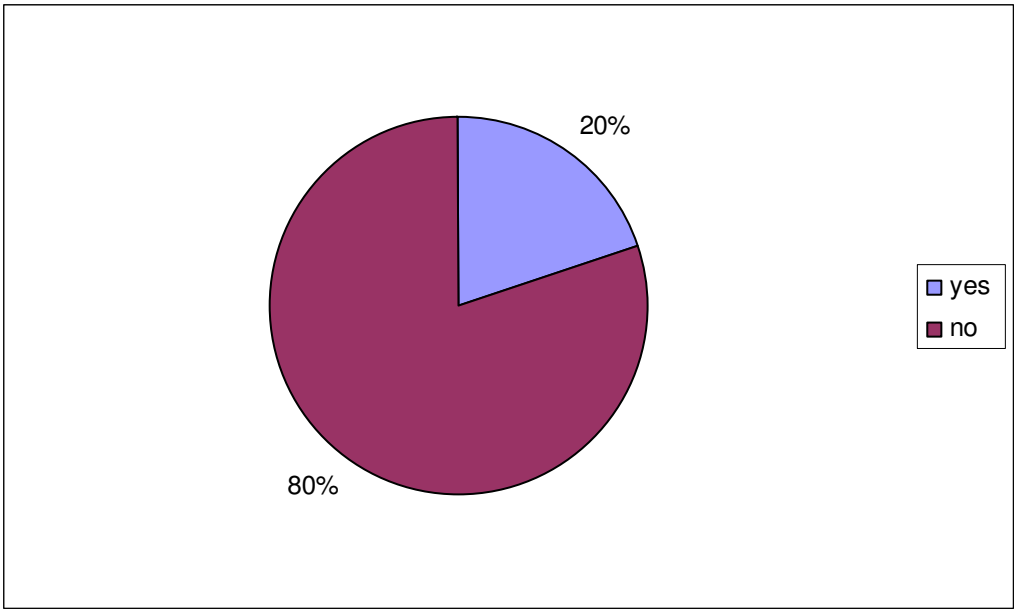
International Students Survey Results

Before their PC Experience:

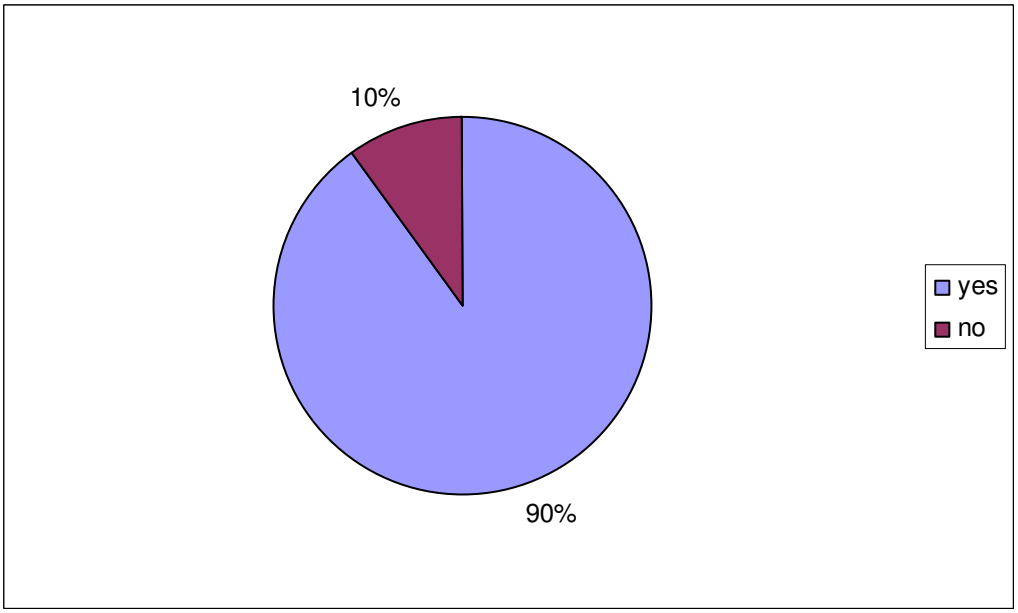
Did you consider food to be an essential component to your social life?



Did you concern yourself with the origin of your meal?

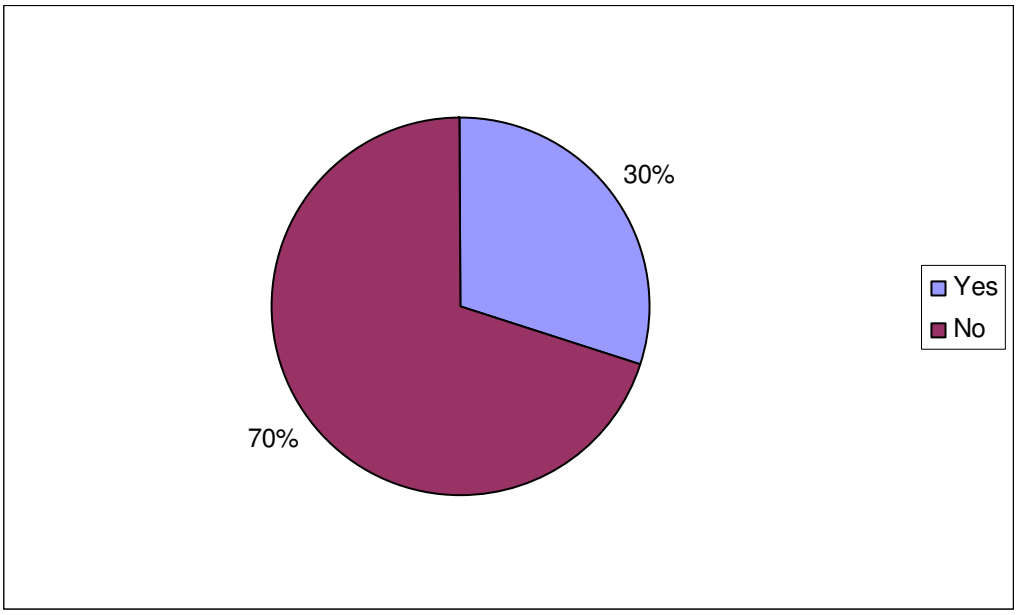


Did you eat food of your culture's cuisine?

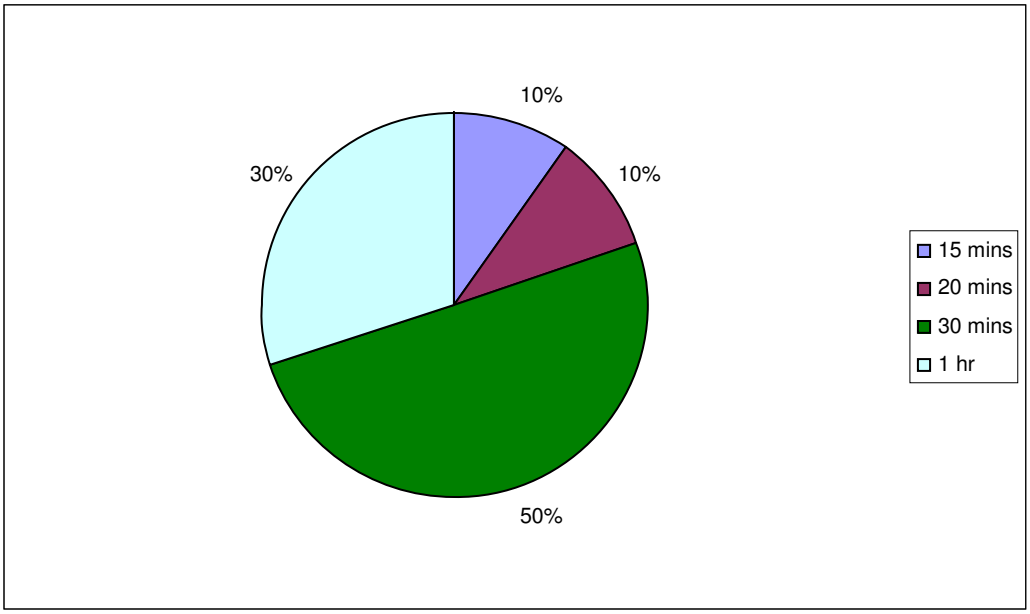


Did you with your family eat a meal together at least once a week?
Yes – 100%

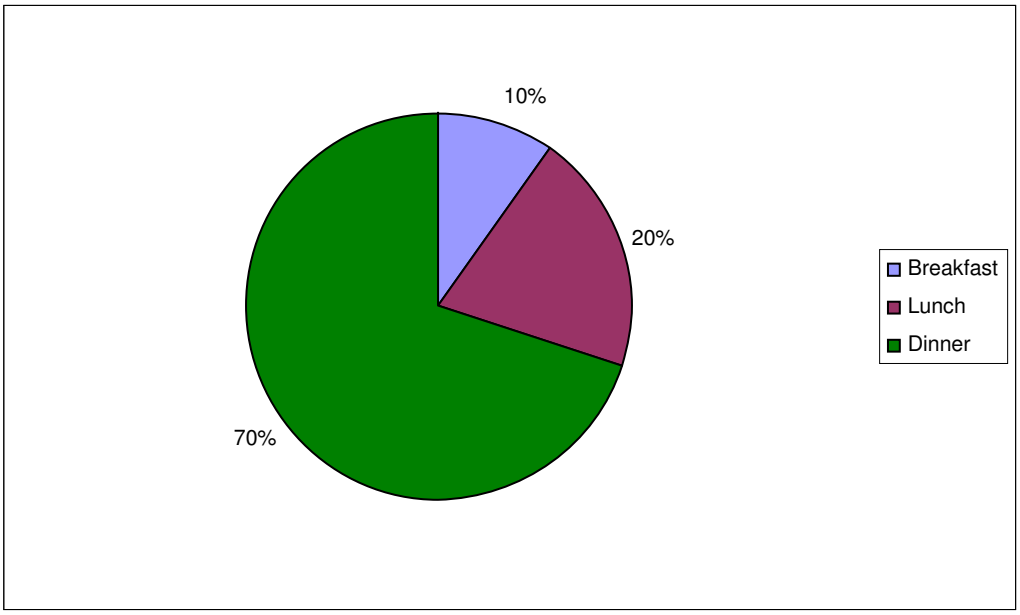
Did you eat fast food at all?



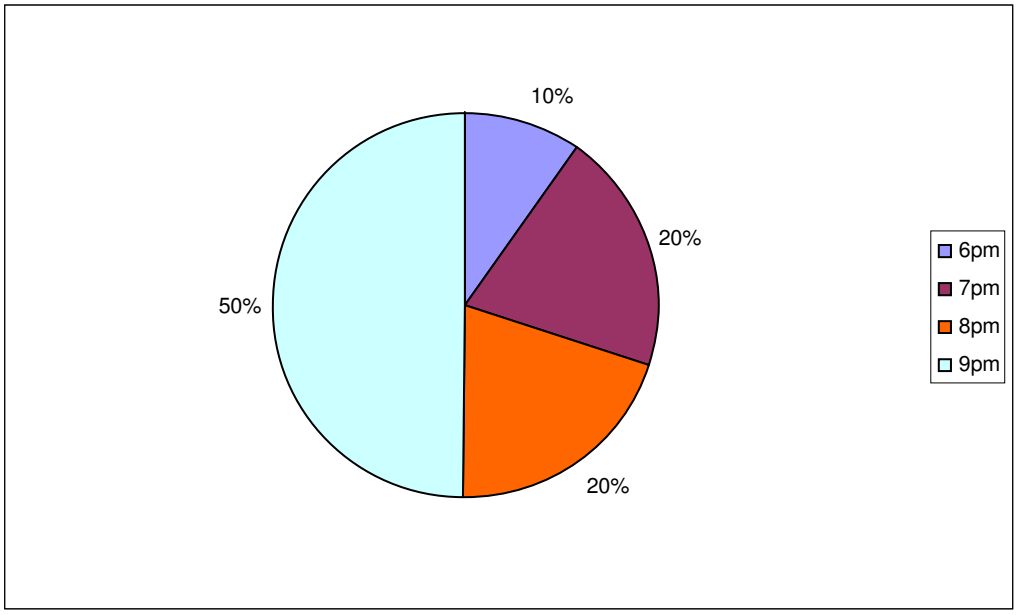
How much time did you allocate to your meals?

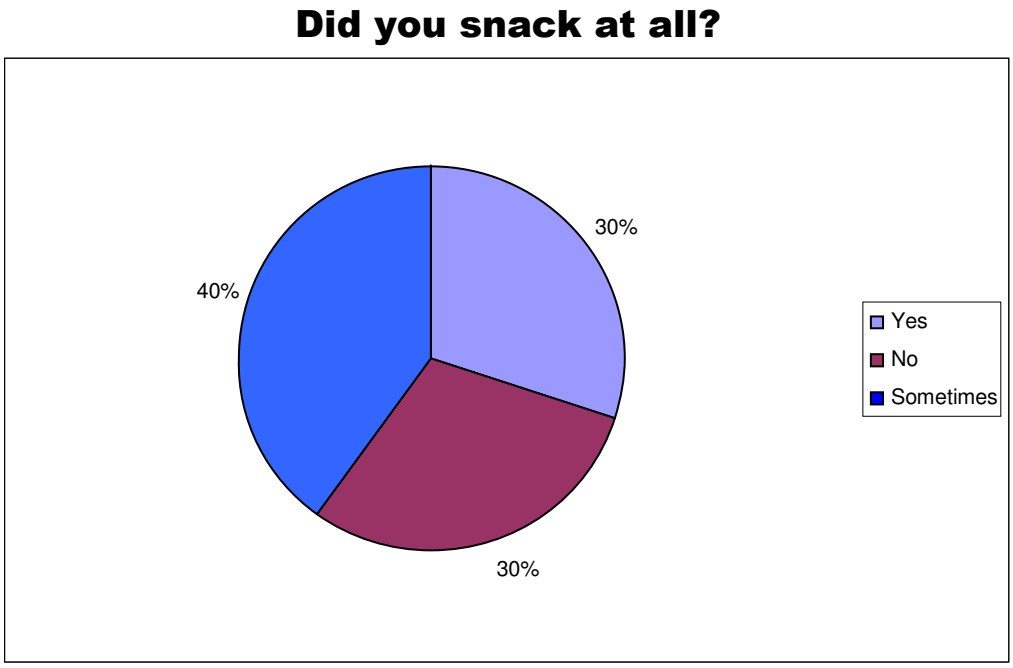


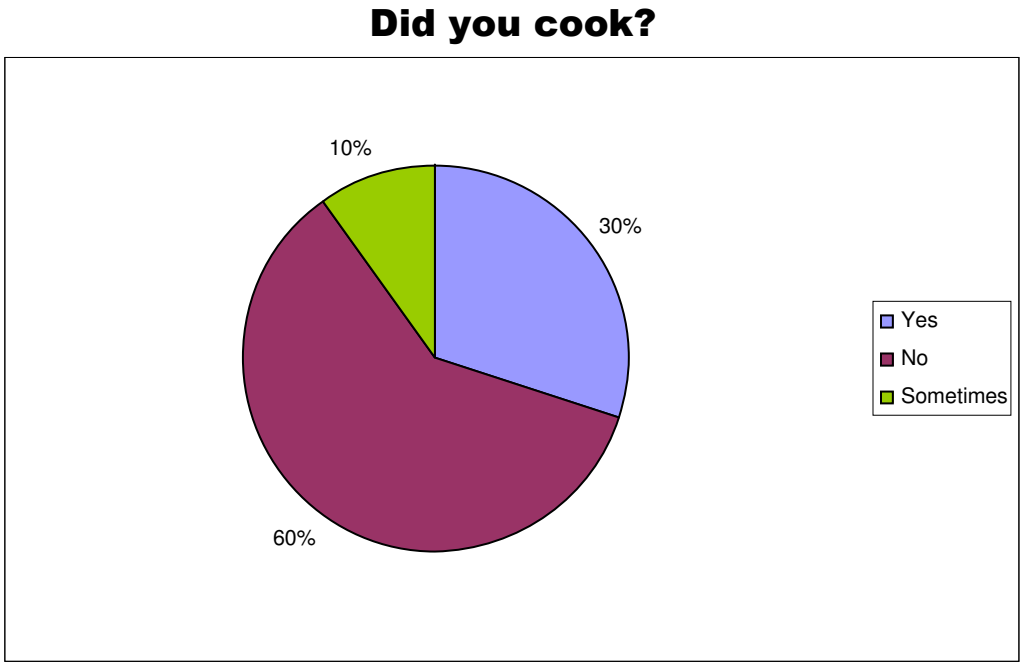
What was the biggest meal of the day?



What time did you usually eat dinner?

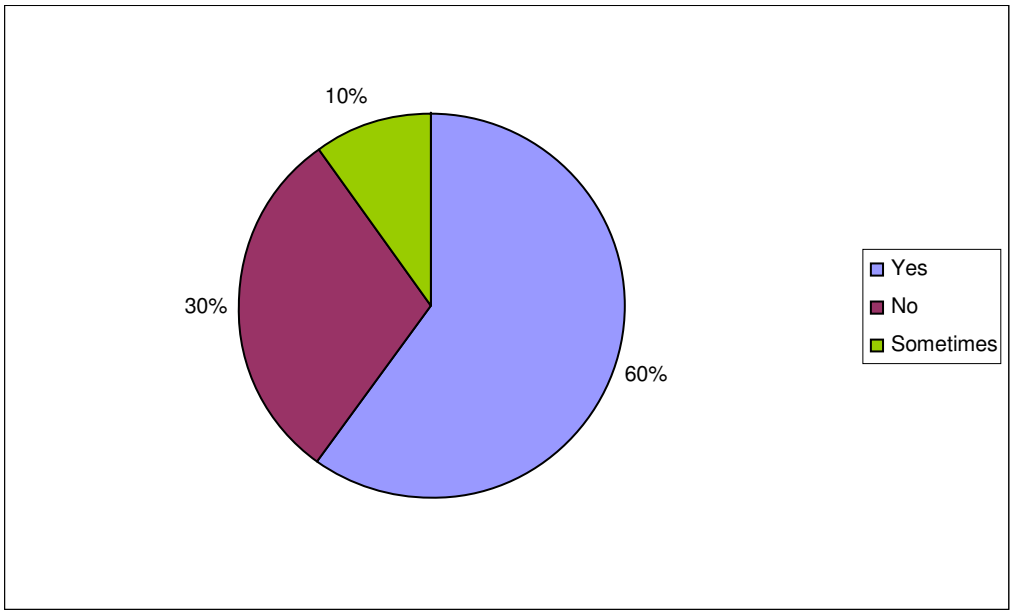



Did you snack at all?
30%
40%
30%
Yes
No
Sometimes

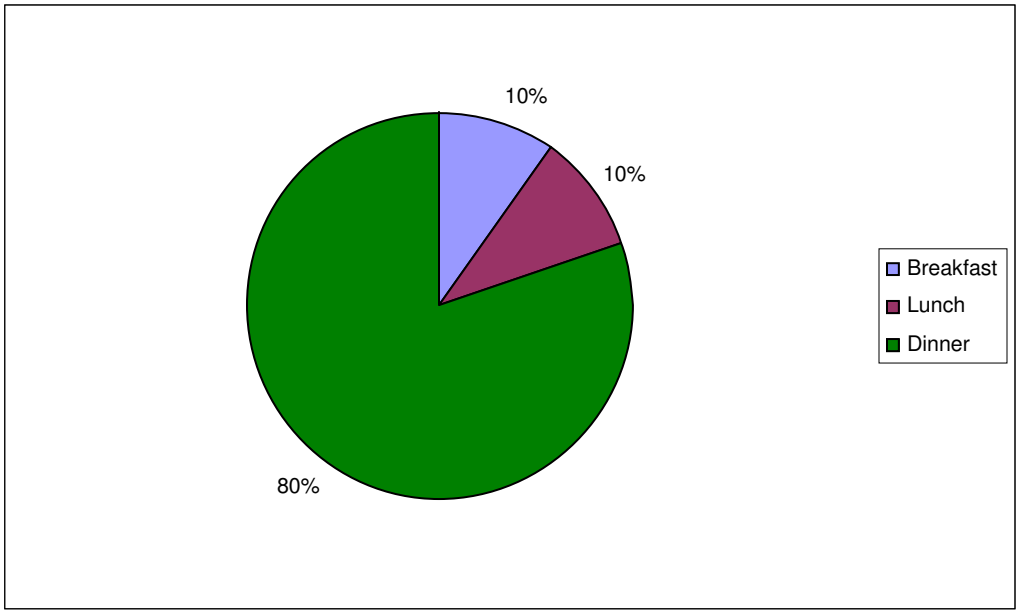

Did you cook?
10%
30%
60%
Yes
No
Sometimes

During PC Experience:

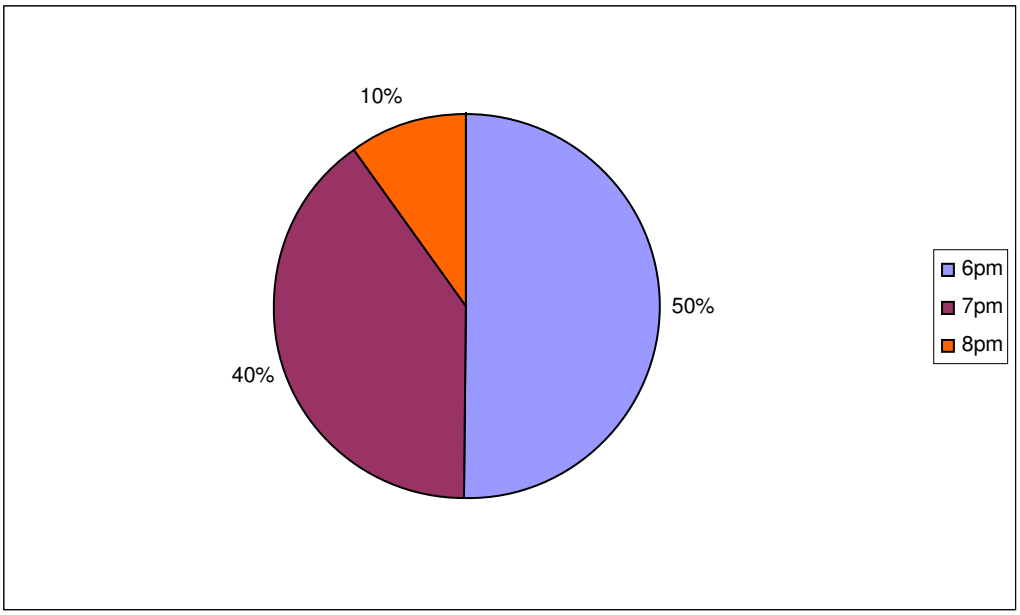
Do you cook?



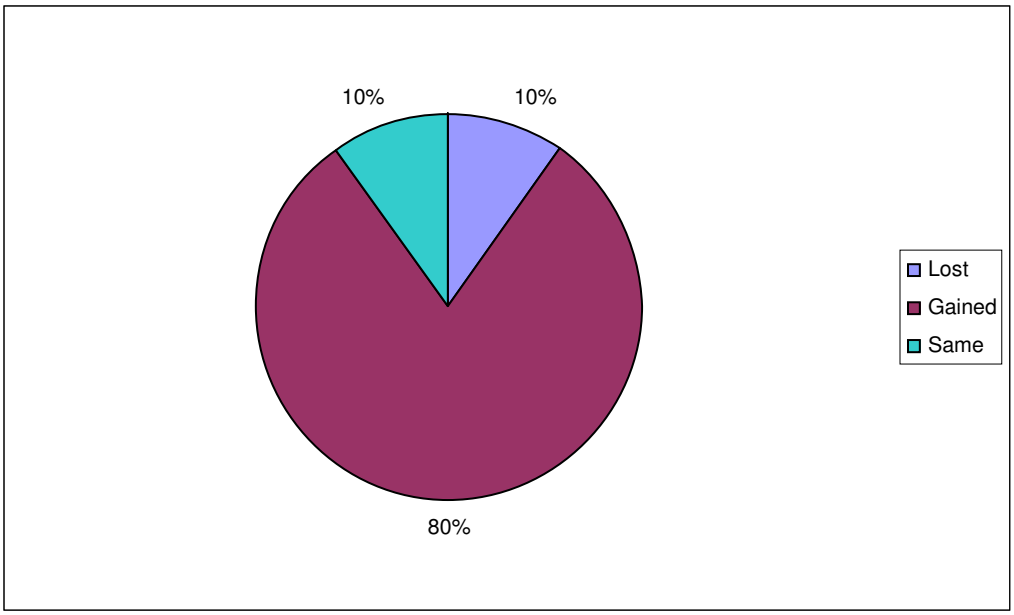
What is the biggest meal of the day for you?



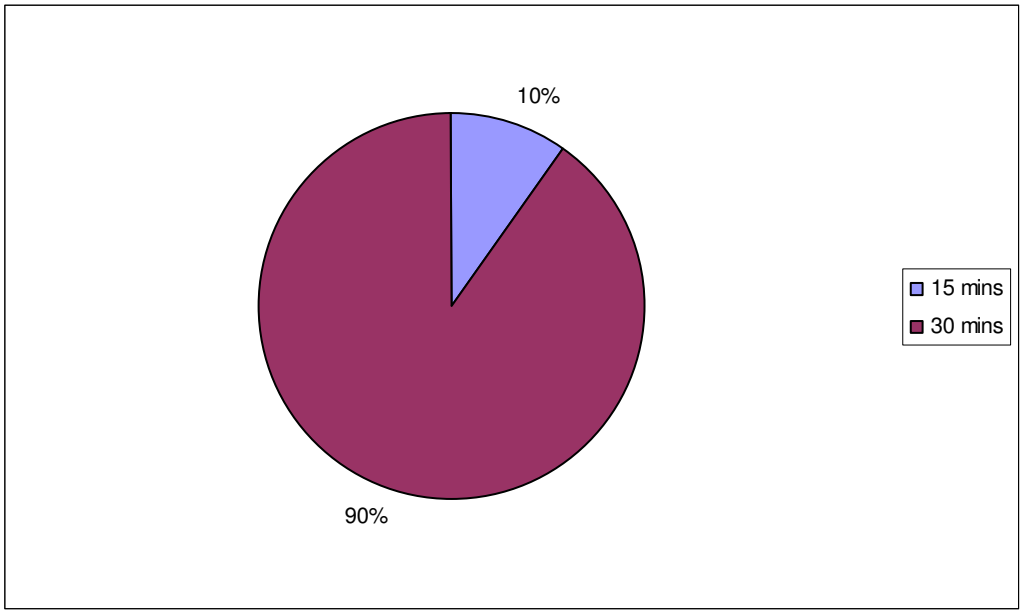
What time do you usually eat dinner?



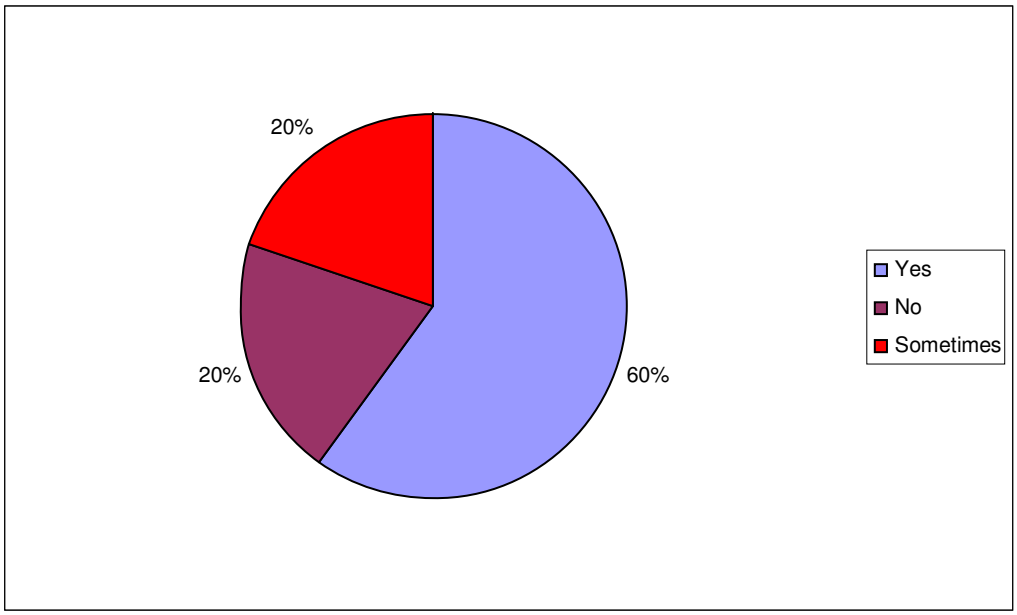
Have you gained any weight since being here?



How much time do you allocate to your meals?

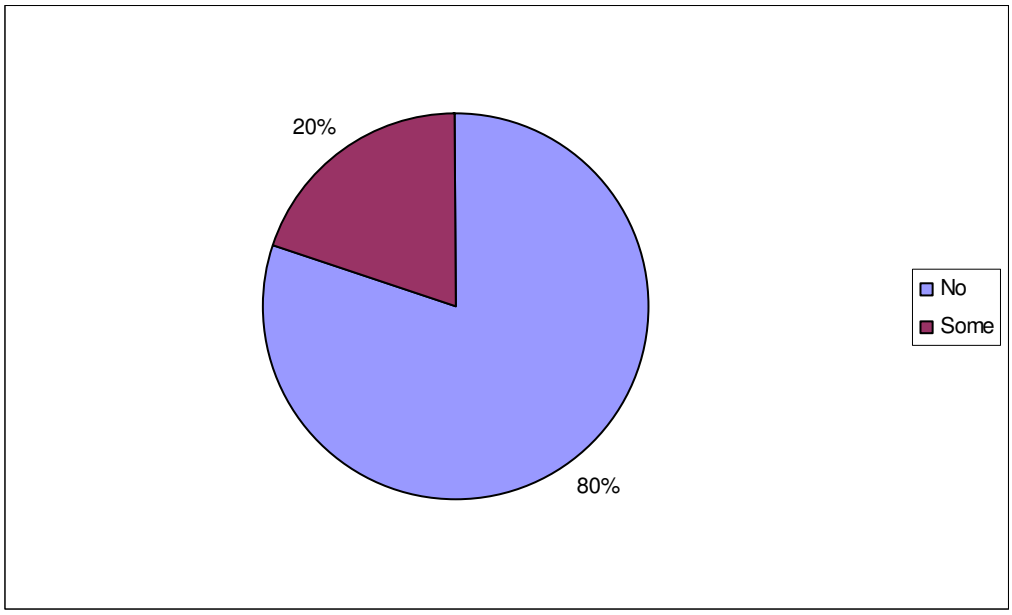


Do you eat fast food at all?

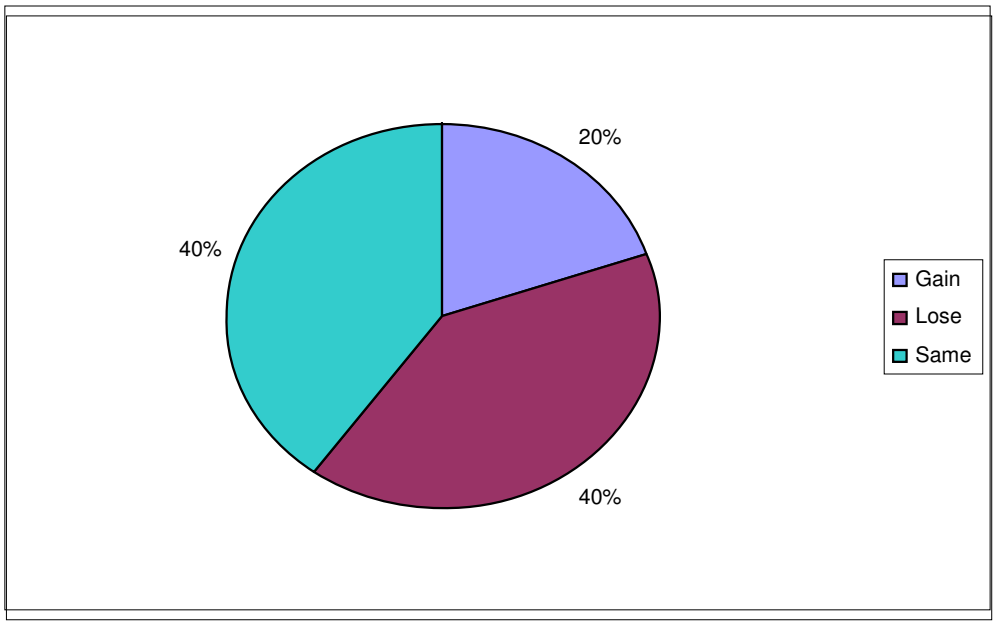


When International Students Travel Back Home:

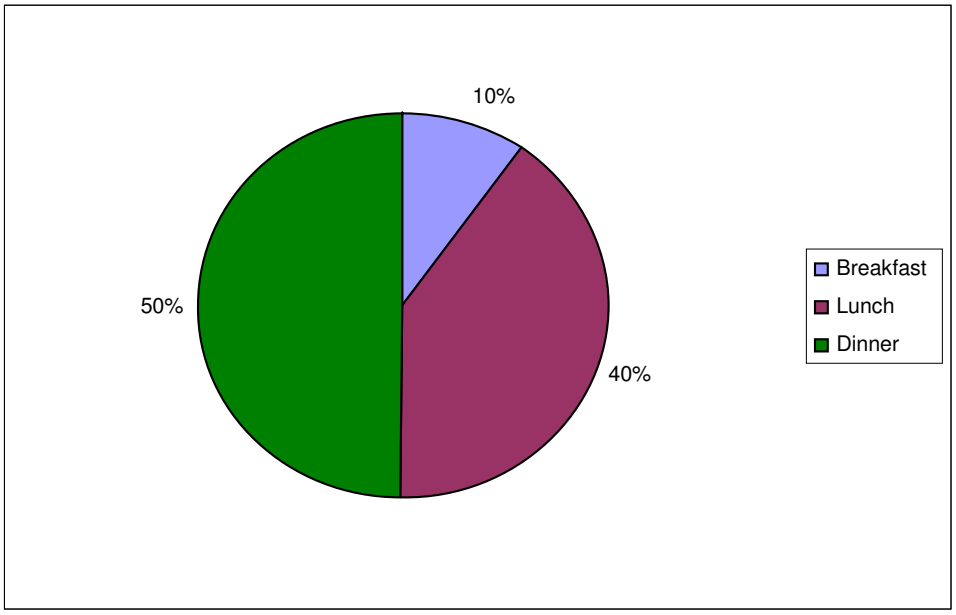
Do you miss American food?



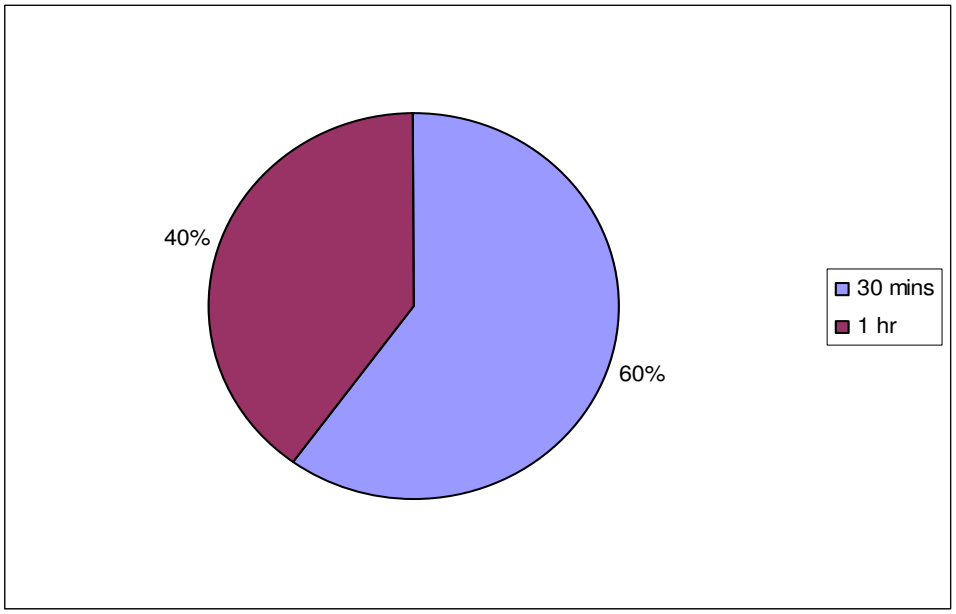
Do you gain or lose any weight?



What is the biggest meal of the day for you?



How much time do you give yourself to eat?



Survey Findings:

Despite the limited circumstances of participants, nevertheless, there is clear evidence of dietary change—both minimal and significant in many of the results before, during, and after the international experience for both groups. Several of these dietary changes are derived from the immersion into a new lifestyle channeled by the culture. A greater part of the students adapted to and integrated parts of their host culture into their lives after the experience. Subsequently, these dietary changes transpired naturally.

Furthermore, the majority of the evidence suggests that the dietary habits students had before were not deeply 'ingrained' within their eating patterns or psyche per se, but rather driven by their present culture--as seen by the significant differences. Ultimately, the results partially imply the malleability of the dietary habits even within a short period of time. However, previous cultural connection, personal desire, location, and adaptability greatly affect the extent of changeability. Overall, the changes during the international experience do not directly indicate a healthier lifestyle, yet a considerable portion of results adhere to have become more nutritiously healthier (as conceived by nutritionists standards); whether strived for personally or by circumstances.

I have categorized the selected results into four main groups that are major themes within the survey:

- **Social Implications**
- **Time Structure**
- **Food Shopping**
- **Dietary Habits –i.e. snacking, cooking, fast food**

Each of these groups harbors the possible means of dietary change within the student's international experience. Furthermore, the level of gravity of change reflects upon the nature and portrait of a culture as well.

- **<u>Social Implications:</u>**

There is a noteworthy difference in the number of times students ate communally with either their families or roommates during their study abroad experience. Students remarked that before they left to their host country, they only ate with their roommates once a week at most (53%). However, whether it is due to the type of their accommodations (of which many lived with a family), during their international experience, 68% ate with their host family or roommates more than once. This considerable change highlights the importance of and presence of communal meals which renders social interaction as reinforced in the grander picture of ancient food cultures. Numerous students remarked that the meal times were regarded as social activities and had specifically designated time periods. This result supports the theory of the vital relationship between socializing and food as conveyed in ancient food cultures (in general --not necessary designating all as an ancient food culture). An additional 78% of students consider food to be an essential component to their social life as well. International students before entering Providence College ate with their families at least once everyday. Furthermore, while at Providence College, they usually eat at least one meal a week with their roommates. Another factor that can be

assumed (to an extent) is because of more students spent time socializing over food, it can be safe to deduce a sense of pleasure and satisfaction was present.

- **<u>Time Structure:</u>**

The majority of study abroad students designated more time to their meals during and after their experience than before. The amount of time allocated to meals nearly doubled from during their experience in comparison to before. 53% of students' allotted 1 hour to their meals before their study abroad, whilst during 41% allotted 2 hours for all. In addition, after their return, overall there was an increase in time as 57% granted one hour and 11% now give 1 ½ hours to meals. What is remarkable of this result is the adaptation or balance between before and after as overall more time was given even after.

Dinner was the overwhelming largest meal of the day for most students, however, for a few students lunch (28%) during and after their experience remained to be the largest meal of the day. In relation, according to students before, the majority ate dinner at 6pm. However, during study abroad more than half ate dinner after 8pm. What's more important again is the adaptation and inclusion of their study abroad dietary habits into their life after. Overall, after their return more than half eat at 7pm instead of 6pm as before. With this alteration, it suggests the influence of cultural dietary habits and lifestyle.

The majority of international students before college spent at least one hour for their meals, yet during their college experience 90% designate only 30 minutes to their meals. Dinner remains to be the largest meal for international students as well. Furthermore, before their college study the majority of students

ate dinner at 8pm, while conversely during their study abroad ate the majority eats dinner at 6pm. Even with the international students, the adaptation and change of a culture's dietary habits is present.

- **<u>Food Shopping:</u>**

The total number of study abroad students shopped at a local supermarket once a week at most (sometimes twice a week), either at Shaws or Stop and Shop. However, during their study abroad, 46% frequented the local market at least four times a week; a considerable difference. It must be recognized, however, the availability of local markets in home and host countries. Nevertheless, students were attracted to and took advantage of local markets regularly. This may have influenced the change in their concern of the origin of food

- **<u>Dietary Habits:</u>**

The general portion of students, 47% before they study abroad snacked at least once a day. However, during the study abroad 61% never snacked during the day. In the reverse, after they returned 47% still do not snack at all. In addition, 56% of the study abroad students stated that they ate fast food on occasion; however, on the contrary 84% never ate any fast food abroad. Moreover, the number of students who cooked abroad increased, yet many had no opportunity to cook for themselves; all the same, 68% included new foods or dishes from their host country into their lifestyle after.

Similarly, the balance between students that gained, lost, or remained the same weight stayed rather constant. However, upon returning 35% of students gained weight, in comparison to those 29% during their study abroad. A larger portion of students lost weight after they returned. A general consensus agreed that the amount of walking contributed to weight loss, whilst a gain in weight was admittedly contributed to increased alcohol consumption—and for some richer, heavier foods.

Interestingly with international students, upon their stay at Providence College, 80% have gained weight and 60% eat fast food at least once a week. On the other hand, upon returning to their home country, 40% lose weight. An additional 60% of the international students cook in school, whilst previously 60% never cooked. The majority of the international students do not miss American food while they are home as well. Within both groups, dietary habits fluctuate with the present culture.

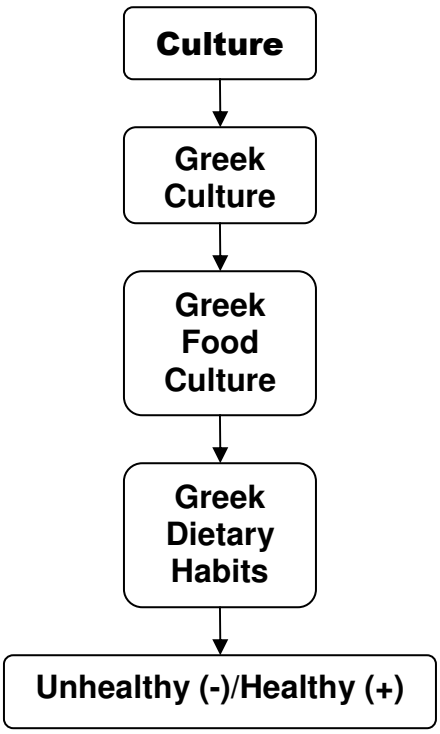
Conclusion

Gathered from this evidence, simply on an objective perspective without considering the idea of ancient food cultures theoretically, cultures signifigantly provoke dietary change—either minimal or drastic. This is a valuable insight as it lends to culture as being legitimate means to combating dietary problems, and to the larger degree, the nutrition transition.

Culture, in theoretical terms, holds an important key to dietary change. As results portray, culture has the ability to transform and influence dietary habits not only in a positive way, but negatively as well. In a systems thinking perspective, established within the larger framework of a "culture", exists cultures in the sense we are familiar with—such as Spanish, Peruvian, American and so forth. Within these specific cultures, the distinction between the positive and negative dietary habits is critical. Theoretically, culture itself does not produce a positive dietary change simply due to its presence; rather it is the essence and quality of a specific culture that it is composed of that determines the positive or negative dietary effects. For example, the idea of a 'Greek culture' simply does not formulate into having a positive dietary effect. Simply because a Greek culture exists does not mean it will have positive dietary effects, rather it is the substance within the culture itself; their dietary habits for example.

In addition, within the substance of the culture subsists a food culture, if at all present. This presence of a food culture as evoked through the survey and the research suggests being highly influential in establishing positive and negative dietary habits. For example, it is argued that the United States has no food culture at all—(or if there is it is based on fast food), which explains the overwhelming American dietary problems and an "American eating disorder" as some claim. As implied in the survey results, the presence and substance of a food culture determines whether detrimental dietary habits ensue.

Example: Systems Thinking



Ancient Food Cultures: Past and Present

This web maps out the fundamental components to a food culture. These aspects are present throughout various cultures—from the past to the present day. Furthermore, these components have remained relatively the same throughout time. Each culture has its own variation of their specific food culture, yet this basis remains unchanged. For example, the food culture of the Neolithic man in comparison to the Japanese food culture differs only in geography (to an extent) and the essence and substance of what defines them as specifically 'Neolithic' or 'Japanese.' As each of these aspects outlined can be applied to these cultures, the extent to which varies. Food cultures are inevitably derived

from 'culture' steeped in tradition. A 'food culture' develops over an extensive period of time through repeated dietary habits, meals, rituals, natural resources, and communal life—all of which are shaped by geography. Each factor distinctly defines the portrait that culminates within the larger realm of 'culture'. Moreover, the food culture is a crucial part of the identity of a culture.

The web begins with the core factors and gradually disperses to other contributing components. However, not all components may apply to a specific culture or peoples.

- **<u>Survival:</u>**

From the beginning of time, our human ancestors depended upon food as their means of survival. It is within human nature the desire to survive and endure. As such, food became a critical factor to life, especially in such harsh circumstances as with our human ancestors. It was common that one day may have revolved around the search for food and water. Today too, tribes and nomads migrate in search for food. Despite all efforts, food may be scarce. Thereupon, a reverence for food, nature, animals and the Earth developed because of their precious necessity to life. This reverence is upheld in many cultures today. For example, by and large the Native American tribes honor and respect the interdependent relationship between food, nature, animals, and the Earth that are the means to their survival. Consequently, there is an intimate relationship between food and people.

- **Tradition:**

Tradition is the hub of any food culture. More importantly, it supports and fuels any culture. Food culture tradition is based in past experiences, rituals, and customs. For example, the historical culinary and food practices of the Japanese dictate and created the Japanese food culture as it exists today. In addition, as these practices have sustained throughout time, their legitimacy and substance are generally unquestioned and remain as an accepted inherent reality. Consequently, a sense of pride and identity develop within the culture. The culmination of these culturally dictated practices generate a type of culinary wisdom and knowledge. Within my research, this wisdom is a significant key answer to good health. In addition, there are specific recipes and dishes that reflect this cultural tradition, identity, and culinary wisdom.

- **Celebration:**

Food has always been a considerable part of any celebration in most food cultures. Celebrations usually entail food or even define a celebration. Generally speaking, a celebration typically involves a group of persons; furthermore food is a connective 'identity.' Therefore, food naturally brings people or communities together in celebration. In its very nature, food is naturally and best to be enjoyed in communion with others. This connective factor is derivative from the nature of a meal and communal sharing likewise to our human ancestors. Additionally, it promotes and leads to communication and relationships. Due to

this unique 'social force' of food, it is often included in religion and other rituals that additionally dictate a part of the identity of a food culture.

Related to celebration is the notion of happiness. Happiness is deeply intertwined with social communication, rituals, community, celebration, and even in some cases religion. Many food cultures are grounded on these factors of celebration rooted in tradition which ultimately result in joy and happiness. Linked to this concept of happiness is pleasure, which branches from celebrations and rituals. Meals, which have historically evolved as a consistent timely ritual are associated with the pleasure of social company, celebration, and harvested food. Pleasure remains to be one of the most important factors in many food cultures in the relationship between food and people as a socially uniting force.

- **<u>Dietary Habits:</u>**

Accompanied by the evolution of meals that are grounded in cultural tradition, dietary habits have too developed. Many dietary habits are rooted in celebratory rituals and cultural customs. For example, a typical French meal usually includes a glass of wine which is followed by a cheese spread. What makes this distinctly French, is the cultural and historically development that is shaped on a larger scale by the natural resources and the gastronomical specialties within the French culture. Dietary habits have grown over multiple layers of cultural norms, values, history, and even geography. It has been argued that these dietary habits have sustained cultures existence throughout the

passage of time. In relation to specific dietary habits, recipes emanate as a mirror portrait of a culture. Furthermore, many recipes entrenched in antiquity, carry wisdom passed down through generations.

- **<u>Locality:</u>**

Another quintessential trait of food cultures is the significance of locality. In many ancient cultures as well as today, locality plays an important role in shaping a food culture. For example, historically, man cultivated his/her own produce and was able to be self sustainable. In addition, geography and seasonal changes dictated their produce and cultivation. For example, the Japanese harvest seafood and sea vegetables as it is abundantly available due to their geographical location. Furthermore, if a specific crop was unable to grown within a particular region for example, it simply wouldn't be consumed or harvested. Natural resources are highly taken advantage of. Seasonal changes influence consumption too since, in historical terms, man only consumed what was naturally harvested during a specific period of the year due to weather and seasonal limitations. A characteristic by-product of locality and natural resources is the freshness, simplicity, and wholesomeness of the produce.

In this regard, farmers have held a high position in ancient and some societies today, as critical providers of food (reverting back to the factor of survival). Consumers, farmers, and produce have had a mutually cyclical relationship of dependency. Outdoor open markets, for example, are clear demonstrations of the respect within the connective, interdependent, communal

relationship. Additionally, as farmers or any producer that sells or simply cultivates, during the process of their labor, dedication, and time, a sense of pride blooms naturally. It is a natural inclination for humans to have pride in their efforts and hard labor that result in satisfactory produce for example. Furthermore, it is also a natural tendency to strive for perfection in any effort. Theoretically speaking, quality is naturally conceived. Many food cultures are oriented around a local and community based food source.

Refugee Dietary Interviews

These dietary interviews of several refugees were conducted at the Nutrition Workshop of the International Institute. I have listed some specific questions and pertinent themes the refugees discussed. It is important to note that there is not any particular fluid order to these questions.

Conducted at the International Institute's *Nutrition Workshop: Let Culture Be Your Guide*, April 4, 2009.

Kenya

2 Kenyan Women, anonymous

AO: "How long have you been in the United States?"

KW: "For about 2 years now."

AO: **"Did you have trouble adapting to the American culture and diet?"**

KW: **"Yes, it was a huge difference culturally. But my diet has not changed that much."**

AO: **"What do you think about the American diet?"**

KW : **"We don't really eat American food that much."**

AO: **"I have found in my research a lack of a cultural connection to food with Americans. I feel like the average American doesn't have a relationship to their food I feel. A general conception of the American diet is typically of fast food, hamburgers, fries etc. The typical American eats at least one hamburger a day. Have you experienced this or feel the same way?"**

KW: **"I don't understand how you can say Americans don't have a cultural connection to food. American food is not just fast food it's a huge variety because of how big the country is and the people here. Do you think Americans eat hamburgers all the time? I mean people don't always eat American food everyday. Like we eat Chinese sometimes, Indian, and Kenyan food. What the question should be is what classifies the typical American who eats these burgers. I've seen a show on the history channel or something about how hamburgers came from a rich history. So I think you should ask who is the typical American."**

AO: **"You are right, not every American eats a hamburger a day, I guess as I have found in my research it usually is the lower income class of people in society in America, people in the south and in urban cities that are typically more inclined to this way of eating. Do you feel this has impact on our health?**

KW: **" I believe that the problems of health in America is related to its food. You said American food is mainly fast food and**

hamburgers, but the real problem is that American food has no definition. There is a lack of a definition of American food. This is what I think impacts the health and its 'cultural connection,' if that's what you mean by cultural connection."

AO: **" That's exactly true. Cultural connection, for me is a sense of ritual and a relationship with one's food. So the sense of cultural connection is tied to ritual, which maybe seemed unclear when I first said it. That being said, I feel that America doesn't have a food culture or any sense of ritual or like you said, a definition of its food. I found that those cultures that cook and eat in their cultures tradition are generally healthier too."**

KW: **"How can you say that they are generally healthier when those cultures cook with GMOs and things like that?"**

AO: **"They very well may cook with GMOs which is true, but I think that the fact that they cook according to their culture's culinary tradition seems to override that and create a sense of wisdom over the progress of time. Another thing I wanted to go back to connected to culture and tradition is the sense of ritual. Do you feel this is apart of the American or of your culture?"**

KW: **"When we eat; we sit down together and eat as a family. Sometimes we eat on a mat from the same bowl. Ritual is every meal we have. We have specific times for every meal and nothing in between like snacking and a little here and there throughout the day. Americans don't have this ritual. The only time they do is Thanksgiving which is very specific. You eat this and that for thanksgiving, you prepare the turkey this way, you use the leftovers like this... This is the only time I feel is when they have a sense of ritual. Americans are the only ones that celebrate Thanksgiving so it's truly American."**

AO: **"I completely agree with you, and I wish that Americans had more of this communal ritual in everyday life."**

KW: **" Its true because its not right to eat at your desk or alone in front of the TV or in the car like I see Americans do. I really miss this about Kenya, how every meal was treated specially."**

AO: **" Do you cook Kenyan food here and are you able to access ingredients?"**

KW: **"Yes we still cook Kenyan food at home and since I know I will be returning soon its part of the reason I have kept to it."**

AO: **"What usually is the biggest meal of the day when you are home?"**

KW: **"Definitely dinner, everybody gathers around, my mother cooks, and if you miss dinner then too bad."**

AO: **"When you are at home in Kenya where do you usually buy your food?"**

KW: **"It depends on what you are shopping for; if you want vegetables and fruit you go to the outdoor market where they are fresh. But if you are looking for regular groceries then we go to the supermarket."**

Namibia

1 man, anonymous

AO: **"How long have you been in the United States?"**

NMB: **"Since 2002."**

AO: **"What brought you to the United States?"**

NMB: **"Well I worked for the Peace Corps in Namibia and I met my wife there. She also worked in the Peace Corps and she is American actually."**

AO: **"Did you find it hard to make the transition and the difference in food?"**

NMB: **"Oh yes, the culture is so different. But my diet has not changed. I and Namibians pretty much eat everything so it was not that hard. But I do miss Namibian food. It's hard to cook Namibian food here because you can't find everything. There is only one other Namibian in Rhode Island and we know each other and get together sometimes"**

AO: **"Have you found that there is a difference in the way Namibians and Americans eat?"**

NMB: **"Yes of course, Americans don't eat together. In Namibia, all the time our meals based on ritual. You don't see that here, and that communal-ness of Namibia I miss a lot."**

Nigeria

Julius, Nigerian

AO: **"So how long have you been in the US?"**

JU: **"I've been here for a long time, since '71 so I've seen both sides of the coin."**

AO: **"Oh wow. So since you've been here for so long what is one thing you can say about American food?"**

JU: **"It's about profit. It's about capitalism. People try to make money on food. Food is used as a marketing ploy. Kids see on TV how the fries are made and want that. They look at**

the label or pictures on it, not the ingredients, and have to have it."

AO: **"I completely agree with you, I feel that the United States just eats to survive and lacks any substantial food culture. Do you see this at all?"**

JU: **"America does not have a food culture. They just eat to eat. They snack all day like bit by bit through the day and lose the 3 meals. They don't have a sense of ritual. You have Thanksgiving and that's it. Ritual meals are only for special occasions."**

AO: **"Americans eat a lot of fast food, do Nigerians eat as much as we do?"**

JU: **"Well of course there is fast food. I call them the elites, and they are the ones that go there. Say I have a girlfriend, we probably take her to McDonalds because it's the cool thing to do, people hang out there and talk etc. But I say, no lets get real food, traditional Nigerian food and most say no no no…"**

AO: **"Do people outside of the cities still eat fast food?"**

JU: **"Yes, but it's mostly in the cities. Lagos has about 17 million people and so the fast food has really hit them"**

AO: **"So would you say that the fast food matches the fast paced lifestyle of the cities?"**

JU: **" Oh definitely, everybody eating on the go and things like that. They lost the tradition. Outside of the city, life is much slower."**

AO: **"Where do you usually buy your food then?"**

JU: **"Well there are the outdoor markets which are good, and we have supermarkets too but not as big as the US."**

AO: **" So what is a typical 'ritual meal' look like in Nigeria?"**

JU: **"First off, the mother does the cooking. Then, sometimes we eat on a mat, and the women eat with the women, the men with the men, and the children with the other children. Sometimes women are regarded as lower class citizens in this manner but…**
Sometimes it's just my family gathered around a bowl on the floor and we eat together."

AO: **"What is usually the largest meal of the day then?"**

JU: **"Dinner always is, and the other two have designated times you know, not like snacking all day."**

AO: **"In my research I've found that cultures have like a dietary wisdom for good health, just as they are, do you believe that?"**

JU: **"Yes I do believe that. As I said my mother usually cooks. So when the mother does the cooking, the daughter always cooks too. The mother shows the daughter what condiments to use and ingredients. She shows her how to prepare it and cook it. This is what keeps our tradition going and our cultures food, or wisdom as you say. Also, while cooking, it creates a strong bond between the mother and daughter."**

AO: **"Would you say that food in general bonds people together, like between the mother and daughter?"**

JU: **"Of course, since we eat together, we talk and socialize. It is important to eat communally. I remember when I used to live in NY in an apartment building. Out of all the people in that building, I only knew one family that lived there. In Nigeria I know all the people on my road and neighborhood. I could call them and ask them if they wanted to have a meal together or something. I could go up to their door and ask them "Can I have an onion or something." Here nobody would do that or ask people to**

eat together. But if I meet an African here in the US, we could talk and exchange numbers and then we would be friends. I could call him up like that." If you were in Africa, and you wanted some food or were hungry traveling or something, you could go to someone's house and they would give you food like that. No questions."

AO: **"It seems like you have a great deal of trust then in your local community where you live. Would you say that your trust is formed because of the communal meals you share in your family and how you socialize with them during meals?**

JU: **"I guess you could say that. Since we do talk, share, and sit down together, then I guess we become more trusting. It's important in any community to have trust.**

AO: **"So it turned out to be a great workshop here then, don't you think?"**

JU: **" Yes it has, a lot of people came. Like I said to you in the planning meeting, as much as I think a nutrition workshop is important for the refugees, it still should be about their culture. Nutrition is important, but to me, if you just eat the food of your culture you don't need to worry about it. That's it. Period. You don't need to worry about trying to get these nutrients and things to be healthy. Just eat your food's culture and there. I wanted this workshop be a celebration of food. That's what food is, and we should celebrate cultures food in a ritual and not worry about nutrition so much."**

Interview Findings

Firstly, when I approached several refugees asking if they would be willing to answer a few questions about their diet, they were a little apprehensive and unsure. After I described to them my thesis project and the nature of the questions, they warmed up to the idea more so. Generally, they also preferred to remain anonymous. Despite their initial hesitant reaction, I was able to confirm the many propositions and theories I had questioned during my research in regards to dietary change, ritual meals, and culinary cultural wisdom.

What struck me as especially unique and noteworthy that every refugee mentioned was the continuation and inclusion of their home cultures diet into their current diet. The refugees seemed to not give a second thought to changing their diet or rather eating more American food. Two of them asked me why would they change their diet so drastically. The refugees prided in their cultures diet and seemed no reason not to continue eating their cultures cuisine. In my preliminary question, I hypothesized that the presence of a food culture deters the nutrition transition. As all of the refugees had continued eating food of their culture, the effects of the nutrition transition were not present and irrelevant, thus confirming my theory. They continued their eating habits, such as not snacking, as they had previously. Therefore, the dietary transition was rather easy and not too much of a drastic shock. They also observed the surprising amount of fast food Americans consume. The only shock many refugees remarked was the cultural difference between America and their home cultures.

Throughout my research I had proposed that the sense of ritual was central within food cultures and their dietary wisdom. Every refugee I had interviewed stressed the importance of ritual within their meals and culture. Every meal revolved around traditional rituals. Moreover, since the family gathers together it further creates a sense of ritual. They emphasized the social communication and connection during meals. Ritual not only was present within the families' meals, but similarly in their community people socialized and bonded over food. This confirmed the presence of a cultural and social connection to their food as based on tradition from the past. Their description of their cultures diet and habits astoundingly resembled the components of the ancient food culture web I had outlined.

It was also curious to me that as they discussed and explained the importance of ritual, three refugees mentioned the American holiday of Thanksgiving. I had never actually thought to compare the ritual of Thanksgiving to that in other food cultures. The refugees commented that Thanksgiving is akin to their celebration of food in their cultures in everyday life. It also seemed remarkable to them that this was the only truly American celebration of food itself and its cultural implication. As I pondered on the notion, I came to think that other major holidays in the "American calendar" are not necessarily followed by the whole American society. Thanksgiving is uniquely American and celebrated generally by the whole population. The refugees commented that this is detrimental and unfortunate to the American culture and people as a community.

Another important point that validated my original proposition was the lack of an American food culture. The refugees argued that the main problem with the American diet is ironically its lack of a definition; moreover, the lack of a food culture. Additionally, the refugees stated that the majority of the diet related health problems stem from this absence of a food culture. They agreed with me when I stated I felt that the lack of a food culture originates in the cultural diversity of citizens and the different influences in such a large nation.

The most important observation for me was one of the refugee's statements regarding cultural culinary wisdom. Beforehand, I was not sure if the refugees would understand what I meant by particular cultures having dietary wisdom, yet Julius fervently agreed with me. He simply stated what I had questioned and believed throughout my entire research:

> **"Nutrition is important, but to me, if you just eat the food of your culture you don't need to worry about it. That's it. Period. You don't need to worry about trying to get these nutrients and things to be healthy. Just eat your food's culture and there. I wanted this workshop be a celebration of food. That's what food is, and we should celebrate cultures food in a ritual and not worry about nutrition so much."**

This left a significant impression on me as I left the workshop. It thoroughly confirms what I had been attempting to conceptualize in a simple, yet profound manner. Furthermore, it highlights the little importance and role nutrients and essentially nutrition plays in food cultures as demonstrated in my case studies. Rather than fixating on nutrients, food should regarded as a celebration and a

social ritual, rather than a sum of its parts. Tradition, as many refugees argued, has kept these dietary customs in practice. What's more, as Julius implemented, the cultural culinary wisdom is continued and originates from tradition.

Solutions

From gathered research, quantitative, and qualitative studies, the nutrition transition is ultimately fueled by the global food crisis. Furthermore, as the nutrition transition is present not only within industrialized countries but in unindustrialized as well, grappling the root source of the problem is difficult to target. Countries left vulnerable in the wake of the sweeping force of globalization struggle to preserve their traditional culture. As research suggests, many cultures are unable to adapt to these dietary changes fueled by globalization. Therefore the loss of culture and identity initiate the beginnings of the nutrition transition. Cultures are left in obscurity not knowing the means to solve the onslaught of newly developed diet related health problems—such as non-communicable diseases. However, paradoxically the cultures' traditional dietary cuisines are the answer themselves.

I think that every ancient food culture has remarkable dietary wisdom as evident in their health and their sustained existence over the test of time. Therefore, these characteristics of ancient food cultures should be considered as legitimate dietary habits as guides to good health. As historical evidence affirms, man is able to survive on numerously different diets---from those of the arctic to those based on animal meat and blood. The argument that there is only one diet or set of dietary habits that lead to good health is simply false. I believe that different culture's diets should be taken advantage of amidst the problem of the global nutritional transition. We should look to these ancient food cultures as our

leaders to good health, not scientific nutritionists and their nutritionism ideology. As nutritionist Marion Nestle states "the problem with nutrient-by-nutrient nutrition science is that it takes the nutrient out of the context of the food, the food out of the context of the diet and the diet out of the context of the lifestyle" (Nestle 2007). Food cultures do not focus on nutrients, omega 3s, or saturated fat and the like; they simply eat whole food of their culture's cuisine. This is what we should emulate and use as a dietary model to alleviate the nutrition transition and its perverse health effects. Plainly stated, Michael Pollan argues "People who eat according to the rules of a traditional food culture are generally healthier than we are. Any traditional diet will do: if it weren't a healthy one, the people who follow it wouldn't still be around. And as the rates of the diseases of civilizations surely increase, clearly the Western Diet is not one of them man can continue to follow" (Pollan 2007). We should include some different cultures' dishes into our diet to diversify and take advantage of what other cultures cuisines have to offer. As the survey results and interviews indicate, dietary habits are influenced by the lack or presence of a food culture. Thus, unhealthy dietary habits can be changed, which in the broader picture of the nutrition transition is alleviating.

Similar to whole and simple foods, many food cultures are orientated around a local food economy. These local food economies consist primarily of outdoor markets, produce stands, and communal urban agriculture. Local produce, as it does not travel great distances, is picked at its prime state. Furthermore, the freshness and taste of locally grown produce can not compete with the supermarket variety. Because of being locally grown and picked at

ultimate ripeness, its quality and nutritional value are supreme. The industrially and conventionally grown tomatoes nutritional values are practically nonexistent in comparison to their locally grown and organic counterparts. The difference is seen in the freshness, quality and taste. I believe that a large portion of humanity has lost their appreciation and taste buds even for simple, honest, and wholesome foods. However, one can experience the pleasures of food again through supporting their local farmers, consulting other cultures cuisines, frequenting farmers markets, and delving into the fruitful and rewarding task of planting their own garden. Through their reliance on one's own garden and produce, the need and desire I believe, for industrial processed foods are diminished. Additionally, one will consume more greens, plants, and less meat-- a significant character in the Western Diet. The Western Diet needs to be reverted back to our agricultural ancestors of self sustainability and rebuild the relationship with the land and food.

Another important aspect in attempting to combat the nutrition transition and the Western Diet is education. People, I believe need to be re-taught the purpose and essence of food. It is not simply a commodity to be traded and consumed just to survive; rather, it is a social and natural relationship between others and the Earth. Children especially, do not have the choice perhaps in what they are fed or the knowledge of what is nutritionally good for them. By involving children in the process of planting and cultivating a garden, they learn where real food comes from; as opposed to the processed, on-the-go, sugary snacks. Furthermore, it will institute a foundational knowledge of what food really is, what

it tastes like, and they will have the ability to identify what is real food and a 'food like substance.' By engaging children into the cultivation of food, they enjoy the hands-on learning experience of the special relationship between people and nature.

The participation and inclusion within a vegetable garden transmits naturally to the art of cooking. Many youth and even adults today do not know how to cook or have the skills to prepare even the most simplest of meals. This is a significant factor in the detachment between humans and food as seen in today's society. By being involved in the gathering, preparation, and cooking, one feels a sense of accomplishment and connection to their meal. This is comparable to the sense of accomplishment and pride of an individual's cultivation. This is partially the reason why many people are offended when one does not care for their cooking. It is necessary to teach children and include them in the cooking process, even if it is as small as stirring the batter. They will appreciate the time and care that goes into baking a cake or bread for example. As they appreciate it more, so too will they enjoy it more. In the educational sphere, school programs, such as culinary classes, can encourage healthy eating, cultivation, and cooking that shows the value in other cultures cuisines for example. Further, school lunch programs can be improved through school gardens tended by the students or through culinary classes.

It seems to be an odd notion to consider, but people need to participate in their food. Since one will appreciate the care and process of cooking and the final product, they will have desire to share it with others. This communal sharing and

ancient ritual of communal meals reverts back to the seeds of ancient food cultures. Food stimulates communication, socialization, pleasure, and enjoyment. I believe these values need to be taught and re-instilled into the mind of the food consumer, as opposed to a "food enjoyer".

Conclusion

From my initial outlook on my research, I wanted to orientate my thesis around the importance of good nutrition and its prevalence within cultures. As I progressed further into reading literature, case studies, and conducting interviews it became apparent that nutrition, in scientific terms, had little or irrelevant importance within food cultures. From focusing on the various aspects and components of nutrition, my research gradually geared towards a more cultural perspective. In addition, these nutrients by themselves seemed trivial in comparison to cultures' cuisines. Nutrition itself seemed rather inferior as it appeared from my research to be encompassed in the broader picture of food cultures. Furthermore, my findings suggest that these food cultures have legitimate nutritional substance too as depicted in their health statistics.

In addition to the nutrition and cultural implications, the social importance of food remains crucial in food cultures. Food can be used as a means to unite and communicate between peoples. It binds families and communities closer. I believe the American culture does not exercise this capability to the fullest. In terms of the nutrition transition, if food was reestablished in its rightful position as a social connecter, people would be less inclined to the typical dietary habits of the Western Diet—i.e. snacking and fast food. If the meal was reverted back to the table with friends or family, people would be less tempted to have that burger on the go. Through reestablishing home cooked meals at home with one's family, gradually a cultural and ritualistic connection to food will develop.

The nutrition transition, despite the scale of its enormous global infliction, is not indelible. As seen through the Australian Aboriginal dietary study, the effects of the nutrition transition and Western Diet can be reversed. By returning to a one's own traditional food culture or simply incorporating another, the Western diseases characterized within the nutrition transition can be reduced or avoided. The importance of cultures' culinary wisdom in relation to Western disease is undeniable. These food cultures must remain untainted by globalization and Westernization in order to preserve their culinary dietary wisdom. I hope to further explore cultures vital relationship to food and advocate the importance of preserving ancient food cultures. I hope to use this as a foundation to help promote the importance of good health and the value of cultures' culinary wisdom. Every food culture as grounded on past tradition, can lead the victims of nutrition transition and Western dietary practices into a new communal and healthy dietary beginning into the future.

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