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Transformative Education for Creating Sustainable Food Systems: A Mini Course: "Yoga (yoke) of the Earth, Food and Use" at the GreenHouse Residential Learning Community

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Transformative Education for
Creating Sustainable Food Systems

A Mini Course: “Yoga (yoke) of the Earth, Food and Us”
at the GreenHouse Residential Learning Community

by
Kazuha Kurosu

A senior project submitted in partial fulfillment of the requirements of the B.A. 
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Karen Nordstrom, GreenHouse RLC
Abstract

In the contemporary food system, it is now hardly possible for consumers to make healthy choices about food with low impacts on the environment. Due to the nature of capitalism there is a current tendency towards conventional food systems that prioritizes productivity and efficiency within the system. In order to create a sustainable system, it is essential that consumers become aware of the influence their choices have on the environment and human health. To encourage more environmentally-responsible and healthy consumer food choices, a curriculum of transformative education for sustainability was introduced to a small group of students in the GreenHouse Residential Learning Community at the University of Vermont. The format for this six-week credit bearing course was designed to engage students in learning food system concepts and mindfulness practices. Two types of mindful eating were woven together in the course: eating mindfully to create a better relationship with food and making decisions about food choices mindfully with our health and the health of the environment in mind. The results from the study showed the effectiveness of applying mindfulness in transformative experiential learning for food systems. Although the course ran for a very short time period, students reported the changes in their attitudes and behaviors around food, including higher awareness about where food comes from and ability to observe how they physically and mentally feel in relation with what they eat. Also, the results indicated that mindfulness practices functioned as an effective tool for transformative education.

Key words: transformative education, mindfulness practice, food systems, sustainability, residential learning communities
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Preface

Jane Goodall says in her book that each person’s choice is a vote (Goodall, 2005). As we make decisions about what to eat, what to purchase and where to purchase, we are voting for certain food systems practices. It is very easy for us to purchase items that were produced conventionally because of their abundance. However, with respect to the current food movement that combats the conventional food system, now is the time every one of us must participate in the sustainable lifestyle that will allow future generations to live in harmony with the Earth.

Food, sustainability and mindfulness have always been great interests of mine. I enjoy eating, cooking and growing food more than anything. Food, I believe, is the most important basis of our lives. However, it is also true that contemporary food systems under global capitalism have caused issues in the natural environment and in our health (Albritton 2009).

I learned through practicing yoga and meditation that mindfulness practices help the practitioner develop the ability to notice what is happening inside and outside the body. I believe in the potential of mindfulness practices for shifting people’s behavior in establishing a lifestyle that has less impact on one’s health and the health of the environment (Amel et al., 2009). I decided to apply this idea in my project to encourage changes in one’s eating habits and choices around food for the sake of sustainability and human health. Mindfulness brings changes from within in a natural and organic manner (Bays 2009). Thus, even though one of the goals of the project is to bring about behavioral changes in the participants about food, the change will be from within, as opposed to by external forces as a result of activism.

In summer 2010, I invested in my future and obtained a yoga instructor certificate, and started teaching yoga at casual settings. Teaching yoga and sharing mindfulness with others became my favorite activity because it is a relatively easy and enjoyable way to connect people’s minds, which makes us feel safe in this busy modern life where we often feel disconnected from others. Also, having a certificate strengthened my confidence in teaching yoga and mindfulness as a part of this project.

In this way, my passions for food and mindfulness as an environmentalist have come together to give birth to my senior thesis project. By creating and implementing a course curriculum of food system education combined with mindfulness practices targeting university students, I hoped to inspire students to actively be aware of the relationship between food, our health and the health of the environment.

My abundant experiences in experiential learning prior to completing this project
solidified my belief in the effectiveness of experiential learning. I have been fortunate enough to immerse myself into a number of learning experiences including, but not limited to, studying abroad in Nicaragua at a permaculture farm and in an urban food system course in New York City. These experiences were great sources to refer to upon creating a curriculum and facilitating a course. Though my project may not bring a radical change in the global food system, similar to Jane Goodall, I value and count on each individual’s small changes as a first step towards a healthy future (Goodall, 2005).
Introduction

As a contribution to the emerging effort to create sustainable food systems, I created and facilitated a transformative educational curriculum with a focus on shifting participants’ eating habits and choices around food to a small group of students in the GreenHouse (GH) Residential Learning Community (RLC). This section explains the issues around contemporary food systems and explores the validity of facilitating a course aimed at cultivating socially and ecologically responsible perspectives of food and choices around food.

Food System Studies has emerged only about 25 years ago, according to Amy. B. Trubek, an associate professor in the Department of Nutrition and Food Sciences at the University of Vermont. These studies cover various and broad topics around food. The food system spire of the Transdisciplinary Research Initiative (TRI) at the University of Vermont says that “the field of food systems focuses on connections among food production, promotion of human health and well-being, and maintenance of the environment” (Grubinger et al., 2010 p.2). Food System Studies seek solutions to the issues associated with contemporary food systems including “diet-related health problems, food-borne disease, hunger and agricultural pollution” (Grubinger et al., 2010 p.2). Even though the ideal form of food system is not defined because it varies depending on each individual’s value, there is a trend that Food System Studies in general aims to form a “good” food system (A. Trubek, personal communication, March 2010). In fact, almost all the literature addressing food systems as a field of study is written in the past 30 years, and most of the works fall into the category of criticizing conventional food system, warning readers about the threats of the conventional food system and/or encouraging sustainable food systems as a solution to the conventional.

According to Discovering the Food System Program at the Cornell University, our table is now far apart from the local food system because of the wider range of food choices and the rapidly growing fast food market (Cornell University, Discovering the Food System Program, 2009. Retrieved from http://www.discoverfoodsys.cornell.edu/). Moreover, not all of us are fully aware of how food is brought from farm to table. Such ignorance leads one to unhealthy eating habits and ecologically irresponsible food choices. The main purpose of Food System Studies is, thus, to create positive changes in the contemporary food system, and offer alternative food systems that are healthier and more sustainable.

TRI also emphasizes the importance of solutions to contemporary food systems within the next 40 years. Our modern food systems have the ability to provide food at a very
productive and efficient rate. However, the costs to our health and that the environment, accompanied with incomparable productivity, is unacceptable (Albritton 2009 and Grubinger 2010). Thus, interdisciplinary efforts to create a food system that provides nourishment, health and well-being at the least cost to the environment and our health is essential as one of the approaches Food Systems Studies takes to achieve its goal (Grubinger et al., 2010).

Why we need to shift the way we eat

Our food system was once very different from what is it today (Richardson 2009). In the first half of the twentieth century, half of the population in the United States lived in the rural area, with a third of workforce contributing to agriculture “without modern equipment and chemicals.” The agriculture of the old days was to produce healthy food for people at a minimum cost of animals, land or welfare of future generations. Also, people did not have a choice but to eat locally grown food because the food system was rooted in each community, while our food system today is at a global scale (Richardson, 2009, p.47 and USDA, 2010).

According to Lang (2003), the beginning of the 20th century witnessed a drastic structural shift in the food system (p.557). The change is referred to as “industrialization of agriculture,” and also as the dawn of the “food manufacturing” era. The industrialized food system is characterized by a “food chain cluster,” which is a concentration of firms with exclusive ownership and control over the food system. Even though food products travel among different parties including farms, food retailers, processing companies, and consumers, the ownership and decision-making party remains the same, the cluster, at any stage of the system.

This organizational change left few roles for independent and small-scale farmers to play (Heffernan et al., 1999). Also, the average size of a farm increased, while the number of farms decreased, along with the rise in contract farming (Lyson & Welsh 2005). Lapping (2004) argues that the conventional food system is characterized by sameness, loss of sense of community, and ubiquity (p.143). According to Lyson (2000), the goal of conventional agricultural production system is to manufacture as many food products in as efficient way as possible. Utilizing experimental biology, scientific agriculture increases the productivity, and neoclassical economics contributes to maximize the profitability of it. Conventional agriculture has been practiced without connecting with farms and farmers. Also, the connection between farms, farmers and local communities disappeared because of the industrialization of food system.
Another characteristic of the modern food system is the fact that food travels miles and miles before it reaches a table (Lapping 2004). Long railroad and highway systems were established in the mid-20th century and they made it possible to import food to/ export from great distances. The highway system especially enabled faster and more efficient transportation for food. According to Lacy (2000), “Food in the United States travels an average of 1,300 miles and changes hands a half-dozen times before it is consumed” (p.19). Such developments lead agricultural systems to delocalization (Kloppenburg, 1996). Increases in food miles contribute to global warming by emitting CO2 from the transportation, according to Acott and La Trobe (2000). However, Weber and Matthews (2008) argue that greenhouse gas emission from food miles is not a large issue because it counts towards only 4% of life-cycle greenhouse gases (GHGs) emission while meat production costs so much more GHG. Thus, it is more efficient to cut down on meat consumption than to decrease the number of food miles to reduce the total GHG emissions.

Also, while refrigeration preserves food and creates more availability of food to people, it also causes problems. First, failure in compliance leads to food-borne illnesses and deaths. Not only human health but the environment is also at a risk. Chloroflourocarbons (CFCs), which contribute to global warming and depletion of ozone layer, were widely used for refrigeration until the 1980’s, for example. Although use of CFCs were banned and were replaced by hydrochlorofluorocarbons (HCFCs) that have less impact on ozone depletion and global warming, the environmental cost of refrigeration is significant (Coulomb, 2008).

Chemicalization of agriculture occurred along with industrialization of, and the impacts it caused are tremendous. It was not until World War One broke out when world food production began using chemicals. When chemicals were introduces as weapons used in the war, global chemicalizaion saw its dawn. Chemical use in the world was limited before, except for a few kinds of pesticides used on farms, but World War One turned out to be the birth of the American chemical industry (Richardson, 2009). Chemicals used for food production such as herbicides and pesticides are also harmful to the environment and human health. Pesticides run off from the farm and contaminate the river and lakes, and ground water and surface water, affecting the ecosystem (Wallinga, 2009).

Lang (2003) particularly points out meat production as a part of food system that was more greatly affected by the industrialization. Emergence of concentrated animal feeding operation and easier access to information technology had has a large influence on the industry by enabling mass production and faster data processing. In the 1920s, large-scale
farms started emerging. Along with the increase in scale of vegetable farming, animal farming also became a “factory.” Animals are not raised as sacred lives, but are manufactured as commodities. Concentrated animal feeding operation (CAFO) confines animals in a small space where they do not have enough space to move around, or even turn around, and are fed artificially made feed that often includes genetically modified organisms (GMOs) instead of grass (Goodall, 2005).

CAFOs cause serious pollution of the air and water. In the United States, CAFOs all together produce 500 million tons of mature every year, which is 25 times more than the amount of human waste. The waste runoff from the farm pollutes the nearby rivers and lakes by cultivating bacteria, kill species in the water and destroys the ecosystem (Cunningham et al., 2005). Also, CAFOs tend to use excessive amount of antibiotics in the feed, and use growth hormones. Growth hormone accumulates estrogen in human bodies, and this might be the cause of recent biological change in our bodies such as early maturity of young females, and decrease in the number of sperm (Goodall, 2005). Regular use of antibiotics in excessive doses creates resistance in pests (Nadakavukaren, 2005). Food-borne diseases are also a negative consequence of factory farming. Mad cow disease spread as a result of feeding cows their own species. E-coli, salmonella, and campylobacter bacteria, yersinia are also common because of factory farming facilities in which animals are confined in a very small and tight place, which encourages the spread of bacteria (Goodall, 2005).

Fish farming is also a threat to the natural ecosystem. First, it has a serious impact on the coastal ecosystem because it contaminates the water with fish food that is left over, and also with feces. Also, since there is an excessive number of salmon in the pens, diseases are common, including sea lice. In addition, farmed fish escaping from the pens causes contamination in the wild gene pool, spreads diseases, and create competition over resources in the habitat (Nadakavukaren, 2005).

Genetically modified organisms are also a trait of the industrialized food system. In order to make the crops pest-resistant, and to increase yields as much as possible, experts manipulated plants’ DNA. Because the GM plants are stronger, it helps reduce the use of herbicides, pesticides and fertilizers (Goodall, 2005). Health and environmental impacts of GMOs is recently a global concern. GMOs also have potential to cause impacts on human bodies even though there has not been any effect in human bodies related to consumption of GMOs. Simply, we do not know the long-term consequence of GMO use. Animals already have showed interesting attitude towards GMOs. For example, cows prefer organic corn,
raccoons do not eat GM corn, hogs do not finish the feed when GM crops are mixed, and deer also only eat non-GM soy. Moreover, according to a study, mice which were force-fed GM potatoes showed birth defects and significant damage in their immune system. Another problem of GM crops is the contamination in organic or non-GM farms. Because the wind carries GM seeds, twigs and all sorts of parts of GM crops from a GM farm to other farms, it causes financial damage to the non-GM farmers (Goodall, 2009).

Albritton (2009) wrote obesity is now a national epidemic. Obesity is one of the largest health problems we have in the U.S. today, and it is caused by our unhealthy food system. As of 2002, according to the Journal of American Medical Association, the prevalence of overweight among adults is 65.7%, obesity 30.6%, and extreme obesity 5.1%. Obesity and diabetes are also common among children today (Albritton, 2009). Thus, the children born in 2000 are estimated to be the first generation to live shorter lives than their parents (Pollan, 2006 p.102). Also, obesity is the first leading cause of death in the United States (Nadakavukaren 2006). This epidemic can be attributed to the prevalence of fast food or junk food in the United States. According to Pollan (2006), “when food is abundant and cheap, people will eat more of it and get fat” (p.102).

Alternative food systems

Fifty years after industrial agriculture has become a prevalent way of food production, many people became aware of the unsustainable practice of industrial agriculture (Richardson, 2009). Because capitalism has encouraged a particular style of food production that values short-time quantity and efficiency, it was often practiced at the cost of human health and the health of the environment (Albritton, 2009). The alternative food system, which emerged around 1970’s when environmental awareness began to spread, has its root in organic farming (Beus & Dunlap, 1990 and Nousiainen et al., 2009). Socio-economic characteristics of organic farming include control of local community, economical embeddedness in the local community/ region, cooperation and synergies among actors in the local food system (Nousiainen et al., 2009). In the literature, the definition of an alternative food system is not very clear; although the common understanding is that an alternative food system serves as an alternative or solution to conventional food systems. Nousiainen et al look at two aspects of alternative food systems separately: mode of food production and food distribution. In theory, alternatives of each section may not be an alternative to the other. While organic practice is an alternative to highly chemicalized conventional food production, it is not an alternative to
conventional global food distribution, but local food distribution is. The roles of organic food production and local food networks do not always overlap.

Alternative food systems or networks can potentially be co-opted by conventional food systems, which leads to create two different kinds of alternative food systems addressed by Follett (2009): weak and strong. While corporate weak alternative food networks assure environmental protection and often neglects issues such as animal welfare, the strong local alternative networks address all the aspects of food systems (Follett, 2009). According to Follette, strong alternative food systems are more effective to create environmentally and socially fair food systems. Characteristics of strong food systems are more effective to create environmentally and socially fair food systems. Characteristics of strong food systems include pastoral, polyculture, local market, biological, specialized and dedicated products, quality first, distributive, higher farm gate prices, knowledge of place, transparency of farmers, and knowledge and trust based (Follett, 2009 p. 40).

Today, according to Richardson (2009), farmers who have the closest relationship with the land, started taking initiative towards sustainable agriculture. USDA defines “sustainable agriculture” as an “integrated system of plant and animal production practices having a site-specific application that will, over the long term “satisfy human food and fiber needs, enhance environmental quality and the natural resource base upon which the agricultural economy depends, make the most efficient use of nonrenewable resources and on farm resources and integrate, where appropriate, natural biological cycles and controls, sustain the economic viability of farm operations and enhance the quality of life for farmers and society as a whole” (USDA, 2009).

Remaking the North American Food Systems raises the idea of “civic agriculture” (Hinrichs & Lyson 2007). The authors wrote, “The civic agriculture approach is oriented toward establishing, maintaining, and strengthening local social and economic systems, while the conventional/commodity agriculture approach is directed toward economic globalization” (p.24). The purpose of civic agriculture is to “relocalize” the food and agricultural systems and create local marketplace which can compete in the global economy. Since industrial agriculture took over the food system in the United States, what we eat relies on production processes somewhere outside the community, and industrial farming does not serve local market.

Lyson and Green (1999) proposed six characteristics associated with civic agriculture in the United States. First, civic agriculture is oriented toward local market outlets that serve local consumers rather than national or international mass markets. Second, agriculture is seen
as an integral part of rural communities, not merely as production of commodities. Third, farmers are concerned more with high quality and value added products than with yield and least-cost production practices. Fourth, farming is often more labor intensive and land intensive and less capital intensive and land extensive. Farm enterprises tend to be considerably smaller in scale and scope than industrial agricultural production. Fifth, producers more often rely on indigenous, site-specific knowledge and less on a uniform set of best management practices. Lastly, producers forge direct market links to consumers rather than the indirect links provided by wholesalers, brokers, and processors (Lyson 2000). Lyson mentions in his article several different forms of civic agriculture such as farmers' markets, community gardens, community supported agriculture (CSA), new grower-controlled marketing cooperatives, agricultural districts organized around particular commodities (such as wine) and community kitchens. Follett includes CSA operation, corporate organic food production and farmers market in the alternative food system (Follett, 2009).

Each of civic agriculture is growing. For example, USDA has been tracking the number of farmers markets since 1994, and the nation-wide number of farmers market increased from 1775 to 6132 from 1994 to mid-2010 (USDA Agricultural Marketing Services, 2011). In New York in particular, the number of farmers’ markets increased from 6 to 268 between 1964 and 1998. The number of CSAs grew from zero to 64 by 1996, community gardens grew from 550 in 1978 to 1,500 in 1996. The number of small, family-run wineries grew from 35 in 1981 to 130 in 1999. Civic agriculture helps to create sustainable local economy, bring diversity and quality in products, and establish bonds between producers and consumers of the community (Lyson, 2000).

**Why teach about food systems at the GreenHouse RLC**

Residential learning communities are special programs embedded in residence halls. Usually these programs are themed with academic topics and students pursue the field of study through their residence hall life to enhance their learning outside of classrooms (Schein 2005).

According to Pike (1999), RLCs emerged to meet the desire to create a living environment that allows students’ “learning and intellectual development” (p.270). The comparative study between residential learning communities and traditional residential halls showed that students in RLCs have greater interaction with faculties and fellow students as well as greater involvement. On the UVM campus, there are a number of RLCs, one of which
is the GreenHouse. When Daniel Mark Fogel, the former president of the university entered the university community in 2002 as the 25th president (University of Vermont, Office of the President. retrieved from http://www.uvm.edu/~presdent/ on March 15 2011), he brought a strong passion towards the concept of RLCs, and building intentional communities on campus was one of his strongest visions.

The GreenHouse in the University Heights and the Global Village in the Living and Learning Center are the first two RLCs on campus. According to the website of ResLife, RLCs “are designed to engage the whole student, tying together the intellectual, ethical, and social aspects of college life. By living together with fellow students who share common interests and ideals, the individual student becomes part of a true community, a community that is also tied to the greater world beyond the confines of the university. In addition, students, faculty, and staff are given the opportunity to interact outside the classroom, the lab, or the office, thereby encouraging the pursuit of knowledge as a lifetime activity” (Retrieved from http://www.uvm.edu/~rlc/).

The implication of the description and studies of Residential Learning Communities is that the living environment allows students to be more academically enthusiastic and willing to learn. Such attitudes of students should help me achieve my project goal, to create more ecologically conscious and healthy behaviors around food, and should increase the value of it. Thus, the GreenHouse provides me with an audience who will, in theory, learn the most from my project.
Literature Review

Introduction

The literature review consists of three main sections: food systems and culture, mindfulness, and education for sustainability. The first section explores food systems and culture as it is one of the main topics of the course I facilitated. The term food system is one of the key concepts of the course as well as food systems as a part of culture. This section also confirms the basic background reason and context for carrying out my project. Being mindful about food choices is necessary to eat sustainably in the contemporary food systems which are, by nature, at the cost of the environment and human health. Defining the terms and exploring the main topics taught in the course in the literature is important to create a common ground between the researcher and the readers (Evans 2002).

The second section delves into mindfulness and how it contributes to food education, especially in relation to behavioral change around food choices. Incorporation of mindfulness into food education in the context of sustainability is one of the unique and new approaches as there is little literature on it. Thus, it is essential to refer to the preexisting literature in order to support the validity of combining mindfulness practices and food system education, and its potential as an effective teaching method.

The last section delves into the literature on sustainability education with a focus on transformative education, experiential learning and kinesthetic learning methods.

Food systems and culture

It is obvious from the literature that the definition and the use of the term food system differ greatly from scholar to scholar. In the literature also, authors use the term differently. Friedman (1999) refers to food systems as the “circles that link food to agricultural and nonagricultural uses of the land, and to human bodies and spirits, individual lives, and community experiences” (as cited in Hinrichs & Lyson, 2007 p.2) Food systems concepts are complex and cannot easily be explained as a whole. Food systems consist of different elements such as the social, environmental, economical, and health. However, it is important to analyze the complexity of the system by investigating the way each part of food system interacts with each other in the structure (Hinrichs & Lyson, 2007).

Some literature works have a focus on the contrast between conventional food systems and alternative food systems. Nousiainen et al. (2009) highlights the importance of alternative food systems because of their contribution to social and ecological sustainability. Nousianen
et al., places a strong emphasis on organic farming which lies behind the history of emergence of alternative food systems.

Food plays a central role in many cultures (Counihan & Van Esteric, 1997). Counihan and Van Esteric mention that “food is life and life can be studied and understood through food (p.1). In cultural context, food functions as definitions of genders, social hierarchies, and power relations as well (Counihan and Van Esteric, 1997). Also, eating is the most popular activity of human customs (Ingpen and Wilkinson, 1994). Many religious or non-religious rituals involve food, and each food items has significance depending on the community, and there are different rules about food. For example, Hindus do not eat meat especially beef because cows are sacred.

Christian festivals involve special foods such as Christmas bread (Ingpen and Wilkinson, 1994). Feasting for holidays is a ubiquitous activity (Katz, 2003). According to Katz, we now often associate feasting with Thanksgiving dinner. Celebration of Thanksgiving dates back to a harvest feast in Plymouth, Massachusetts in 1621 (Katz, 2003). Harvest celebrations are one of the very internationally and commonly practiced festivals where feasting plays an essential role. In northern hemisphere, people celebrate the year’s harvest by feasting usually in September or October (Ingpen and Wilkinson, 1994). The concept of harvest celebration is now used in educational setting for students to learn about and celebrate cultural food diversity and importance of food (Huebner and Bishop, 1986).

Food also plays a significant role as ethnic and/or cultural identity. As it is of the main theme of “Gastropolis” by Hauck-Lawson and Deutsch (2009), people often cling to memories and experiences of cultural cuisines from their ethnicity and culture, and continue seeking for it upon migration although sustaining authenticity of a cultural cuisine is not always easy. Ethnic cuisines for immigrants carry emotional significance such as memories of families and homeland, and function as “comfort food” (Katz 2003 p.444). Foodstuffs are often imported from abroad because of the emotional attachment and significance of the items even when the same items are available in the migrated land (Katz 2003 p. 445).

Not only cuisines, but also perception of food and eating varies from culture to culture. For example, Hua people of the Eastern Highland of Papua New Guinea consider eating food is a mystical and emotional activity which is way to connect oneself with the world, and other organisms (Counihan and Van Esterik 1997). The authors admit that it is important for those who live a disconnected lifestyle from nature, the source of food, need to learn Hua’s perception of food to reconnect oneself to the Earth (p.104).
In Japan, the word *itadakimasu* is spoken before each meal (Stibbe 2007). This word shows gratitude for animals and plants for being sacrificed to nourish people. At the same time, a strong desire to avoid wasting food lies behind this word because every life is equally valuable and should not be vanished in vane (Stibbe 2007).

**Mindfulness**

**Definition of mindfulness**

Mindfulness is now becoming a very important concept in the field of education, health care, and science (Bays, 2009). However, the definition of mindfulness varies greatly (Amel et al., 2009). According to Amel et al, the definition of mindfulness in “Eastern philosophical, spiritual, and therapeutic contexts” includes “meditative state, general peace of mind, and even transcendent experiences” in addition to “attention and awareness” (p.16), while “our current operational definition of mindfulness is not intended to necessarily exclude these aspects; however, we opted to focus on the facets of mindfulness for which there are already validated psychometric instruments” (Amel et al., 2009 p.16). Bays (2009) summarizes the concept of mindfulness as “deliberately paying attention, being fully aware of what is happening both inside yourself — and outside yourself — without judgment or criticism” (p.2).

**Mindfulness practices**

Everyone already has capability for being mindful, but mindfulness needs to be trained and cultivated by practice. For example, mindfulness yoga and mindfulness meditation teach practitioners to pay attention to every part of the body and be aware of breathing, of which we normally are not conscious (Boccio, 2004). Yoga has been a means to cultivate mindfulness and consciousness as told through its history.

Meditation is a part of the yoga tradition, and dates back to about B.C.5000 in South Asia (Bryant, 2009). Yoga Sutra, the oldest book written about yoga, is considered to have been compiled about B.C.2-4th century by Patanjali, who teaches “a psychology of mind and an understanding of human consciousness rather than a metaphysics of all manifest reality” (Bryant, 2009 p.xlv). Also, yoga sutra defines the eight limbs of yoga: *yama*, morality; *niyama*, ethics; *asana*, posture; *pranayama*, breathing exercise; *pratyahara*, control of senses; *dharana*, concentration; *dhyana*, meditation and *Samadhi*, absorption. The goal of yoga, according to Patanjali is that the ultimate concentration leads one’s mind to an inactive state where the mind is no longer cognizing anything.
Ever since yoga emerged thousands of years ago, it has been continuously changing. Some criticize contemporary styles of yoga which are becoming a part of fitness culture in the Western countries with a strong emphasis on the aspect of physical exercise. However, yoga has been always changing since 7000 years ago with the stable meaning of yoga as union or yoke but with radically different ways to achieve the meaning depending on the social environment and people’s interest (Sparrowe, 2009).

There are studies that show a positive relationship between practicing yoga and developing mindfulness. Friedberg’s study in 2009, suggest that after an 8-week hatha yoga intervention, the participants showed a significant increase in mindfulness especially in the “ability to pay attention to the present moment without distraction” (Friedberg, 2009, p.597). Miv London, a senior staff psychologist at the Counseling & Psychiatry Services at UVM said, cultivating mindfulness not only helps one become aware, but also develop the stance of not to harm and loving-kindness. Combining food education and mindfulness should effectively and holistically cultivate students’ loving-kindness that is applicable to environmentally responsible and healthful decision making process of food choices (Miv London, personal communication, March 2011).

Food and mindfulness

Mindfulness plays a crucial role when it comes to a healthy relationship between food and humans. In other words, we can create a better relationship to food by being mindful when we eat. Bays points out the fact that we often interact with food in mindless ways such as snacking while watching TV without noticing the taste, and skipping meals to offset excessive calorie intake from snacking unhealthy food (Bays, 2009).

On the other hand, the idea of mindful eating encourages one to take time and be aware of each bite, which leads one to feel more satisfied after a bite or a meal, and establish sincere and respectful relationship to food. By practicing mindful eating, it reduces the chances for overeating, and one can experience more mentally satisfying bites and meals (Bays, 2009).

There are a number of research studies on the effectiveness of mindfulness practices for weight control and eating disorders. One research showed a commensurable relationship between the lower Body Mass Index frequency of exercise including yoga and mindful eating. Although this study did not show which type of exercise has stronger connection to mindfulness, it is certain that health conscious individuals tend to eat mindfully, and also are
unlikely to obese (Fred Hutchinson Cancer Research Center, 2009). Also, mindfulness practices help practitioners learn to witness the feelings and accept them in a non-judgmental way. According to Alberts et al. (2010), acceptance significantly reduces negative experiences regarding food cravings.

Another type of mindful eating is explained by Jane Goodall (2005). Even though her book *Harvest for Hope: Guide to Mindful Eating*, discusses nothing about eating mindfully, it focuses on ecological impacts, human health problems and animal rights abuse that industrialized food system causes. In order to fight against the unsustainable conventional food system, she argues in the last chapter that it is important for each person to be informed about the current situation and make decisions about food choices mindfully. Thus, mindful eating does not only mean eating food with awareness about the quality of the food and body hunger, but also means being aware of where the food comes from, and what costs to feed each person including environmental, social and health damage.

**Mindfulness and pro-environmental behavior**

Although not many studies have been done, there is certainly a strong connection between mindfulness and sustainable behavior (Amel et al., 2009). Mindfulness can increase pro-environmental behavior such as more sustainable choices of products, and noticing environmental destruction in the neighborhood. Thus, for those who intend to live an ecologically-responsible lifestyle, mindfulness helps increase the likelihood for them to act more sustainably. Also, mindfulness prevents one from overconsumption. Jacob et al. (2008) also proved the correlation between a mindful meditation practice and ecologically sustainable behavior. Mindful meditation helps practitioners achieve ultimate happiness which decreases consumption of material goods which many people consume to achieve happiness in the context of materialism. Also, a mindful person witnesses emotions, feelings and desires instead of acting on them (Jacob et al., 2009).

Barbara Raab, a lecturer in the Environmental Program at University of Vermont, who is also an experienced meditation practitioner, also confidently explained the effectiveness of mindfulness practice to develop pro-environmental behavior. According to her, a practitioner experientially understands through mindfulness practices that s/he is a part of the universe, which prevents the practitioner from doing harm to the environment and other beings because s/he knows that it is essentially the same thing as harming oneself because every being is a part of the whole universe (B. Raab, personal communication, April 2011).
Education for sustainability

Education for sustainability, a framework to address complex social, economic and environmental world issues, responds to the need to prepare societies to address the challenges of sustainability. At the higher education level, a holistic perspective and systems thinking are essential for the transformative shift in thinking, values, and action that are required to move society toward such a culture of sustainability (Sterling, 2004).

Small group teaching

According to Transformative Through Education, “human-scale” teaching where human contacts and relations are involved in the educational process allows teachers to be more sensitive to students’ needs. Also, such a learning environment is more suitable for enhancing students’ learning experiences (Transformative Through Education Retrieved from http://transformedu.org/).

Exley and Dennick claim small group teaching as a basic setting of workshops. They define “extended small group teaching” that is “oriented toward the achievement of a specific set of outcomes involving active participation” as workshops (2004 p.137). There are mainly five reasons that educational programs serve more effectively in a workshop setting. According to Macy and Brown (1998), workshops provide a place and time that is not an extension of daily life so that participants are able to focus more. Also, working as a group supports participants in case they face fear for environmental issues that are difficult to cope with by oneself. Moreover, workshops create safe and respectful environments where everyone expresses their feelings at no cost, and group work establishes a sense of community where synergy occurs. Lastly, workshops provide opportunities for participants to create positive relationships with one another that last even beyond the period of workshops.

The term ‘human-scale’ by no means suggests that all schools and universities only have a handful of students in each class. Human-scale really encapsulates the importance of having human contact and human relations in the educational process. This could mean that teachers break large classes into smaller groups and allow peer tutoring and collaborative learning to take place. When a learning environment is at a human-scale, teachers could be more sensitive to learners’ diverse learning and other needs, and the learning environment is more supportive in nurturing and catering for learners’ interests and growth.
Environmentally responsible behavior

Environmental education does not always result in behavioral change of the participants. According to Finger’s study (2004), the level of ecoliteracy of an individual does not always correspond with environmental behavior. Having knowledge about environmental issues and playing environmentally-sensitive behavior are different (as cited in Kransteuber, 2009). The effective tools for teaching environmentally responsible behavior are suggested in Oskam’s article. His eight suggestions include:

1. Use of not only academic writing but popular literature
2. Providing online sources for students to gain further information.
3. Presenting clear scenarios for discussion
4. Presenting specific environmental issues for the discussion
5. Discussing the importance of clear behavioral norms to guide behavior
6. Redirecting student’s excessive belief in technology
7. Encouraging group activism
8. Presenting environmental problems as a war against extinction (Oskam, 2002).

The Environmental Citizenship Behavior Model recommended by Kransteuber (2009) suggest the following three step structure for connecting people’s environmental concern or consciousness to corresponding behavior or social action. First step is knowledge of environmental issues. The second step is further description of issues and personal experience with them. Lastly, first-hand experience with the nature and environmental issues most effectively evoke one’s desire to behave in an environmentally-sensitive way (Kransteuber, 2009).

Transformative experiential learning theories

One way of teaching for sustainability and social change is through transformative education (Moore, 2005). It is based on the idea that transformative education can shift students’ perspectives of the world to a more holistic view, become committed to social justice and take actions for realizing social justice (Birkenmaier et al., 2011 and Moore 2005). According to Moore, a transformative shift is more likely to occur when students are taught about the importance of ecology and place (2005). Moore also claims that “sustainability education must be interdisciplinary, collaborative, experiential, and potentially transformative” (Moore, 2005 p.78).

Experiential learning is another key word for my project course. The Association for Experiential Education explains experiential education as a “process through which a learner constructs knowledge, skill, and value from direct experience” (cited
in Moncure and Francis, 2011 p.80). Experience is described as something that a person is actively involved in which literary requires moving, working and being active in their learning, and it is in between thought and action according to Moncure and Francis (2005).

Reflection is one of the most crucial tools of experiential learning. Keeping a journal is one way to reflect on thoughts, events, and actions (Moore, 2005). Stremba also said that “journals are a most effective tool for individuals to keep track of their feelings, experiences, insights and changes” (Stremba, 1989 cited in Moncure and Francis 2011).

Also, hands-on learning or kinesthetic teaching methods are effective to ensure higher level of students’ engagement (Williams, 2012 and Axelson, 2011). Students often prefer hands-on learning over traditional lectures or presentations and they tend to learn more from hands-on experiences.

**Conclusion**

Food system studies is a relatively new field which derived from the fact that we began to find social and environmental issues in our contemporary food systems. In an effort to create a sustainable food system, transformative education should play an effective role because of the nature of the transformative experiential learning theory that aims for transitioning people’s perspectives and paradigms towards valuing sustainability and social justice. Learning about cultures and food in the context of sustainability could lead one to more health and environmental conscious eating habits. Also, it is important to acknowledge the positive influence mindfulness practices have on developing environmentally responsible behavior. Together with transformative experiential education, mindfulness can bring positive behavioral change among the participants.
Project Background

In Spring 2011, as I consulted with Stephanie Kaza, Director of the Environmental Program at UVM and my academic advisor about my course, the idea of offering it to the GreenHouse came up. Soon after, I contacted Karen Nordstrom, a program specialist at the GH, to discuss the possibility of having my course fit into the GH program. After a long discussion over the summer, we decided to have my course be a satisfactory course that students could fulfill a part of one of the GH courses, *Place of Ecology* (NR015), and take a credit towards *Ecological Citizenship* (NR016).

All first-year students at the GH are required to take NR015. A part of the course requires students to attend lectures and workshops or attend a special topic course offered in the GH which my course was one of them this semester. NR016 traditionally require students to carry out a original project, and recently a seminar course module was added as a way to complete the course. Because GH became a popular place for researchers to offer an environmentally themed short course, this new option has been added. My course also played a role as a seminar course module.

According to the university’s rule, one academic credit course is required to have more than sixteen contact hours and more than three hour worth load of work besides the contact hours. In order to satisfy this requirement, each of the sessions lasted 2.5 to 3 hours, and I assigned journal entries as homework. The students were graded on a pass/fail basis by a GH staff member based on attendance I reported to the GH.

Participant recruitment

Nordstrom helped me connect with the residential community by inviting me to various meetings, starting in the Spring 2011 semester until late September 2011. I attended “village” meetings where members of each suite meet, guild leader meetings, which leaders of groups of students with similar interests such as gardening, biking, composting etc. meet, and I also attended *Place of Ecology* meetings. I introduced my course at the meetings to inform students about it and asked them to sign up if they were interested.

I posted flyers (appendix 1) and a signup sheet in the GH lobby, as well as a digital flat screen flyer. Nordstrom sent out emails about my course, first, to the “Early Birds” who were returning to the GH from the previous semester, second, to the entire GH community, third, to students enrolled in NR015.
Curriculum development

I limited the number of students to eight so that there would be more intimate communication among myself and the students. In small group teaching, intimate communication among students and an instructor is essential (Exley & Dennick, 2004). Three sessions were held at the “multipurpose room” at the GH, one was in the GH kitchen, and the other two were dedicated to field trips. I chose the “multipurpose room” because it was a quiet and spacious room with media sets, tables and chairs that are suitable for having a class with. Also, there was enough of a physical space for practicing yoga.

The class met every Sunday at 2pm from October 2 to November 6. I chose Sunday because many students suggested that they tended to have more flexible schedules on Sundays.

The sessions included various mindfulness practices, presentations, discussions, fieldtrips, a guest speaker and cooking. For sessions held at the GH classroom, I brought snacks to enhance students’ experience with unusual food and also to create a relaxed atmosphere.

Although I referred to multiple sources to create the course curriculum, there is one reference that largely contributed to the curriculum. It is titled Mindful Eating written by Jan Chozen Bays (2009). I was introduced to this book in a Religion and Ecology class several years ago, which actually gave me the initial idea about this project thesis. The book includes comprehensive information about mindful eating and a number of exercises. There is also a CD attached to the book for mindful eating exercises by Bays. I excerpted a few exercises from the source to practice in class.

Curriculum and goals

I named the course “Yoga(yoke) of the Earth, Food and Us.” Yoga means yoke, and it represents the mindfulness component of the course and also sustainability by making connection between the earth, food and our diet.

It was not until Nordstrom sent out an email about the course to students enrolled in NR015 that more than enough number of students wanted to sign up for the course. While I was looking to have eight students in the class, I received responses from fifteen students. I decided to limit the number of students to eight to keep the class size relatively small to make it easier for me to manage. I let the first eight students who responded to the email become the members of the course. All the participants were female residents of the GH who were the first, second and the third year students.
I created the curriculum mostly based on my own experiences and own ideas to make the curriculum unconventional, creative and enjoyable for college students. The course was six weeks long with a meeting once a week based on what I learned at a yoga teacher training: six weeks is a suitable chunk of time for people to learn something new, yet still gain substantial experience from it (Konalani Yoga Ashram 2010). The course started on October 2 and ended on November 6. It started as early as possible after preliminary arrangements were complete, and it ended a week before the Thanksgiving recess began to be sure the course would not last beyond the academic break after which students usually take a while to adjust back to school routine.

In each session, I included both food related topics and mindfulness practice. The first session was dedicated to an introduction of course topics. I also decided to include hatha yoga at the end of the session because I assumed many of the students who were attracted to the course would be excited about practicing yoga as the term yoga was a part of the course title. Also, as studies showed, hands-on learning or kinesthetic learning methods are more popular among students and promises higher level of engagement (Williams 2012 and Axelson 2011).

I decided to have the second session be a part of the GH annual event, the Harvest Celebration. This is partly because I had to do so in order to complete the course by November 6, but I also saw it as a great opportunity to be involved in the larger GH community and make a contribution. Moreover, the fact that the event was at the Monitor Barn in Richmond, Vermont, appealed to me because it would provide the environment where it is easier for the students to connect themselves to nature and food, which was one of the themes of the course.

I decided to lead a yoga workshop as one of the activities of Harvest Celebration. Also, taking the advantage of the farm setting, I incorporated a meditation called “Being one-bodied with the Earth” created by Heesoon Bai and Greg Scutt (2009) to make the most of the goal: feel closer to the Earth and relate it back to the food we eat every day.

I made a field trip plan for the third session where students could learn about local food systems and food cultures. This field trip was inspired by an Urban Food System course offered through UVM in which I participated Summer 2011. We spent a week in New York City, learning about food systems of the area with a strong focus on immigrant communities and their food cultures as well as the history behind the communities. The instructor took us to immigrants’ neighborhoods which were mostly outside of Manhattan where tourists do not often go. Unlike a common food systems study course which has a focus on sustainability,
this course had a focus on immigrants which surely is a part of a global food system.

I attended the course while I was in the process of creating the GreenHouse curriculum, and I came to conclude that a field trip that is similar to the summer course would be suitable for my project. I believed that it would be a stimulus experience for UVM students to learn about local ethnic communities and their food cultures in Old North End, the most diverse place in Vermont (Baird, 2010), as a part of Burlington food systems. I could not miss the chance to take the advantage of the fact that we are only a walking-distance away from this culturally rich area to teach students about different food cultures. In addition, I wanted to expose the students to the area and show them around because I knew that some students avoid the area mainly for bias-related reasons. Being a part of a diverse community myself, I saw the field trip an opportunity to raise awareness of ethnic and cultural diversity in Burlington.

However, ethnic food cultures are not the only food culture in Burlington. In order to address the other aspects of it, I decided to take the students to the City Market as well. It is a member-owned coop which deals with a substantial amount of local products and organic products. I decided to welcome Gaelan Chutter-Ames, a GreenHouse resident who offered to give a presentation about the benefits of having varieties of vegetable crops. Also, I included “Ask your body what it wants” exercise as a mindfulness practice of the day.

For the fourth session, I decided to have a guest speaker, Mollie Silver. Mollie Silver is a food educator and also a senior intern at the Common Roots organization under whom I worked for Summer 2011 as a farm intern. In return, she showed her great interest and willingness to help my project. Because Silver is an expert in sustainable agriculture and food education in middle schools, I decided to have her cover some of the topics that I was not familiar enough to teach. As I intended to include a seasonal cooking workshop in the curriculum, Silver and I decided to make snacks with the students with seasonal ingredients that we could enjoy during her talk and discussion.

By the fifth session, I expected students to be familiar with topics around local food systems. Thus I decided to bring in an international topic: Japanese food culture and its sustainable aspects. Having been an international student at UVM, I often noticed that it was not easy for some students to objectively think with a global perspective simply because they rarely had a chance to be exposed to foreign cultures and notice the differences in cultures. I thought it would be effective to introduce Japanese food culture in class which is very different from the one in the U.S. in order for students to be able to step back and observe
their own culture in an objective manner. I chose Japanese culture to introduce because I am more comfortable teaching about my own culture than others. Counihan and Van Esterik (1997) say that learning from Hua people in Papua New Guinea about the relationship with food is beneficial for others to find a way to reconnect themselves to the Earth. I applied this concept and decided to create an opportunity for students to learn from Japanese food culture which traditionally makes more ecological sense.

I included yoga in this session again, and corresponding to the international theme of the class, I put a strong emphasis on expanding the inner self to create the connection with the world through yoga.

The last session was solely for reflection. Taking time for reflection gave chances for students to share thoughts, create discussion, and ask more questions. I also saw it as an opportunity for me to gather more data for project evaluation and research. I prepared a focus group with audio recording. Students were also asked to fill a survey that corresponds with the first survey which would be used for measuring students’ understanding of the course content, as well as an instructor evaluation sheet.

Table 1 on the next page shows an overview of the course curriculum.
<table>
<thead>
<tr>
<th>Session (Setting)</th>
<th>Goals</th>
<th>Activities</th>
<th>References</th>
</tr>
</thead>
</table>
| **1** (Class Room) Introduction | - Understand various definition of food systems  
- Understand the controversy of the contemporary food systems  
- Understand the concept of mindfulness  
- Understand how mindfulness helps develop ecologically and socially responsible habits of choices around food | Self introduction  
Introduction to Food Systems and Mindfulness Practices  
Raisin meditation  
Show Books  
Yoga | TRI 2010,  
Hinrichs & Lyson, 2007,  
Hefferman et al. 1999, Sapp et al. 2009, farmaid.org,  
USDA 2009, Bays 2009, Barbara Raab |
| **2** (Monitor Barn, Richmond, VT) Harvest Celebration | - Expand the awareness of connection between humans and the Earth  
- Enjoy and appreciate local food dinner | “Being one-bodied with the Earth” meditation  
Yoga | Abram 2011 |
| **3** (Downtown, Burlington, VT) Burlington Food Systems | - Understand the importance of having multiple varieties of vegetables  
- Practice mindfulness by observing one’s body’s needs.  
- Understand and observe the cultural diversity in Burlington  
- Observe the differences of the stores | Visit City Market  
Presentation by Chutter-Ames  
“Ask your body what it needs” exercise  
Visit ethnic markets | Bays 2009 |
| 4 (GH Kitchen) Coffee with Mollie – the Farm to School Initiative | - Try and appreciate unusual food  
- Understand the on-going project of local/healthy school lunch program  
- Understand the effort being made for sustainable food systems | Cook baba gnoush  
Discuss sustainable agriculture and school lunch project with the guest speaker  
Warm-up exercise  
Ask questions |  |
|---|---|---|---|
| 5 (Class Room) Global Perspective: Japanese Food and Culture | - Understand Japanese culture of food and how people see food  
- Understand that the roles food plays varies from culture to culture  
- Witness the impacts food have on our mood and feelings  
- Expand inner-self, feel the connection to the world | Lecture on Japanese food  
Traditional food culture and people’s perception of food in a different culture  
“Food and Mood” meditation  
Yoga | Yamamoto & Harada 2011  
Bays 2009 |
| 6 (Class Room) Reflection | - Share thoughts and opinions about the course  
- Share the experiences from the course | Focus Group  
Survey  
Instructor evaluation |  |

*(Table 1: Curriculum and Goals)*
Methods

In this project, eight students from the GreenHouse were invited to attend a six-week course in which they learned about food systems along with mindfulness practices aimed at creating more sustainable eating habits and choices around food. In the literature review, I explored two types of mindful eating: eating mindfully to create a better relationship with food (Bays, 2009) and making decisions about food choices mindfully with our health and the health of the environment in mind (Goodall, 2005). In my project they were woven together. The project was mostly qualitatively evaluated based on my research objectives: 1) its effectiveness in terms of changing behaviors, 2) degree of students’ engagement and their experiences, and 3) the instructor’s effectiveness measured mainly by evaluation sheets submitted by the students.

Analysis and evaluation

The main goal of this project was to create more sustainable eating habits for the participant through the combination of food education and mindfulness practices. Qualitative research to measure the effectiveness of the course was done by two surveys, one instructor evaluation, one focus group, one journal assignment, and students’ blog entries on Blackboard.

Each survey was completed before and after the course to compare students’ understanding of course topics and measure transition in their behavior around food choices. The first survey included questions about basic personal information, eating habits, knowledge about food systems and mindfulness, and expectation for the course (appendix 2).

The second survey was completed at the last session with several questions retained from the first survey, and several new questions (appendix 3). The changes in participants’ behavior and understanding of the course topics were analyzed by comparing the surveys.

I held a focus group in the last session with four main questions: 1. What was most engaging about the course? 2. What learning style of the course was most effective/valuable? 3. How do you associate the concept of sustainability with this course? 4. How does this course fit into your lifestyle and future? Answers to these questions were used to evaluate the course design and to make suggestions for future mini courses to be offered at the GreenHouse. A focus group is an interview with a small group of people and typically six to eight people participate at a time (Patton 1990, 335). It is efficient for program evaluation because it is possible to gain information from multiple people in a limited amount of time,
The instructor evaluation was anonymously completed in the last session drawn from Karl M. Kapp (Instructor Observation and Evaluation Form Retrieved from http://www.karlkapp.com/materials/instructor%20evaluation.pdf). The data was collected by Karen Nordstrom. Numerical results were sent to me later on. These results were used to evaluate the instructor’s ability and effectiveness as a teacher. Journal entry homework was assigned for the last week of the course for which students were asked to do one mindfulness practice every day for a week and write a detailed description and thoughts on the experiences, and their impact on ecological consciousness and food choices. The journal entries from the assignment aided with understanding students’ achievement in the course.

Students enrolled in NR015 were required to write a journal blog on Blackboard, about each workshop they attended to complete the phase two of the course. I also used this information to supplement understanding students’ experience of the course.

**Data analysis strategies**

Although there is no rule in analyzing qualitative data (Cresswell 1998, 140), the voluminous data is full of chaos without classifying the content (Patton 1990). Classification, categorization or coding of the data is a very common way shown in the literature to organize and analyze the data. The qualitative data for the research include pre-and-post surveys, blog entries, a focus group interview and a journal assignment. Creswell (1998) explained the three steps to follow when analyzing the data: jotting down notes on the margin of the text; second, categorizing the data; and lastly investigate the relations among the categories. In the first step, writing findings is the key.

Thorne (2008) warned that certain mindsets of the researcher may lead to unsuccessful analysis. In this stage some researchers tend to overlook what they do not expect to see in the data, at the same time others only notice unexpected results. “Developing the sense of whole beyond the immediate impression” (Thorne 2008, 143) of the data is important. Essential is categorizing the data in the second stage. This process is often called “coding” or “categorizing” in the literature about qualitative research and data analysis. Patton (1990) considered the process as the very first and the most important section of data analysis. According to Patton (1990) it is valuable to have more than one person to participate in categorizing the data because different categories came up with by each person can be discussed for even more effective analysis. Karen Nordstrom agreed to participate in
categorizing some of the data. 

   Patton (1990) has a particular focus on analysis of the data from interviews. I employed cross-case analysis to group the answers with a common theme or similar ideas together regardless of the interviewee. This approach was the most appropriate when the researcher disregards the differences in the participants’ backgrounds for this research.

Study limitations

   There were some limitations in the research. First, the time restriction was a major disadvantage. Because mindfulness practice takes time to experientially understand the impact of it, six weeks was not long enough for many of the students. Thus, it made it more difficult for me to assess the effectiveness of mindfulness in terms of transforming the participants’ behavior around food.

   Also, it was difficult to gain students’ commitment and consistent attendance due to the nature of the course. Especially because the students who were enrolled in NR015 had more options to complete phase four of the course rather than attending my course, not all the students attended all the sessions.

   Lastly, upon introducing global food topics, I chose to cover Japanese food culture in class because I felt more confident introducing my own culture that I grew up with. However, it was also a limitation because I could only talk about Japanese culture.
Results

Pre-assessment of students’ background knowledge

The first survey provided the data regarding students’ prior knowledge and familiarity with the course topics. The survey indicated that two students knew little about food systems, and one of them wrote that large businesses ruined the food systems. Four students answered that the food systems are “harmful,” “messed up,” “corrupt,” “unbalanced,” and “greedy” because of industrialized practices and the impacts they had on the environment. One of them said that we needed to change the way we eat, and also there are many efforts to combat unsustainable practices of contemporary food systems.

Regarding mindfulness practices, four students answered that they had heard of mindful eating, and some of them had practiced it. One of them wrote that she had heard of it and mindful eating was expensive. Two students had never heard of the practice. All the students had practiced yoga of various styles at least a few times and some of them had practiced on regular basis. All the students answered that they considered themselves mindful in general.

Narrative description of sessions and reflection

The course curriculum was designed to cover various topics around food: contemporary food systems, alternative food system, local food systems, and food and its roles in various cultures (See appendix 4 for syllabus). Also, the course content addressed various themes: sustainability, food culture, yoga, other mindfulness practice, local topics and global topics. Each topic was addressed throughout the course as shown in the table below.

<table>
<thead>
<tr>
<th>Session</th>
<th>Topic</th>
<th>Sustainability</th>
<th>Food Culture</th>
<th>Yoga</th>
<th>Other Mindfulness practices</th>
<th>Local</th>
<th>Global</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction to Food Systems</td>
<td>✓</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Harvest Celebration</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>Burlington FS</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>Guest: Silver</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>5</td>
<td>Food and Mood/ Japanese Food Culture</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>6</td>
<td>Reflection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following is the detailed description and observations made in each session. At the end of each session on sessions is the reflection from the students. Students’ reflection was taken from the feedback/reflection session held at the end of each session as well as their blog entries. Four students who were enrolled in NR015 were required to write blog entries on Blackboard about the sessions they attended as a part of requirements from NR015.

Session 1 October 2, 2011 Introduction to Food Systems and Mindfulness

Agenda
2:00pm My introduction
2:10pm Students’ self-introduction
2:25pm Lecture on food systems and mindfulness (Snack time in the middle)
3:00pm Introduce books
3:20pm Raisin meditation
3:45pm Break
3:50pm Yoga
4:40pm Feedback session
4:50pm End

Activities

The first session was dedicated to introduction of course topics. I created a hand out with comprehensive information on food systems and mindfulness, and how learning them together is an effective method for creating more healthful eating habit with less ecological footprint (appendix 5).

First, I introduced myself and my background in a relation with the topics of the course. And I took time for students to introduce themselves and why they decided to take this course. Popular answers were the desire to learn more about food systems, organic/local food movement and health, as well as willingness to practice yoga.

Then the class moved on to exploring definitions of food systems. I divided food systems into two categories upon describing the concept: conventional food systems and alternative food systems. I showed figure of organic industry structure excerpted from “Organic industry structure” by Phil Howard (2009) to show an example of complexity of food systems (Appendix 6). It caught a tremendous attention of the students. The charts show concentration of organic industry and that a number of well-known organic food companies
are owned by large conventional corporations. I brought Japanese sweet potatoes cooked with honey and lemon for this day’s snack. It is a very popular and traditional snack in Japan, and it is enjoyed either warm or cold. All the students greatly enjoyed it.

Next, I introduced definitions of mindfulness, and how learning about food systems and practicing mindfulness work together. In order to give students better ideas of what the course topics include, I brought books that relates to course topics. They include: Mindful eating by Jan Chozen Bays, Mindfulness yoga by Franc Jude Boccio, Teachings of the Earth by John Daido Loori, Harvest for Hope by Jane Goodall, Eco-Foods guide by Cynthia Barstow, Remaking the North American food systems by Hinrichs and Lyson.

Then, for students to have direct experience in the combination of food and mindfulness, we practiced “Raisin Meditation” excerpted from “Mindful Eating” by Jan Chozen Bays. In this practice, each participant is handed a raisin. Starting with observing the raising pretending the participant has never seen a raisin before, this practice guides one to smell, feel, taste, and finally swallow the raisin step by step, taking time for each of the step and detect how one feels or how hungry one is at each moment.

In addition to the original practice, I added environmental perspective to this practice to enhance students’ environmental sensitivity along with mindfulness. I encouraged students to think about where the raisin came from, how it traveled from farm to table, and what environmental or social impacts it might have cost.

After taking a short break, I led yoga for about 45 minutes. Because I did not know each student’s familiarity with yoga well enough, I purposefully led the class at a very slow tempo. We started with a short breathing meditation for about five minutes. Upon cuing yoga asanas (postures), I threw phrases that help raise awareness of one’s body and be mindful of the moment. These phrases include but not limited to, “notice how you feel” and “pay attention to every sensation in your body.” I also constantly cued breathing. Moving with breath, or in other words letting the breath lead the body movement is a key in yoga asana. This practice develops mindfulness because a practitioner observes how breath and body movement work together instead of forcing the body to move.

Reflection

Food systems

The charts of organic industry structure invoked students’ curiosity and willingness to learn more. One student was particularly excited to see the books dealing with food related topics.
In the blog entries, one student wrote that she was very excited about the course because it was a chance for students to learn about food and mindfulness all together. She thought that I knew a lot about food, yoga, and meditation so that it was easy to follow along and learn more about it. Also, she said that even though she was already buying organic and local foods as much as possible, the lecture solidified her commitment. She also watched a movie called “Food Inc.” which I recommended watching.

**Mindfulness practice**

Most of the students were very content with the way yoga was led, and also enjoyed raisin meditation as a suitable tool to familiarize with the concept of mindfulness. She found that raising meditation was a great way for one to realize how much the body appreciates the food and how the body asks for certain foods. She also said that being able to think about what one is eating helps enjoy the food much more.

One student found that raisin meditation greatly helps realize how much the body appreciates every bite of. She also said that being able to think about what one is eating helps enjoy it so much more. Another student found raisin meditation interesting and educational. One of the student also said that yoga was so “nice and relaxing” that she was in a good mood afterwards.

**Session 2  October 9, 2011 Harvest Celebration**

**Agenda**

1:00pm Leave for the Monitor Barn
2:00pm Activities (Yoga workshop at 3:10pm and 4:10pm)
5:30pm Dinner
7:00pm Open Mic
9:00pm End

(Monitor Barn, Richmond, VT)
Activities

Session two took place as a part of the GreenHouse Harvest Celebration. Harvest Celebrations is an annual event of the GreenHouse at Monitor Barn in Richmond, Vermont. It was a day-long event which most of the GreenHouse residents attended. The event consisted of a number of activities such as mushroom hunt, vegetable harvesting, wood working, cider making, contra dance, etc. Towards the end of the day, dinner made with mostly local organic food was served, followed by an open mic.

I offered two yoga workshops outside as requested by one of the GreenHouse resident, instead of leading only one workshop as I initially intended. I made the workshops open to all, while requiring the students enrolled in my course to attend at least one of them. This session’s theme was “re-connecting with the Earth,” taking the advantage of the fact that we were at a farm, a great environment to feel the presence of all elements of the Earth including soil, water, wind and animals. Eight students attended the first workshop and five students attended the second workshop.

First, I read a quote from an article titled “The Living Language” from Shambhala Sun magazine issued in November 2011. I chose this quote because it explains how meditation connects one to nature and also meditation is a way to acknowledge environmental
When in meditation, we bring awareness to our breathing, we gradually undermine the ready distraction of the literate mind, with its propensity to wander far from the present moment. But we also accomplish much more, since the air flooding in and out of our lungs is continuous with the breath nourishing the frogs chanting across the creek, and both are laced with exhaust pouring from a coal-fired power plant outside town. The air we breathe is continuous with the salt spray of waves breaking on distant shores, with the wind rippling the fur of an endangered lynx stalking its prey, and with the dwindling respiration of drought-stricken pine forest. Escalating wildfires surge through those forests, infusing the atmosphere with the tang of smoke. To bring awareness to the air as it rides in and out of our nostrils is to dissolve our detached thoughts into the ongoing exchange, the meeting, the reciprocity between our body and the rest of the biosphere. We renew the conversation between our animal presence and the animate earth. Meaning lives in this meeting. And meaningful action grows, precise and powerful, from the replenished exchange. (Abram, p.58 2011)

Next, I introduced a meditation called “Being One-Bodied with the Earth” taken from “Touching the Earth with the Heart of Enlightened Mind: The Buddhist Practice of Mindfulness for Environmental Education” by Bai and Scutt (2009). In this meditation, each practitioner is asked to sense different elements of body such as fluid, gas, heat, solidity of the body to relate each of them to the elements of the Earth: fluid to stream, river, and waterfall; gas to wind; heat to fire, volcano, lightening and sun; solidity of bones and flesh to rocks, soil, mountains, flowers, animals and trees. The meditation lasted about 10 minutes.

After the meditation, many of the participants seemed very bored and distracted, so I decided to introduce chanting, as chanting and singing usually help participants tune in quickly. I introduced a mantra from Heart Sutra that reads “gate-gate-paragate, parasamgate-bodhi-svaha.” However, regardless of my hope, almost nobody sang it along. At the second workshop, I wrote the words on a piece of paper so that the students could read it when we chanted.

Then, we moved onto yoga asanas for about thirty minutes, followed by a short reflections and feedback session. I included a number of standing postures which encourages
deeper breathing and heart lifting as well as absorption of the sunlight. The yoga session ended with a laying-down relaxation posture (shavasana) for five minutes.

I had dinner with some of the students in my class where I made a very interesting observation. The dinner was concluded with apple crisp that night. We had to wait quite long before the dessert was served, and a few students left right after dinner without having dessert. One of my student said that she could not believe they left before dessert while she thinks apple crisp is the best and the main part of the dinner. I could personally care less about dessert after having a delicious local meal, so her comment was a surprise. Moreover, when we finally started eating the apple crisp, another student was trying to detect the ingredients of it because it did not taste like a regular apple crisp. And the student who made a critical comment about those who left without having the apple crisp told her to “just eat it” regardless of her curiosity. I concluded that feasting, an essential role in harvest celebration (Ingpen and Wilkinson, 1994) does not mean, to some, eating mindfully or appreciating food more than usual. I anticipated at this point that a six-week course might not be very effective.

Reflection

Most of the students enjoyed practicing yoga outside. One of them said that it was so relaxing that she fell asleep during the session because. Another student also said that being outside in nature “added a whole new dynamic” to her practice. Both said that they wanted to try doing yoga outside more. Yet, students found it distracting because of the flying insects and music from the contra dance workshop. I was also easily distracted by them which resulted in a less focused session. Regarding chanting, one student said that she preferred listening than singing while others did not make any comment about it. I imagine that did not participate in singing because they have never chanted before, and they were too shy to sing, or had no idea what was going on.
Session 3  October 16, 2011 City Market and Ethnic Markets

Agenda
2:00pm Meet at City Market
2:15pm Presentation by Chutter-Ames
2:35pm “Ask your body what it wants meditation”
3:00pm Sharing thoughts
3:30pm Visit Ethnic Markets in Old North End
4:45pm Reflection
5:00pm End

Activities
Presentation at City Market

This session’s focus was on exploring Burlington’s food systems. We first went to the City Market, where Gaelan Chutter-Ames, one of the GH residents gave a presentation about importance of varieties of vegetables and fruits, and also we practiced “ask your body what it wants” meditation from Mindful Eating by Jan Chozen Bays (2009). The City Market, or Onion River Co-op, is a member-owned grocery store that has a significant amount of locally
grown organic produce and other organic and/or socially-just items that serves the local community. I chose City Market for the students to learn about one aspect of Vermont food systems because they represent a number of local farms and producers, and they are committed to contribute to the local community’s economy and wellness. Later, we went to several ethnic markets in the Old North End, Burlington to witness cultural and ethnic diversity in Burlington and their food systems.

In September 2011, Karen Nordstrom introduced me Chutter-Ames, as he was looking for opportunities to give his presentations as his NR016 project. His presentation was to enhance students’ learning experience in my class, I decided to have him give one of his presentations in my class. He talked about diversity of vegetables and fruits and the benefit of having more than one variety, looking at different vegetables. Ecologically, diversity of plants increases the population of predatory insects and pollinators. Socially, the more varieties of vegetable we have, the more options we have for cooking, and also we learn the plant world though cooking and eating, enriching the experience of eating. We bought three different types of beets; golden beet, red beet, and chioggia beet for students to cook and explore differences among them and write a short report on it, tying the experience to Chutter-Ames’ presentation.

( photo deleted in digital version)

“Ask your body what it needs” meditation

The second activity was “ask your body what it needs” meditation. In this meditation, students are asked to walk around the store, asking the body what it wants. The choices should not be made based on what each person think s/he should eat, but based on the body’s craving. This exercise helps get nutrients the body is lacking because the body is always telling the person what it really needs (Bays, 2009). I gave fifteen minutes for students to practice exercise and told them to choose one item that their bodies really want.
We gathered outside of the store after the exercise and shared the reasons for choosing the particular item. There were six participants in the session of the day, and out of six students, four choose their items because they reminded them of home, neighborhood and mother’s cooking. The other two choose their items because of the health benefits of the items based on their knowledge, which was not the purpose of the exercise. It was sometimes difficult to give the right instruction so that the students fully understand the purpose and goals of the exercise. For this particular exercise, I should have given an example from the book in which the author’s body often tells her that it wants grapefruit and miso soup when she is sick.

**Ethnic markets in Old North End**

Then we made our way to Old North End by foot, which is a neighborhood located North of downtown Burlington. It is a most diverse place in Vermont (Baird, 2011) and there are a number of ethnic markets. I made a map of the neighborhood with major ethnic markets so that the students clearly understand where we went (appendix 7). I encouraged students to pay attention to what kind of food they have, where they come from, and who shops there, and also to ask questions to understand about the ethnic markets better. We first went to Community Halal, owned by a Somali family. According to Hassan, the clerk of the store, the main customers are Somali, Bhutanese, and Nepali. They import meat from Australia, and goat is the most popular kind. The students were impressed by the fact that different languages are written on different products, and one student was particularly interested in the fact that the store has frozen okra while locally grown okras are easily accessible.
We walked further down on North Street and went to Himalayan market and a Thai market called Thai Phat. Everyone took about thirty minutes to see the stores, and they were very interested in unusual vegetables and food items. However, it seemed difficult for students to objectively observe the stores and food items to have a better understanding of the food system, despite my expectation.

(Making our way to Old North End)

Our last stop was the Global Market owned by a Pakistani gentleman, which handles many food items from the Middle East and also Bosnia. Overall, students were very excited to see different food items and have cultural experiences while they are still in Burlington, Vermont which is known to be one of the lease diverse states in the U.S (Census 2010). I concluded the session by having students write down comments and feed backs that have anything to do with this course on a small piece of paper anonymously. I found it more effective than having a verbal feedback session because the comments were more honest,
thoughtful and useful for me to make improvements in the facilitation of the course. The comments included:

- Started noticing mindfulness in everyday life
- Started paying more attention to what to eat
- Enjoy learning about different cultures through food
- Want to cook together
- Need more instruction of meditation for beginners
- Looking forward to future sessions.

(In front of a Thai market)

**Reflection**

**Mindfulness practice**

In the blog entries, students discussed observations from the field trip. Two students made comments on the “ask your body what it wants” meditations. One student said that it was interesting and informative because it allowed her to reassess what foods she put into her body. Another student said that it was a very fun exercise as she had to think about what nutrients she wanted to take in. She also said that at the City Market she was surprised to see that much of the produce was locally grown.

**Food and culture**

Other students wrote their observations and thoughts from the ethnic markets we visited.
They described their experiences at the stores as “cool” and “fun” mostly because they had never been to Old North End, and also they encountered many food items they had never seen. Two students found it interesting that one can learn so much about different cultures through food because every culture appreciates different food and interact with food differently. Also, a great part of a culture is shaped by food. Two students said that they left with a curiosity to try new foods. One student made detailed observations as follows.

“All of the markets had goods that were very different from what you would expect to see in an American grocery store. They had goods that would be in a regular grocery store, too but the brands and packaging were different. I assumed everything had been imported from whichever country that ethnicity is prevalent in. In the Halal store, I noticed that they had unusual juices, sold a lot of goat meat, and had a lot of nuts and dates. The Thai market had the freshest vegetables and fruits and a lot of them I had never heard of. They also had a lot of unusual canned goods like fish, quail eggs, and mushrooms. The Himalayan store had a lot of bagged and dry goods like beans and lentils.” One student thought that exploring Burlington, her “new city” through food was “a great way to learn about all the different people who reside here.”

One student realized during the field trip to ethnic markets that by knowing what each culture eats and appreciates, one could tell more about the cultures. Another student had the similar thought: she found food as a “great introduction to different cultures” because “it brings up questions about their history, why they use specific types of food, where the food comes from, and what relationship they have with food.” She said it was interesting that she could tell so much about a culture simply by the food they eat.

These comments imply that students understood that food plays a significant role as ethnic and cultural identity as Hauck-Lawson and Deutsch showed in their literature (2009).

Session 4  October 23, 2011 Mollie Silver Visit
Agenda
2:00pm Meet in the kitchen
2:10pm Silver’s introduction + Roast vegetables
2:25pm Students' self-introduction + Silver’s talk
3:10pm Cook snacks with roasted vegetables
3:30pm Taste comparison + more discussion
4:30pm End
Activities

Session 4 took place in the GreenHouse kitchen. We welcomed Mollie Silver as a guest of the day. She is a UVM graduate, food educator and a senior intern at the Common Roots, a local organization for place-based education and services including farm to school programs, school supported agriculture and various food education programs at middle schools in Burlington area.

Silver and I arranged to make baba ghanoush for this session. Baba ghanoush is a dip made with eggplants, originally from the Middle East, and now it is a popular snack in many countries. Silver brought several different kinds of eggplants that she harvested from her own farm that morning, and explained differences among the varieties. We also cooked the beets we bought from the City Market from the week before because students did not cook them until now regardless of the fact that I asked them to write a report about it.

While the vegetables were being cooked in the oven, Silver introduced an exercise that effectively wakes up the body and generates heat in the body. This exercise was derived from yoga postures and breathing exercises. For example, in one of the movements a practitioner steps into a warrior one posture (Virabhadrasana) with a strong exhilaration from a basic standing position and steps back into the standing position with inhalation, and repeats the movement for ten times.

After the exercise, we made baba ghanoush with cooked eggplants and enjoyed it with pita chips while listening to Silver’s talk. We also enjoyed grilled beets, comparing and contrasting the taste, flavor, color and texture. She mainly talked about how she decided to be engaged in sustainable agriculture, what she does as a food educator, what issues we have around school lunch programs, and what changes are to be made. Now school children are very disconnected from nature and food. Even if they learn about local organic food movement, health and sustainability in the classrooms, as long as they eat canned food and prepared frozen food for school lunch, it is difficult for them to understand what they learn. Silver is one of those who are actively making efforts to make a change in this issue.
Reflection

Reaction to Silver’s talk

Silver’s story was very inspiring and encouraging to many of the students who were trying to figure out what they were going to do in the future. While it is easy to get overwhelmed with global issues including environmental and health issues, Silver’s stories made the students hopeful, according to one of the students. They agreed that the Farm to School initiative is very important because young children need to learn about food and how to eat sustainably to continue their healthy eating habit for the rest of their lives. According to one, school is preparing children for a healthy and productive life, and so the lessons should not stop being taught once children enter the cafeteria. She wished to be involved in the farm
to school program in the future. Another student wished to be involved in agriculture in the Burlington area, and she was going to buy a CSA share next season.

**Yoga-derived exercise**

The exercise shown by Silver was a popular activity of the day. One student thought that the exercise was so effective that she thought she could spend the rest of the day weeding or harvesting on a farm.

**Food**

As some students had never had eggplants before, making baba ghanoush was a great way to expose students to new food and explore more. One student was surprised that she greatly enjoyed the snacks we made even though she considered herself as a picky eater.

Another student found the snacks very delicious as well, including the beets. According to her, the red beets were the sweetest, the yellow beets and the red and white beets had a potato-like taste. Her favorite was the red beet.

**Session 5  October 30, 2011 Japanese Food Culture**

**Agenda**

2:00pm Introduction
2:10pm Lecture on Japanese food culture
2:40pm “Food and mood” meditation + discussion
3:00pm Introduce assignments
3:10pm Yoga
4:00pm End

**Activities**

**Presentation**

Counihan and Van Esterik (1997) mention the importance of learning about various perception of food in different cultures to reconnect oneself to the Earth. In this session, I introduced Japanese food culture and its ecological aspects which I grew up with. Also I introduced “Food and Mood” meditation from *Mindful Eating* (Bays, 2009) which is a great exercise to realize certain food’s effects on our mood and feelings.

I used power point slides on Japanese food culture created by Akane Yamamoto and Atsuko Harada (2010) to give an overview of traditional and contemporary Japanese food culture. Additionally I introduced the following Japanese concepts that relate to ecological
practices around food.

- **Mottainai**: A central Japanese idea that condemns wasting = Cooking vegetable skins, drinking water left after boiling soba noodles, etc

- **Itadakimasu/Gochisosama**: Two phrases that Japanese people say before and after meal and they express appreciation towards nature and those who contributed to bring the food to the table.

- **Shojin Ryori**: Buddhist vegan cuisine

- Japanese meals’ portion being smaller than typical American meals

- Small food such as baby fish is often seen in Japanese food culture

- Each dish served in a certain occasions such as New Year has a traditional meaning (eg. Noodles = long life)

**“Food and mood” meditation**

The second section of the session was dedicated to the “Food and Mood” meditation in which participants are asked to think of an upsetting event or anything that makes the person feel uncomfortable and eat a hint of sugar, a hint of salt, a small piece of chocolate, and a hint of chili sauce at a time to observe each food’s effects on the mood. The effects varied from person to person, although many students answered that they felt less upset after tasting a condiment.

Before moving onto yoga, I introduced a journal assignment with some sources that help students practice mindfulness exercises (appendix 8).

I concluded the class with a yoga exercise. Because I introduced a global topic by talking about Japanese food culture, I led yoga with a theme, “connecting to the world” by expanding the inner self to make a connection between the course topic and the mindfulness practice.

In this session, everyone enjoyed the snacks I brought, rice balls and miso soup, which probably are very popular comfort food for Japanese people. I also brought baby fish snack which were not very popular mainly because many of the students are not used to eating fish, and also the idea popping the whole baby fish into a mouth was not very comfortable to some people. Many students also enjoyed the lecture about Japanese food culture and how it relates to ecological behavior as Stibbe (2007) shoed in the literature.

**Reflection**

**Mindfulness practice**

In the blog entries, three students made comments and observations about the food
and mood meditation. One student found that the salty and the sweet taste made her mood better, while the hot sauce did the opposite. Another student experienced that salt made her mood worse, while sugar made her feel less distraught. Hot sauce was so spicy for her that she even forgot that she was angry. Another student said all the condiments lessened her anger and chocolate worked the best because she simply liked chocolate so much that it was difficult for her to be angry at someone while she was eating it. One student said that this exercise explained most of her food cravings. Another student said that the exercise shows that food is not only a fuel to our bodies and she also said that the saying “you are what you eat” proved to be truthful through the exercise.

Japanese food culture

Other students wrote about their experiences in learning about Japanese food cultures. One student found that Japanese had spiritual connection with food and are much more aware if where the food comes from, and who contributed to make it possible for them to enjoy the meal. She found it very different from American culture. While she thought Americans could learn from Japanese culture, she found it difficult to enjoy the rice balls and the snacks because she was not used to it. Another student said that dried fish snack grossed her out.

One student found that the fact that Japanese people incorporated Western cuisine to create their “new” Japanese food was strange, even though she liked Japanese food.

Session 6 November 6, 2011 Wrap-up Reflection and Feedback

Agenda
2:00 Focus group
2:45 Fill out surveys and evaluation forms
4:00 End

Activities
Session six was dedicated to reflection. There were six students participated in the focus group and also filled out the second survey and the instructor evaluation. The focus group was recorded with participants’ permission. It lasted about half an hour. I asked questions, and students answered the questions one person at a time, although I was hoping to create casual atmosphere and let the conversation flow, instead of each student answering the questions. I gained the inspiration for interview questions from a focus group hosted by Karen Nordstrom on evaluation of an Urban Food System course that I attended. The summery of the interview is in the section below.
(With the students)
**Journal assignments**

The journal assignment was given to the students during the fifth session. Students were asked to carry out one mindfulness practices every day for seven days and keep a journal about the experiences with detailed description of the practices, their impacts, and anything that are significant regarding the practices. I also handed them a list of sources for mindfulness practices (appendix 8) including, but not limited to the guide for beginning meditation, audio exercises from the Mindfulness Practice Center at UVM. The journal entries well reflected the students’ degree of understanding of what they learned in class.

Student A practiced mindful eating, meditation and yoga and overall she felt more relaxed after the exercise. Mindful eating helped her control the portion and enjoyed each bite more. Her journal indicated that she got the hang of mindfulness practices and effectively used them to improve her everyday life.

Student B had a strong focus on choosing ecologically and socially responsible food during her practices. She mentioned in her journal that she refused non-fair trade chocolate and refusing a conventional fast food meal as a part of her mindfulness practices. Although it is effective to refuse conventional food items as a way of practicing sustainable food diet that has less impact on the environment, mindfulness practice does not always tell one to not do something. This student mentioned in a focus group interview that the journal assignment helped her keep track of her mindfulness in everyday life. It indicates that she had a different understanding of mindfulness. More thorough explanation of mindfulness practices and their purposes might have helped this student get a more accurate interpretation of it.

Student C practices mindful eating, mindful grocery shopping, yoga and meditation. The fact that it took her multiple meditation practices until she got a better idea about how to go about meditating indicates that I could have explain more thoroughly about meditation practices in class. Overall, she successfully applied what she learned in class to her everyday life.

Student D learned from this assignment especially that listening to her body helps her eat what the body needs. Especially mindful eating and being mindful about her body was effective in coping with her lactose intolerance. This student had been engaged in mindfulness practice before attending the course, and showed greater understanding of mindfulness and ability to apply it to her everyday life for its further improvement.

Student E practiced mindful eating for a week. She found that mindful eating is highly effective in portion control. She also listed situations that prevent one from eating mindfully.
and induce binging; illness, time limitation, extreme hunger, and guilt with certain foods (non-fair trade chocolate, for example). It indicates her inexperience with mindfulness practices because mindful eating does not force one to eat mindfully when the practitioner does not feel like eating at all because of illness.

Student F practiced yoga, meditation and mindful eating including vegan diet for a day. Although she had difficulty getting used to meditation, she indicated positive effects of mindful meditation after a few practices. Regarding her effort to eat with less impact on the environment, she felt frustration because she had to eat more carbohydrates to compensate her hunger for animal-based products which were her staples. This indicates that nutrition education might have helped students eat balanced meals when they tried different diet than usual.

Overall, students with previous experiences in mindfulness practices showed better understanding of its concept and more effective use of the practices in their lives to improve their well-being. It indicates that it takes a long time for a practitioner to fully understand and make a use of mindfulness practices. However, yoga seemed a relatively more effective in calming mind and bringing a sense of relaxation even for those who were new to mindfulness practices.

Students’ experiences

Collected data from surveys, a focus group interview, students’ blog entries and journals were analyzed qualitatively by category to evaluate the course and its effectiveness. Data was analyzed using selective coding procedures and resulted in the following categories:
1. Students’ reactions to course activities
2. Behavioral and attitude change
3. New experiences and knowledge gained through the course
4. Motivation and curiosity to learn further
5. Contributions to GH
6. Learning outside of class

1. Students’ reactions to course activities

Yoga seemed to be a very popular course activity. According to the students, practicing yoga in class put them in a good mood and gave them a perfect break from school work especially many students tend to be busy with school assignments on Sundays. Some
students significantly enjoyed practicing yoga outside.

Students described most of the mindfulness practices “interesting”, “fun” and “educational.” Raisin meditation was effective to show the basic ideas about eating mindfully. “Ask your body what it need” meditation at a grocery store functioned as a way for the participants to apply mindfulness in shopping to have a better understanding of how mindfulness could be useful in everyday life. Some students learned from “Food and mood” meditation, in which they assessed condiments’ effect on moods and feelings showed students, that food could influence their moods which explained some of their food craves in certain situations.

The field trip to ethnic markets in Old North End was a stimulating experience for many of the students. Many of them were excited to see a part of Burlington that they had never been to, and to be exposed to different cultures through food. Many students said that it was interesting to see ingredients that they have never seen and to witness different food cultures. They enjoyed cultural experiences through learning about Japanese food culture as well. Many students indicated that they enjoyed it because of the difference between Japanese and American food cultures. When learning about cultures, difference among the cultures seemed to be a focal point of the students.

In contrast with my expectation, students took a pleasure out of and had a great learning experience from the journal assignment which required them to carry out one mindfulness practice a day for a week and keep a journal about the practices and the effects of them. This assignment helped them understand better what they learned in class by practicing them in real life and also to keep track of their mindfulness in everyday life.

There were comments that showed students’ frustration in learning. Among many positive comments about their experiences, some students encountered frustration as well. For example, one student found that having sore hamstrings made her yoga practices difficult. One student found that one had to grow up in Japan to fully appreciate Japanese food as they were not appealing to her. Two students felt that being on a meal plan limits options of food if one tries to eat sustainably because there were not many healthy/sustainable options at campus dining halls. Two students found that eating mindfully took time, and so it was difficult to practice mindful eating when they did not have more than an hour for lunch break. One student also found that she needed to have a “correct mindset” to practice mindful eating. For example, extreme hunger and too little appetite when she was ill made it difficult to practice it. In my opinion, however, neither of them should hinder mindful eating practices
because one could still eat mindfully when hungry, and mindful eating practice does not force one to eat when the practitioner does not want to. She also said specifically about non-fair trade chocolate that the sense of guilt for child labor involved in most of the chocolate industry made it difficult to refuse to eat it although she was against the practice.

2. Students’ change in behaviors and attitude

   This section analyzes behavioral changes and changes in students’ attitude around food choices occurred over the course period. The meaning of food changed before and after the course to some students except for one student said that food was a fuel and an enjoyment. One student referred to mindfulness in the answer, and a few students referred to the importance of caring about food and how we make choices about food in the post survey. This shows that food meant more to most of the students after they participated in the course, and it is significant that many of the answers included how the way individuals interact with food varies depending on the choices they make.

   Overall, the students’ values were derived mostly from environmental and social consciousness, even before they attended the course, it is significant that in the second survey more students wrote that “where it comes from” was important when they choose food items. Regarding certain thoughts they had in mind when eating, it is significant that many students thought about how good the food was for them. Also, in the second survey, two students mentioned where the food came from as something they were thinking about while eating. At the same time, there are more answers in the second survey that relates to mindfulness and how they felt while eating than the first survey. One student wrote that she snacked much less often and in a healthier way because she became more mindful about her snacking habits.

   In the focus group, one student showed her willingness to step out of my comfort zone and “try different foods” although she had been not adventurous about food before. One student became vegetarian. One student came to take better care of her lactose intolerance, observing how her body reacts to each food item, instead of looking up on-line foods she should eat. One student started noticing the relationship between what she eats and how she feels. One student kept better track of what she ate after participating in the course.

3. New experiences and knowledge gained through the course

   From the data collected, it appeared that many students experienced activities that they had never done before and also they learned new knowledge.
One student said doing yoga outside was her first experience. Two students were entirely new to the ethnic markets downtown Burlington. One student ate Baba Ghanoush, eggplant dip, in the session 4 for the first time, and she was surprised she found it delicious as she was a picky eater. Two students said that she had never tried Japanese snacks until session five. Two students experienced meditation for the first time in the course. Overall, their responses to these experiences were positive except two students had difficulty enjoying the Japanese snacks because of unfamiliarity.

Regarding knowledge, one student learned from the field trip to City Market that they had locally produced vegetables even after the growing season was over. She was surprised and also very happy to find this out. One student said that she learned from the course in general that some food items she was putting into her body was “not good” and she learned how to be wary about her lactose intolerance. One student learned how to be mindful when eating. She now noticed when she was full.

One student learned about other cultures mainly from the field trip to the ethnic markets and a presentation on Japanese food culture. One student learned ways to meditate. She found it useful because it helped her fall asleep at night.

4. Motivation and curiosity to learn further

Many students were motivated to learn more and became curious about new topics they were exposed throughout the course. One student watched food-related documentaries because she wanted to learn more about the food industry and its impact on our health and the health of the environment after the first session. One student said that after the first session her commitment to actively buy organic/local foods was solidified.

One student came to want to do more yoga after experiencing yoga outside at the Harvest Celebration in session 2. One student came to want to try new foods, and one student came to want to learn more about different cultures after the field trip to City Market and ethnic markets in session 3. One student came to want to get involved in the Farm to School program after hearing about it from Mollie Silver in session 4. Another student came to want to get involved in local agriculture after session 4.

5. Contributions to GreenHouse

Three students said in the blog entries and the focus group that there should be more courses similar to this one. One student said that students would “become more aware of their
surroundings and learn to appreciate their own food systems” through the course and another student said that it should be a permanent program that everyone should look into because it changed the participants’ outlooks on our lives to a great extent. This course not only provided students with new perspectives, but also contributed to the GreenHouse program as a model of a mini course module that supplements the program.

6. Learning outside of class

Students showed a great understanding of course materials through the journal assignment. The assignment asked students to carry out one mindfulness practice per day for seven days and describe their experiences and thoughts. Many students applied what they learned in class in their everyday lives such as mindful eating, shopping with “ask your body what it needs meditation” and sitting meditation. Based on what they said in the journals, continuous practices of mindfulness help them gain a better hang of exercises. Some students showed their great concerns about the environmental and social issues around food systems. For example, one student tried to live on a vegan diet for a day in effort to cut back on meat consumption to help the environment. Others thoroughly described their feelings and emotions as a result of mindfulness practices. Based on their experience, mindfulness practices often relax the mind, reduce stress, control negative emotions and help increase the ability to focus.

Comments from the focus group interview suggested that students enjoyed keeping a journal because it helped them keep track of mindful moments in everyday lives and also gain a better understanding of what they learned in class by actually doing it by themselves. As Moncure and Francis (2011) claimed about the great effectiveness of keeping a journal as a form of reflection, students learned a lot from the assignment and objectively witnessed their experiences.
Instructor’s effectiveness

Each participant rated each assessment item of teaching effectiveness on the scale of 1 (not effective) to 5 (effective). Six participants submitted the evaluation. Each item is worth maximum 30 points. The evaluation form was created by Karl M. Kapp (Instructor Observation and Evaluation Form Retrieved from http://www.karlkapp.com/materials/instructor%20evaluation.pdf).

<table>
<thead>
<tr>
<th>Assessment item</th>
<th>Total point (30pt unless specified)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Presents coherent instruction based upon knowledge of subject matter, learners and curriculum goals.</td>
<td>30</td>
</tr>
<tr>
<td>2 Lesson presentation was well organized. (Clear beginning, middle, and summarization of content)</td>
<td>30</td>
</tr>
<tr>
<td>3 Provides learners with opportunities to ask questions.</td>
<td>30</td>
</tr>
<tr>
<td>4 Selects appropriate materials and resources to match the abilities and needs of all learners</td>
<td>30</td>
</tr>
<tr>
<td>5 Communicates specific learner performance expectations.</td>
<td>27</td>
</tr>
<tr>
<td>6 Clarifies misunderstandings with new information. (Doesn’t just repeat the same information if learner doesn’t understand.)</td>
<td>25 pt</td>
</tr>
<tr>
<td>7 Models professional and ethical standards as well as personal integrity in all Interactions</td>
<td>30</td>
</tr>
<tr>
<td>8 Shows enthusiasm for teaching. (Makes eye contact, poised, speaks clearly)</td>
<td>30</td>
</tr>
<tr>
<td>9 Makes explanations that are clear and to the point</td>
<td>30</td>
</tr>
<tr>
<td>10 Facilitated independent thinking and problem solving (let learners answer questions, posed difficult but solvable problems, provided a chance for discourse).</td>
<td>30</td>
</tr>
<tr>
<td>11 Encouraged learners to be involved in the learning process. (Asks probing questions, facilitates activities were learners are active in learning process)</td>
<td>25pt</td>
</tr>
<tr>
<td>12 Helps learners gain comprehension of terminology and other factual knowledge.</td>
<td>29</td>
</tr>
<tr>
<td>13 Helps learners gain an understanding of fundamental theories and principles.</td>
<td>25</td>
</tr>
<tr>
<td>14 Provides learners with an opportunity to apply the skills and knowledge they are learning.</td>
<td>30</td>
</tr>
</tbody>
</table>

(TABLE 3: INSTRUCTOR EVALUATION FORM)

Although I received mostly positive evaluation scores, I was not proficient in ensuring
that all the students understood the new concept introduced. It indicates that some students did not fully understand the new concepts. It was difficult, however, for me to measure how much students understood in class because although I often took time for them to ask questions students were mostly quiet. Better students’ engagement could have been obtained somehow to encourage them to ask more questions. Regarding one-on-one communication, I have to admit that I was not attentive about it. Considering that I had no experience in teaching before, however, the overall evaluation is quite satisfactory.

Course design

Sustainability was one of the themes of the course although it was not clearly articulated. Because the students who live in GH are those who seek out a sustainable lifestyle, I assumed that environmental awareness and interest in sustainability were common ground that students shared and did not need to be spelled out for them to have the perspective upon attending the course. When I asked students in the focus group, my assumption was proven to be true. For the students, it was easy to draw the course back to the idea of sustainability. Especially thinking about where food comes, how it became a part of one’s life and farmers’ contribution to the meal could easily be related to sustainability according to some.

The students fully made the connection between the course and the concept of sustainability as I expected. However, if the participants of the course had no interest in sustainability and the environment, it might have been necessary to show how the course topics relate to sustainability as well as how the course is supposed to help create more sustainable eating habit.

Hands-on learning was effective according to the students. Because of the nature of it, students admitted efficiency in understanding what they learn in class. As most parts of the course were hands-on based, it indicates that most of the students could understand the contents smoothly. As Williams (2012) and Axelson (2012) showed in the literature, hands-on learning or kinesthetic teaching methods were effective in raising the level of students’ engagement and learning efficiency. Some student enjoyed discussion the best because she could here other students’ thoughts and experiences in the class activities.

One student found that mindful eating practices ultimately reduces the amount food waste because in mindful eating a practitioner really thinks about what she or he puts into the mouth and becomes full faster which leads one to eat less. She said that American culture is wasteful because people make excessive amount of food and usually do not finish it. But
when mindfulness is applied, one notices how much she or he can eat, which reduces the amount of waste eventually. This statement solidifies Jacob et al.’s argument that mindfulness prevents one from overconsumption (2008).

Also, one student said that the course was effective and easy to understand because it addressed food at a personal level whereas some university courses deal with global topics that students could sometimes get overwhelmed with. It suggests that guiding students to practice healthy eating habits and making sustainable food choices in everyday life is empowering and effective in creating direct change in the student’s lifestyle.

The course schedule was another key to maintaining the students’ engagement. With the combination of multiple different class settings and activities such as field trips, classroom sessions, yoga and mindfulness practices, students did not lose their interest or get bored. One of the students described it as “highly configurable schedule.” One student mentioned specifically about the session 5 on Japanese food culture that it was “nice” to have a relaxed session in a classroom rather than an intense field trip when she had much work to do afterwards. Planning sessions with students’ schedule such as exams was also an important factor for students’ engagement.

**Students’ satisfaction**

Overall, I received many positive feedback comments about the course design. As all the students indicated that their expectations for the course were met or it served more than they had expected, the course gained high students’ satisfaction. The main themes of the course, food and mindfulness, certainly gained the students’ attention when I advertised the course. According to one student, being able to learn mindfulness and food together was very appealing.

All the students indicated that the course was helpful because of the influence it had. Every participant started developing mindfulness in everyday life and established a healthier relationship with food, being more mindful about sustainability around food and the health impact of food. This indicates that the main goal of the project, to create positive behavioral change around food choices, was achieved.

All the students said that they would recommend the course to others. The reasons include the positive effects of the course on one’s lifestyle and eating habit, its potential to create more sustainable eating habit, and the importance to address food in the context of health and sustainability as food is becoming a great topic of the day.
Discussion

The curriculum achievements and findings

Overall, the main goal of the project, to create more sustainable eating habits among the participant through food systems education and mindfulness practices was successfully achieved. From the collected data, many students showed changes in their food choices and attitude towards food. Specifically, after taking the course they thought about where food comes from, what kind of practices are involved and the environmental and health impacts of the food. This awareness encouraged them to choose more ecologically-responsible and healthy food items. Finger (as cited in Kransteuber, 2009) showed in his study that effective learning tools need to be applied in an environmental education curriculum to create behavioral changes in addition to teaching the participants environmental problems. In my project, students learned how to go about eating sustainably by raising the awareness of what one is eating through mindfulness practices. I also utilized popular literature, provided students with online sources to seek for further information as suggested by Oskamp (2002).

Mindful eating

The students experienced the effectiveness of mindful eating which Bays explained in the literature (2009). Many students mentioned that mindful eating was helpful to control food portions, appreciate and enjoy food more, and also waste less food. These effects are the exact effects Bays listed (2009).

Food and culture

Regarding food’s role in creating cultural identity, Counihan and Van Esteric (1997) said that “life can be studied through food” (p.573). Through the experiences students gained from the field trip to ethnic markets in Old North End, some students mentioned that the field trip made them realize how largely food plays a role in forming a culture and how one can learn so much only by looking at what kind of food people eat in different cultures. It is a major achievement that students learned the concept by themselves from the field trip.

Stibbe (2007) described the meaning of itadakimasu, a commonly spoken word before a meal in Japan as a language that shows gratitude for nature’s contribution to the meal and also a desire to avoid wasting. When I introduced this concept in class, one student said that this showed her a difference in perception of food in Japan and the U.S. where people often neglect to appreciate food. She also said that itadakmasu had a strong connection with the
concept of sustainability. Similarly, another student said that she thought Japanese food culture had a lot to do with sustainability and people’s spiritual connection with food, an idea that is not common in the U.S. Counihan and Van Esterik (1997) claimed in the literature that those who live a disconnected lifestyle from nature, the source of food, should look to a tribe in Papua New Guinea because their perception of food is more closely connected with nature. This idea was applied to Japanese food culture in my project and was successful for the students’ learning experience around food, culture and sustainability.

**Pedagogy**

In terms of the teaching style, some findings agreed with the literature while some did not. Macy and Brown (1998) said that small group teaching, or a workshop, creates an environment where the participants feel safe and comfortable about expressing their feelings. However, it was not true in the case of my course. In fact, most of the students rarely shared thoughts or feelings, or asked questions. Another interesting finding regards Oskam’s suggestions about effective teaching tools (2002). He suggested that it is essential to discuss the importance of clear behavioral norms to guide behavior. However, in my project students were able to change the way they thought and made decisions about food using mindfulness practice and without discussing the behavior necessary to achieve sustainable eating habits.

The effectiveness of this curriculum as transformative education is worth questioning. Overall course effectiveness was satisfactory as students were exposed to new food cultures, new perspectives about food, and learned tips for mindful eating that help improve their eating habit. However, the extent of transformation the course brought does not entirely fit into the definition of transformative education given by Moore (2005). According to Moore, a transformational educational curriculum is designed to shift students’ perspective to a more holistic view so that students become committed to take actions for realizing social justice. In my project, students were already prepared to take actions for realizing social justice, or sustainable food systems in this particular case. It means there was no drastic transformation in students’ world view. However, there certainly was transformation in students’ perception of food and behaviors around food. Also, they had a more holistic view of food systems and issues around them after attending the course.

**Major challenges**

**Course activities**

Although the students enjoyed most of the course activities and learned from them, there
were some activities and ways of teaching that did not work as well as I have expected.

First, chanting practice at Monitor Barn as a part of a yoga workshop was not much appreciated. As I mentioned in the result section, almost none of the students participated in singing. Although chanting is often utilized in yoga classes to set the tone and prepare the practitioners to begin the practice, it did not function that way in my yoga workshop. This must mostly have to do with the students’ unfamiliarity with chanting. I also felt that many of the students were too shy to sing. I could have encouraged them more to participate in singing without worrying about making mistakes.

Second, the presentation on vegetable varieties given by Chutter-Ames did not go as well as I have expected. It was, first, difficult to hear him in a crowded grocery store with ambient noise. Also, the fact that none of the students mentioned about it in the later discussions or blog entries indicates that the presentation did not draw students’ attention. Although it was a great idea to have a fellow GreenHouse resident in the session to give a presentation for him to complete his assignment to benefit both him and the class, the setting was not ideal, neither was the topic for audience.

Third, because I was inspired to include a cultural field trip in the curriculum by an Urban Food System course in New York City that I attended last summer, I would like to make comparison and contrasts between them. One limitation I noticed was that it was quite a challenge to expect the students to gain understandings and experiences from the field trip downtown Burlington that are similar to what I learned in New York City mainly because of the time limitation and the academic level of the course. In New York City, there were about twelve students who were mostly the third and the fourth year students at UVM with three instructors. We learned the complex food system of the urban area which represents histories of the immigrants, people’s emotional connection to certain foods from home countries, differences in prices of the stores and socioeconomic status of shoppers, and how these elements makes a dynamic urban food system in the city. Although the class setting was quite similar, it might have been too challenging to expect the students in my course to gain the similar understanding because the field trip lasted only a few hours whereas we spend six full days in New York City. Also, the course was a two-hundred level which is the highest level of a course an undergraduate student could usually take.

Communication

Miscommunication between the students and me occurred sometimes. Some students
did not fully understand the intentions of the mindfulness exercises, course topics and newly introduced concept. For example, when we conducted “ask your body what it needs” meditation at City Market, some students choose certain food items because of the nutritional value of the item that they thought would be suitable for the body. For example, one student chose walnuts because she knew that walnuts are good for muscles which she wanted to treat well. This choice was based on her knowledge instead of her body’s voice which was not the intention of the exercise.

Another miscommunication was shown in some students’ journal in which they said that they did not fully understand how to go about meditating. When I lead meditation in class, I gave them instructions and encouraged them to ask any questions. I assumed they all understood the idea of meditation because nobody asked questions, but certainly some of them were absolutely lost. Also, in the feedback comment after the session 3, one student said that more instructions for meditation for beginners would be appreciated. Thus I handed them a list of sources that help with meditation before I assigned them the journals. However, it is a mystery if any students utilized them except for one student.

Teaching and understanding mindfulness

Also, I found that some students understood the meaning of mindfulness in accordance with Goodall’s definition of mindful eating. From the journals and discussions, I found that they took mindfulness as willpower to resist socially unacceptable items such as non-fair trade chocolate. Although in the context of eating sustainably resisting food items with unsustainable practices behind is effective, mindfulness is not about doing right or wrong, or behaving in the framework of should and should not. Bays says that mindfulness is to deliberately pay attention, being fully aware of what is happening both inside yourself and outside yourself without judgment. Going with her definition, it is mindful to notice when one is resisting or choosing to eat certain food items, but the action itself about food choices does not have to do with mindfulness.

However, this brings up the difference in the idea of mindful eating presented by Goodall (2005) and the one presented by Bays (2009). Goodall claims that each person should be mindful about the practices of the food industry and vote for sustainable practices by choosing ecologically responsible food items. This has to involve not choosing unsustainably manufactured food items which Bays does not refer to as a definition of mindful eating. Eating mindfully in both definitions given by Bays (2009) and Goodall
(2005) requires mindfulness, but the concept of mindfulness itself does not directly teach one to eat sustainably. However, many students understood that being mindful should lead them to more ecologically responsible and healthy diet because the students already had the desire to eat more sustainably. Also, the fact that the proposed goal of the course was to develop healthier and more sustainable eating habits through mindfulness practice and food system education made the students understand that mindfulness and eating mindfully and sustainably were interchangeable.

Boccio (2004) claimed in the literature that everyone already has capability for being mindful, although mindfulness needs to be trained and cultivated by practice. This was proven to be true because the students did not fully understand the concept of mindfulness after attending the course for six weeks. The result might have been different if the course had been longer with more frequent meeting times to have more discussion about mindfulness and practices.

**Role of mindfulness practices**

As indicated by the collected data, students enjoyed the mindfulness practices and some of them start utilizing them in everyday life. My initial idea of incorporating mindfulness practices as a part of the course was to create synergy effect of the practices and food system education so that the participants develop more sustainable eating habit from within. However, mindfulness practices functioned more directly to affect their behaviors than I expected. Especially exercises from *Mindful Eating* by Chozen Bays seemed to have a greater impact on students’ relationships with food. Thus, it is safe to conclude that mindfulness practices that involve food positively influence the practitioner’s food choices and cultivate healthier relationships with food. Regarding yoga, chanting and sitting meditation, the direct effect on the practitioners’ food related behavior is as yet unknown. However, one student mentioned in her journal that her food choices were healthier after attending a yoga class, which indicates a potential direct relationship between them. Friedberg’s study showed that and eight-week hatha yoga intervention increased practitioners’ mindfulness. If a higher level mindfulness leads to healthier diet, it is possible that yoga practice has impacts on changing the practitioner’s eating habits.

**Limitations and questions**

Overall, the time constraint was a great limitation. Fully understanding mindfulness takes time and requires constant practice (Boccio, 2005). It is important to make the practices
a part of everyday life to get into the habit of being mindful. Six weeks did not seem enough with changing locations. Also, it was difficult to keep track of the students’ mindfulness practices and eating habits outside the class. For example, at the Harvest Fest, there was a situation where a student told another student to eat the food without trying to find out what ingredients were in it while she was being very mindful about the taste and the ingredients. I wonder if the same conversation would occur between those who have been mindful about food for a longer period.

Another limitation was that I had students with various levels of experiences with mindfulness practices in the same class. Some of them had meditated and/or practicing yoga for years while others were completely new to them. It was difficult for me to find the point where everyone could follow and enjoy. This might be the reason why there were so few questions whenever I asked them if there were any questions or comments. There is a chance that those who were new to the practices were intimidated to ask questions knowing that there were students who already were familiar with the practices.

There are some questions regarding facilitating the course as an instructor and a researcher. I wonder if the consequence was different if the students were those who have no interest in sustainability or those who have little knowledge in the relationship between food and sustainability. The students this time were fairly ecologically conscious and had decent knowledge in the food related environmental and health issues which helped relate the course topic back to sustainability which saved me from explaining it.

Contributions to the GreenHouse

My course served the GreenHouse community well mainly because the students greatly enjoyed it and some of the suggested that there should be more similar course like this one. Also, it added an activity at the Harvest Celebration.

Also, since I had to turn seven students down during recruitment, it is worth questioning if I could teach fifteen students at once. I probably could have, if there was a larger classroom that fits fifteen students and give them enough space to practice yoga, although taking fifteen students to a field trip might have been a little tricky. Assuming fifteen students could be in the same class, however, I would not have been able to do the same through research and analysis of the data from them. Thus, as long as it does not involve thesis researches, there is a possibility that more students can learn together as a future GreenHouse course.
Recommendations for future similar courses

Implementation

As I mentioned in the limitation piece, it is important to keep track of students’ understanding. Even though it seems redundant to give them extra explanation and descriptions of course activities and topics when they do not ask any questions, it is never unnecessary to do so.

Regarding the targeted audience, the students gave some recommendations. One of the recommend targeted group of people was first year students because it is hard for them to be mindful about food they eat when they have just left home and can only eat campus food. Another is a group of anyone who does not believe that what they eat makes a difference. Some students said that the course would fit for those who are interested in living an environmentally responsible and healthy lifestyle. A group of high school students was another group of audience recommended for the course because it would give them something to think about according to one of the students in class. Another student thought everyone should have an opportunity to take a similar course because it is a very important topic these days. Based on the diverse suggestions, it is certainly worth targeting different groups of people in future.

Potential new objectives of the course

There are three potential objectives of the course. First, Huebner and Bishop (1986) mentioned that harvest celebration is now used in educational settings for students to learn about and celebrate cultural food diversity and importance of food. The GreenHouse program hosted a harvest celebration for the similar purposes in addition to creating the sense of the community among the residents. However, the event might have been able to play a larger role in terms of creating more awareness about appreciating food. As I pointed out in the results section that one student did not want to take time to appreciate unusual tasting desert, but instead she preferred to quickly finish eating it. This indicates that some students needed a more thorough guide of the Harvest Celebration at the dinner table about how to go about appreciating the food. Because the celebration is an ideal opportunity to discuss our relationship with food and raise awareness of food and culture, educators should take further advantage of it.

Second, even though nutrition is not a major component of mindful eating or thinking about food in the context of sustainability, it seemed to be an interest of the students. For
example, when a student wants to try different diet such as vegetarian or vegan, it is important for them to have basic knowledge about nutrition to ensure sufficient nutrient intake. One student mentioned in her journal that it was difficult for her to live on a vegan diet because her staple food was all animal-based and also she did not like tofu. Instead of being stuck in the idea that she needed to eat meat to live it is important to shift the idea and try different plant-derived source of protein that substitute meat. How to eat with balanced nutrition is worth being taught along with encouraging students to eat sustainably to avoid sense of having few options upon shifting diet.

Also, more focused teaching of mindfulness is a great potential to be included in the course since some students misinterpreted the idea of mindfulness in the context of food and environment. Although in the first survey many of them gave a suitable definition of mindfulness such as “being aware,” the meaning of being mindful somehow was changed in the relation with sustainable food choices.
Conclusion

The project provided the students with new perspectives that helped them become more ecological and healthy consumers. Some behavioral changes among the students about food choices were demonstrated in the data. Although Moore says that gaining ecoliteracy has to be a part of transformative learning for sustainability to bring changes (2005), my project brought transformation without providing many details about the social issues around food systems because the students were already familiar with them. Considering the time limitation, I am certainly content with the outcome even though there were some challenges and limitations discussed in the prior section. As Jane Goodall says, each bite is a vote (Goodall, 2005). Each individual’s small changes and choices about food lead us to create more sustainable food systems. Thus, I consider this project as a successful model of sustainability education with a focus on food consumption.

Also, the project proved the effect of mindfulness practices in creating sustainable behaviors among the practitioners. Since there are not many studies that show the direct connection between mindfulness and sustainable behavior (Amel et al. 2009), the contribution to the field of the study should be valued. I observed the effects of mindfulness practices and how powerful they are from my own experiences and from the students in my project. Students really started to develop the ability to notice, observe, accept and find mindfulness in their everyday life which I could tell mainly from their journal entries.

I cannot forget what one of the students wrote in her journal entry as a result of her mindfulness practice. She said, “Life is too short to be in a hurry and we need to savor each moment… [I] gain [ed] reassurance of my place here on the Earth” through mindfulness practice. She reconnected with the Earth through mindfulness practice which naturally led her to behave in an environmentally responsible way because she now knows that she is a part of the Earth. This is exactly what Barbara Raab said about the effect of mindfulness practice. Practitioners experientially understand that they are a part of the whole universe through mindfulness practice. I anticipate that mindfulness practices will be a very common tool of sustainable education in the near future because of its powerful effects.

The project and the research allowed me to grow as a person, researcher and an educator as well. I certainly enjoyed teaching, observing students’ reactions and sharing the experiences with them. The most rewarding aspect of the project was the fact that the students enjoyed the course. I encountered a number of comments from the students that showed that they were glad that they became a part of the course and got to learn about
mindfulness and food systems. Even though I had never considered becoming an educator before launching this project, now that I know how rewarding it is to teach students about something that I value and I am passionate about, I have started to picture myself being involved in sustainability education in the future.
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Appendices

Appendix 1 Flyer
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Appendix 5 Handout (Session1)
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Appendix 7 Map of Old North End (Ethnic markets)
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