# Impacts of engagement with community supported agriculture on human attitudes, social norms, and identity towards the sustainable food movement

The sustainable food movement roots as an alternative response from the growing concerns of industrial agriculture in the 1970’s. At the time individuals were looking for an alternative source to access local, organic, and sustainable food. A popular response can be seen in the growing number of participants in community supported agriculture shares (CSA), a food system structure that emphasizes farmer-to-consumer relations, and local and organic agriculture.

Although the sustainable food movement is growing in popularity, and threatens to become more than just an alternative form of purchasing food questions remain on: how much longer will this trend hold? Are individuals participating in community sustainable agriculture simply purchasing local and organic food or are their attitudes, norms, and identity changing through time? If so, what does this imply for the sustainable food movement at a larger scale?

This study aimed to answer these questions by collecting pre and post survey data of participants during their experiences with the Intervale Center CSA, a paired t-test was conducted to analyze any significant change overtime. In addition, models based on the theory of planned behavior were implemented to analyze any correlation between the different variables throughout the customers’ experiences.

The study proved the strong relationship between human identity and food relationship, as well as proving human attitude as a poor predictor of behavior. This study also provided key findings for CSAs to continue growing and potentially becoming the new food systems norm.

# INTRODUCTION

The purpose of this study is to analyze the effects of participation in community supported agriculture (CSA) on individual attitudes and behavior. More specifically, the study examines the change in individuals’ attitude over time towards food purchasing behavior, cooking behavior, and food consumption and habits.

Walk into a supermarket and you will see strawberries from Mexico, pineapples from the Philippines, and bananas from Ecuador. In comparison to the early 1900’s this can be seen as a luxury. Less than 100 years ago 41% of the workforce was employed in agriculture (Dimitri, Effland, & Conklin, 2005), in comparison to 2013 where the Bureau of Labor Statistics reported only 2% of the US workforce was employed in agriculture. There was a point in history when individuals’ connection to the land meant they were dependent on their capability of production.

## The Beginnings of Industrial Agriculture

In the 1800s a series of acts were passed in the U.S government which expedited industrial agriculture food production. Both the Morrill Act of 1862 and the Hatch Act of 1887 introduced the idea of scientific principles and applied science to agriculture (Congress, 2002). The Morrill Act donated public land to states, this was to be sold and proceeds were to be used to fund public colleges that focused on agriculture and the mechanical arts. The Hatch Act then provided these land trust colleges with grants to produce agricultural experiment stations, allowing for the furthering of scientific research in the agricultural field. Both of these acts set the stage for the establishment and growth of the land grant universities (Congress, 2002). These grants also provided a structural foundation for food markets as an economic engine, and the opportunity for careers in farming.

Furthermore, railroad development and canal construction, including the Eerie Canal which opened in 1825, allowed for western expansion in the country which meant more available agricultural land. Farmers had the opportunity to develop farms, sell the land, and invest in more land further out west. (Gates, 1960) The introduction of the railroad system also encouraged a profit driven market in agriculture. Farmers now had the opportunity to harvest and ship items longer distances.

## World War I and II

War World I also played a large role in the growth of food production in the U.S. At the time of the war there was a greater demand for food, and less supply since Europe was fighting a war on its home turf forcing a lot of farmers to go to war (Dimitri et al., 2005). Farmers in the U.S saw an increase in demand, and started developing a more commercial production model for the farms. (Dimitri et al., 2005).

World War II played a similar role to that of World War I, after the second war many technological advances came about improving farm production mechanisms due to the rapid industrial growth of technology for war. The mass production of food increased the need for more common use of the tractor. Tractor usage allowed for larger production of crops in a smaller amount of time, which essentially equaled to larger food profits for farmers (Lyson, 2004). The U.S went from complete dependence on human and animal power in the 1900s to complete mechanical power in the 1970s. (Dimitri et al., 2005) Another example of technological advances was the development of pesticides and herbicides by the U. S. Military. During the 1940s the U.S government introduced the use of pesticides such as chlorinated hydrocarbons (DDT, Chlordane, etc.) and organophosphates (Parathion, Malathion, etc) to reduce mosquito infestation and other insect pests in tropical war zones. The U. S. Military also developed herbicides such as Agent Orange, which was used in chemical warfare at the time. The development of Agent Orange by Monsanto and Dow Chemical was later developed for industrial agriculture. These developments contributed to the intensification of industrial agriculture throughout the world.

After the war individuals were relocating to the suburbs, adding to the urban sprawl remnants from the 1900s, finding jobs away from the farm. This demographic shift started in the 1880s following the industrial revolution, but became more apparent due to the development of suburbs outside of cities and job creation. Industrialization and advancement in machinery allowed for more jobs away from the farm, as well as jobs that were usually conducted by humans being taken over by tractors and machinery. More people were drawn to urban settings where there was a larger number of better paying jobs. In the 1900s the workforce was composed of 41% of the population being employed in agriculture in comparison to the 2000’s with only 1.9% of the workforce employed in agriculture (Dimitri et al., 2005).

## The Green Revolution

With advances in technology and a fast growing population after the wars, the “Green Revolution” started a new age of agriculture where production of food was increased in order to feed more people, and drive down food prices. This movement led by Norman Borlaug, a Nobel Peace Prize winner, due to his finding of a strain of wheat immune to diseases, and large production results. This agricultural finding set up the beginning of the Green Revolution, and is credited with saving over a billion lives from starvation. Increase in production was accomplished by the proliferation of irrigation, intense use of chemicals developed for wartime use for efficient crop production, and development of genetically modified organisms. (Conway, 1998) Internationally, there was a development and expansion of “modern varieties” of crops that allowed them to be more pest resistant. Consumers generally saw a decrease in the price of food, and farmers saw a decrease in their costs needed for higher production (Evenson & Gollin, 2003).The green revolution did bring up some negative side effects to the wellbeing of the land. Soil and ecosystems were now at risk due to the intense farming techniques that were introduced. Mono-crops, a farming style focused on not rotating the field with other crops, loss of bio-diversity, streambed alteration, and introduction of toxic chemicals were now more common in agriculture. Overall, the green revolution introduced a style of farming that required more intense technological advances to achieve its goal of fast, cheap, and extensive food production.

As a result of urbanization/suburbanization, increasing global food demand, and intense farming techniques, which came with profound environmental and health costs, people and farmers sought an alternative to connect back to the land and eliminate such an intense industrial method of farming. The idea of sustainable agriculture was born, an agricultural system that focuseson environmentally conscious harvesting, as well as foods that are free of chemical production, genetically modified organisms, and synthetic materials. (Buttel, Larson, & Gillespie Jr, 1990)

## Sustainable Agriculture

Organic agriculture served as one alternative to industrialized agriculture; a countermovement rooted in the excesses of the green revolution, an opportunity for people to consume food without any chemical and synthetic materials. The United States Department of Agriculture throughout time has designated different programs that not only outline the standards for a product to be “USDA Organic Certified” but also provide subsidies for farmers to produce such crops; the year 2010 marks the 10th anniversary of the USDA organic seal (USDA, 2015). Organic follow a set of standards that allow for the food to be harvested without the use of any pesticides and antibiotics.

Another important aspect of sustainable agriculture was the priority of local economies, and local farmers. Food locality had an increase in popularity due to its effectiveness in reducing transportation cost which essentially reduces production’s carbon footprint, but also its power to fuel the local economy by supporting local farmers. In 2009 the USDA rolled out the “Know your farmer, know your food” program, which emphasizes the importance of regionally produced foods, serves as a resource center for grants, loans, and information. Organic and local agriculture also provide an alternative to many concerns individuals have towards industrial agriculture. For example, organic agriculture produces pesticide and chemical fertilizer free food products which are harvested in an environmentally conscious way. Local agriculture allows the consumers to decrease their food miles and economically support their neighbors (local farmers), it allows for the idea of coming back to the land to purchased your food to be accessible once again. Although organic and local agriculture are still slow moving movements, and only an alternative to industrial agriculture, it is one that has grabbed many people’s attention and increased the potential to shift our current food production system. There are also many concerns that come with access to organic and local farming, economic access as well as geographic access, and seasonality are some of the concerns that may limit this movement from growing and becoming something more than just an alternative. Currently, we are seeing a growth in this alternative type of agriculture, and different ways individuals partake in the sustainable food movement (Lyson, 2004). The purpose of this study is to examine the role of CSAs in the sustainable food movement. Its purpose is to evaluate if CSAs facilitate growth in the sustainable food movement. . Does participation in a CSA change attitudes about the sustainable food movement and local food purchase behaviors?

**Human Engagement and the Sustainable Agriculture Movement**

Individuals’ participate in sustainable agriculture in a variety of different ways. Structures such as farmers market, food cooperatives, and community supported agriculture food shares, are different ways individuals’ are engaging in alternative food sources. This study is focused on the impact one of these types of sustainable agriculture has on individual attitudes. Community supported agriculture (CSA) is a popular way for individuals to engage in an alternative from industrial agriculture (Cone & Myhre, 2000). CSA is an organized structure within this sustainable food movement where people can participate and contribute to small farmers by directly purchasing their food from a local farmer. CSAs serve as an opportunity for small farmers to connect with individuals and on a weekly, monthly, or seasonal commitment sell their crops. An individual will decide to purchase a CSA share, and they will receive food harvested from the farmer based on their model agreement. CSAs serve as one of the most direct ways for individuals to interact with their farmers for a longer period of time, in comparison to for example a farmers’ market where they only choose to interact when they decide to go to a farmers’ market. Furthermore, CSAs also have a constant record of who the farmer is interacting with. A lot of CSAs offer home deliveries, or location pick-ups making sure that the farmer is keeping track of their customers’ needs.

In the United States, the state of Vermont leads the locavore movement, defined as a person interested in eating food that is locally produced, a result of individuals organizing and prioritizing food produced by farmers from the area. With the most CSAs per capita (164 CSAs and a population of 622,000) in 2013 Vermont ranks first in the Strolling of the Heifers index, an index that ranks which states are most committed to local foods. In addition, Burlington, Vermont is home to the City Market Co-Op, one of the most financially successful co-ops in the country with an average of 10,500 members/owners. Burlington is also home to the Intervale Center, an organization whose mission is to promote “sustainable land use and engage community in food systems.” These all serve as examples of the growing interest in this area towards sustainable food production in the state of Vermont. This resulting response and organized movement commonly known as the sustainable food movement as well as civic agriculture could have potential effects on individual behavior, and attitude towards food production issues raised by alternative forms of agriculture. Although the sustainable food movement has grown as an alternative for industrial agriculture, there is yet much to be explored about the potential of CSAs and their role in the sustainable agricultural movement at large. To examine these questions, one approach is to analyze the individual changes consumers go through when joining a CSA, to understand the value of human behavior and attitude change, the social psychology literature provides tools to not only predict human behavior but also to understand the possible relationships and effects of participation on CSA growth.

**Social Psychology and Sustainable Agriculture**

Often the best way to understand a movement is to analyze the individual attitudes and behavior among participants. To fully understand the impact CSAs have on this form of alternative agriculture, it is important to look at individual behavior, and define possible indicators that could predict a shift in behavior. CSAs in theory provide an opportunity for individuals to participate in an alternative form of agriculture. There are still several unanswered questions about the impact CSA’s have on the larger picture of sustainable food production. Are CSA’s only successful in a small limited market? Or do they have potential for significant growth that can have an impact on agricultural production in a region, state, or nation? Fishbein and Ajzen’s model of theory of reasoned action provides one approach to answer these questions. The theory states that “action is the result of discrete personal decisions to engage in a behavior.” The main focus of this study is to analyze whether CSA participation is encouraging a shift in individual decisions and to determine the effectiveness of CSAs in promoting an alternative form of agriculture that is healthier, environmentally friendly, and socially responsible.

Examining human behavior and attitude about CSAs and the sustainable food movement can develop a further understanding of the impact CSAs can have on the individual and at large.. Attitude and behavior studies can explain the changes an individual may go through after being exposed to a CSA, or how different they are from the time they started their CSA.

**Human Identity**

Human identity also referred to as the “self” in the realm of social psychology studies. Human identity or the “self” refers to the psychological rather than the physical being; it is an aspect of our human psychological dimension that is composed of our thoughts, feelings, and attitudes. In comparison to other indicators, the self has a secret component, meaning the only way other people will know about your identity is if you reveal that to them unlike, human attitude, social norms or behavior, which can be broken apart through the individuals’ actions (Baumeister, 1999). Identity can also provide very useful information when predicting human behavior. A study was created in order to incorporate identity as part of one of the indicators of the theory of planned behavior due to its value in dictating human intention. An important distinction, one to not get confused by, is the difference between human identity and social norms (Charng et al., 1988). Social norms relate to the societal pressure one faces when formulating an intention or behavior, these pressures can potentially dictate how an individual acts. Social norms can also have a very strong impact since they are formed as a group and an individual could be left out of such group if they are going against the norm. For example, someone may start recycling because all of their housemates recycle and they don’t want to fall outside the norm. It is more trouble for the individual to go against the norm, than it is to recycle. On the other hand human identity is self-directed. An individual identity is based on their own thoughts and preferences, and the only person that has a say or dictates the individuals’ identity is themselves.

By looking at all factors of behavior predictability: attitude, norm, identity, and intention; this study aims to analyze the possible effect CSA has, and answer the pivotal question of the CSAs’ role in the sustainable agricultural movement.

## Theory of Planned Behavior

The theory of planned behavior explains that the intentions to perform a specific social behavior can be predicted by observing human attitude, subjective norms, and behavioral intention. (Ajzen, 1991) This model was developed in order to understand other possible predictors of behavior. Human attitude was deemed as a poor indicator of human behavior, encouraging Fishbein and Ajzen to develop such theory. The theory of planned behavior’s central quality is the individuals’ intention to perform certain behavior. (Fishbein & Ajzen, 2011). Fishbein and Ajzen state that this theory allows for a more complex understanding of predicting a certain behavior by looking at the different components that make-up such behavior.

By utilizing a model based on the theory of planned behavior, one can answer several questions about possible ways to shift human behavior. In this particular study the theory of planned behavior is used to further understand human attitude towards food system, their intentions to partake in the sustainable food movement, and the social norms of the situation to see if they align with their end behavior (Ajzen, 1991; Ajzen & Fishbein, 1977).

Does CSA participation affect attitudes, norms, behavioral intentions and behaviors about the local food movement? Does it strengthen attitudes over time and do those attitudes then increase organic and local food purchase and eating behaviors? To address these questions, the study uses a modified version of the theory of planned behavior model developed by Fishbein & Ajzen. This model prioritizes the importance of human intention in predicting behavior. The model states that human attitudes and norms shape individual intentions. Understanding behavioral intentions are the best predictors of subsequent behavior. In addition to the Fishbein and Ajzen model, another model was incorporated due to the nature of CSA engagement; a movement based on the individual’s self-identity. Local food and organic food movements have a lot to do with individual choices, pride, and identity. Piliavin and Charng developed an updated model of the theory of planned behavior that addresses the importance of identity as one of the factors influencing intention (Charng et al., 1988). This particular study will incorporate the identity factor and test for the value of identity in the theory of planned behavior model.

**The Power of Longitudinal Data and the Theory of Planned Behavior**

This study takes advantage of longitudinal data collected in order to create stronger models of relationship based on the theory of planned behavior. The data collected before and after the CSA season was used to create several variables that expressed the change over time in the participants’ attitude, norm, and identity. Furthermore, due to the nature of data collection the study also has a variable labeled “CSA experience” which was accomplished by looking at the individuals’ behavioral intentions at the beginning of the program, and the perceived behavioral change at the end of the season. By creating the CSA experience variable this study explores the different relationships between variables and the total CSA experience.

The longitudinal data allows for a more complex model which explores relationships throughout time and specific characteristics of the population. The value in creating these types of relationships allows for a more thorough understanding of what the individuals experienced over time, and also the possible effects certain variables have on that change over time. Path analysis was used to explore these different relationships in a variety of different models that were based on the theory of planned behavior models.

The ultimate goal of this study is to not only to understand the change over time among individuals when they join a CSA, but also understand the role of attitudes, norms, and identity in behavioral change. By diving in to the different relationships and behavior predictability, this study will aim to answer the question of: How effective are CSAs in “growing” the local food movement? Furthermore, this research is fully applicable. While working in partnership with the Intervale Food Hub in Burlington, Vermont this study will advance academic research in the realm of food system and social psychology, as well as provide the Intervale Food Hub with possible ways to improve their organization.

# LITERATURE REVIEW

## 1.1 Community Supported Agriculture

CSAs flourished from an idea by Carlo Pietzner and Harmut von Jeetze around 1975. They created a community dedicated to the aid of handicapped adults who incorporated a farm; essentially inspiring a model of farm production for the benefit of the community members. This model spread throughout the United States. Rudolf Steiner brought the concept to USA after his experiences in Switzerland with biodynamic farming. ("Community Farms in the 21st Century: Poised for Another Wave of Growth?," ; McFadden, 2008) In 1985, the first form of community supported agriculture appeared in South Egremont, Massachusetts (Lamb, 1994). As of May, 2013, there were 6,038 established CSAs in the United States *("Locavore Index," 2013)*

CSAs are best defined by Robyn Van En’s formula: “food producers + food consumers + annual commitment to one another = CSA and untold possibilities.” Van En served as a leader in the organic farming movement, and played a key role in the development of CSAs. CSAs have three defining characteristics: the pivotal role of locally grown foods as well as sustainable agriculture, planned ahead subscriptions to the CSA, and scheduled deliveries to subscribers. There are also certain risks both the consumer and the producer face during the harvesting season. Consumers share the risks and benefits of food production. CSA members pay ahead for the CSA services, risking the success of the harvesting season. (Henderson & Van En, 2007)

## 1.2 The Confusing, Quite Unclear, Sustainable Food Movement Jargon

It is important to note that although the sustainable food movement was made popular in the 1970s due to a counter response to the green revolution (Lyson, 2004), there were a lot of buzzwords that appeared from the beginning of the movement until today. Words such as community supported agriculture, civic agriculture, sustainable food movement are often used to describe a movement or type of food production style but are also very commonly misused. An example is the commonly used word for “local food” or the “locavore movement.” The USDA has no instructions on what constitutes an item as local to non-local. Instead, many organizations have taken it upon themselves to define the word local up their standards. For example: the Intervale Food Hub determines that any food item coming from the state of Vermont is considered as local. This trend is very common in other definitions throughout the sustainable food movement. Due to the novelty of the movement a lot of ideas and new words are commonly created with their definitions emerging rather than having their definitions terms set in stone.

## 1.3 The Intervale Food Hub— Burlington, Vermont

The Intervale Food Hub functions as one of the several CSAs in Burlington, Vermont, a CSA created out of the Intervale Center. The Intervale Center serves the community as an area for farmers to harvest, community gardening plots, educational programs, and recreational activities for the community. The Intervale Food Hub has been around since 2007 describing their services as “farmers deliver their products — be they sausages, yogurt, tomatoes, frozen fruit, or kohlrabi — to the Food Hub. Food Hub staffers sort and pack the products into customized CSA shares that are then delivered in handy orange shopping carts right to customers’ workplaces, so they don’t even need to stop at the grocery store on their way home!” In 2008, the Intervale Food Hub reached a total of 205 subscribers and delivered to 7 drop off locations. In 2015 they have grown to have a total of 1100 subscribers and deliver to over 40 different locations and 3 college campuses. For 2016, the Intervale Food Hub has a projected growth of $1.1 million in annual sales with $700,000 returned to Vermont farmers. (Willard, 2013)

## 1.4 Why join a CSA?

CSAs serve as an alternative to industrial farming, allowing consumers to invest in local and sustainable agriculture. CSAs structure also allows for a mutual cooperation between the consumer and the producer. Farmers have to be aware of the consumer base needs, and consumers have the opportunity to build relationships with their farmers as well as invest in local agriculture.

There are several benefits that the Intervale Food Hub advertises as to why someone should join their CSA, including: convenient delivery of food products, high quality foods, and the opportunity to help cultivate a local economy (Intervale FoodHub, 2013). Through several studies regarding individuals’ interests in joining a CSA it has been found that the main motivation is the access to clean, sustainable, healthy food; overall, this is a larger motivator than environmental concerns or the support of local farms. (Brehm and Eisenhauer, 2008, Goland, 2002, Cone and Myhre, 2000, Wharton 2014)

Jane M. Kolodinsky and Leslie L. Pelch (1997) looked at different CSA characteristics; these included price, and recruitment methods, among others. The sample group was Vermonters who were previous CSA members. The results showed that the probability of becoming a CSA member increases by 35% if the CSA is referred to or recommended by word-of-mouth.

Laura DeLind expands the benefits of CSAs to recognize them as a positive “tool and a venue for grounding people in common purpose, for nurturing a sense of belonging to a place and an organic sense of citizenship.” (DeLind, 2002)

## 1.5 CSA and the Economy

CSAs play an instrumental role in economic food markets. CSAs were formed to provide consumers with locally owned produce and organic ingredients. Furthermore, CSAs revitalize the local economy by funding the local farmers and businesses from which the CSA receives the food (Stagl, 2002). CSAs emphasize the importance of locally grown food, and directly source the products from the nearby farms.

A study conducted by Gary Lamb revealed that there are other farmer/consumer benefits, such as the importance of community development through the program. Through the creation of a CSA, farmers and consumers are likely to create a strong bond, which allows the farmers to provide for the needs of the consumers and the consumers to provide a more financially stable environment for the farmers. (Lamb, 1994)

Laura DeLind argues that accomplishing the ultimate goal of civic agriculture is not enough. Farmers get paid no matter the quality of the season, and how much the season allows them to produce. This gives the farmers a stable working wage regardless of the production of the season; this has been a good tool for farmers to have income guaranteed. Yet, DeLind notes that this model is only perpetuating a mentality for the farmers to think of themselves as “entrepreneurs.” The farmers will continue to produce for the “wants,” not solving the larger issue and mission which civic agriculture strives for. (DeLind, 2002) Essentially we need a system where food is driven by moral values such as sustainable growth, farmer rights, and valuable consumer behavior, and this is not necessarily tackled by the supply-demand system we currently have.

DeLind argues that in practice CSAs do not escape the realm of private ownership and accumulation. She furthers her argument by stating “It is not the job of small-scale, alternative farmer-entrepreneurs to feed, clothe, educate, and right the injustices of society while the rest of us clap and cheer and ask to have our green beans delivered washed and herringbone to our doorstep.” (DeLind, 2002) Lind challenges the idea of civic agriculture and the current status of CSAs and states that much more could be accomplished.

## 1.6 CSAs and Human Behavior

Past research has shown that CSA participation has a variety of behavioral outcomes. A survey by Wharton (2002) showed that individuals were more likely to participate in certain sustainable activities such as “recycling, composting, etc” after they became members of a CSA. A variety of studies have also shown that CSA participation creates a shift in the individual’s eating habits, attitude towards outside purchases, and involvement with the family throughout the cooking process. Research among CSAs in California found that 81% of members reported a change in their eating habits after joining a CSA (Perez, Allen, & Brown, 2003). Goland (2002) and Perez et al. (2003) found that people with their new CSA share membership experienced a willingness to try new vegetables. Considering CSA shares may provide individuals with a variety of vegetables they have not been exposed to previously, the results indicated that individuals were trying new types of vegetables as well as new forms of cooking the vegetables they were already familiar with. Furthermore, other studies have shown participants experience an increase in “at-home” eating habits after joining a CSA, as well as increased interest in produce and other local foods of the same caliber as the individuals’ CSA shares (Andreatta, Rhyne, & Dery, 2008); (Perez et al., 2003; Russell & Zepeda, 2008)

Most of the past research has targeted the effects of involvement in CSA on human behavior. Less is known about the effect CSAs have on individual attitude and their perception of food systems after they have been involved in a CSA. The purpose of this study is to expand such research, and analyze possible effects CSA have on individual human attitude, as well as evaluate the role of CSAs in contributing to a sustainable food movement. Human attitudes are complex, and more difficult to measure in comparison to individual behavior, yet human attitudes shed light on individuals’ perception of the world. Simply because attitudes are difficult to pin down and complex doesn’t mean we should disregard them. Attitudes are “fundamental to environmental solutions” (Heberlein, 2012).

## 1.7 Defining Human Attitude

Thomas Heberlein describing a point in his life when he had to describe “attitudes” to those outside of his field of study, he states “I felt like I was trying to describe a ghost.” He continues to comment on how someone mentioned that “they didn’t believe in ghosts, but they are afraid of them.” Heberlein asserts that this is exactly the same approach we should implement towards human attitude. Although they are difficult to pin down we should not disregard them, since they provide a lot of useful information about the individual.

The most thorough definition of an attitude thus far is “as a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object (Fishbein, 1977).” Although this definition gives us a general understanding of what attitude is there are several disagreements in social-science fields as to what else could be defined, affected by, or determined by attitude.

There are four common definitions of attitude throughout the history of social psychology research. First and attitude is a behavior pattern, anticipatory set or tendency, predisposition to specific adjustment to a designated social situation, or, more simply, a conditioned response to social stimuli. (LaPiere, 1934) Secondly, attitude is “A learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object.” (Ajzen & Fishbein, 1977) Followed by, attitude is “An association between a given object and a given evaluation.” (Fazio, 1989) Finally, it is also commonly defined as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor.” (Eagly & Chaiken, 1993)

Similar to the findings of Fishbein and Ajzen, this study aims to uncover other possible indicators of human behavior. Although human attitude serves as a possible explanation of behavior, it should not be limited to it. Looking at the structure of attitude this study will observe the possible reasons as to why human attitude may or may not shift.

## 1.8 Attitude Structure

Attitudes are neither homogeneous nor one directional; instead they are complex and can be affected by different variables for example: personal experiences, religion, family values, childhood upbringing (Allport, 1935). Understanding the structure of human attitude allows to Attitude structure is formulated by three classes— cognitive, emotional also known as “affective”, and behavior also commonly known as “conative”. (Eagly & Chaiken, 1993) The cognitive component relates to the attention, knowledge, and memory of the particular object the attitude is formed towards. The affective or emotional component refers to the feelings or the experience an individual might have encountered towards the particular object. Finally, behavior relates to individual’s actions in respect to the attitude object.

Nested within the cognitive, affective, and behavioral dimensions are other components such as salient beliefs, values, previous knowledge, and the strength and relationship of these components. Attitudes are learned, humans cannot have an attitude towards a specific object until we encounter that object, once it is encountered based on the experience we develop an attitude towards the object. The evaluative factors of these categories are as follows:

### *1.8.1 Cognitive Types*

Cognitive components are evaluated through the array of beliefs an individual may have towards an object. Beliefs are known as the associations that people establish between the object and various attributes of the object. (Ajzen & Fishbein, 1977) Although beliefs serve as a measuring tool for attitude towards an object, research suggests that an individual is capable of attending to or processing only five to nine items of information at a time; these five to nine beliefs are known as salient beliefs (Eagly & Chaiken, 1995; Petty & Krosnick, 2014). Although it is possible that an individual may process more than nine beliefs, the probabilities of this happening are unlikely. Beliefs serve as an evaluative measurement towards the cognitive component of attitude structure but are considered to be a rather weak measurement of an individual’s total attitude towards an object.

### *1.8.2 Emotional or Affective Type*

The evaluative responses for this type consist of feelings, mood, emotions, and “sympathetic nervous system activity” that individuals encounter in relation to attitude objects. Such evaluations relate to the positive or negative outcome an individual has towards an attitude object. For example, if individuals have an experience with positive affective reactions, then they most likely have a favorable evaluation towards an attitude object and vice versa. (Eagly & Chaiken, 1993)

### *1.8.3 Behavioral or Conative Type*

These elements relate to the individual’s overt actions in relation to the attitude object; they can also encompass the intentions. Similar to the affective type elements, if an individual holds a favorable reaction towards the attitude object, then the intention or overt actions are much likely to be positive. (Eagly & Chaiken, 1993) Behavioral type allows understanding and predicting possible behavioral traits in relationship to the individuals’ attitude.

## 1.9 Attitude Strength

Human attitude can be broken down into several components, after understanding all these pieces we can evaluate human attitude towards a specific object by quantifying the attitude strength. Attitude strength is composed of different properties; the relationships towards other properties and representation of them within the attitude structure is what makes attitude strength so important (Krosnick, Boninger, Chuang, Berent, & Carnot, 1993). Raden divides strength into seven different properties: intensity, direct experience, accessibility, affective- cognitive consistency, importance, crystallization, and stability (Raden, 1985). Both Raden and Krosnick argue that although these two separate models present individualistic components of attitude measurement, it is important to note that the key component is the relationship to one another, the main indicator of attitude strength. The consistency between properties and the relationship between those properties is what allows us to understand the strength of the attitude in question. (Krosnick et al., 1993; Raden, 1985)

Certain relationships shed light on the likeability of change in attitude based on the properties taking place. Rosenberg presents the importance of the correlation between cognitive and affective orientations. He presents the theory that the consistency between these two components of attitude structure is likely to provoke a stronger attitude with more certainty and one that will be more stable (Rosenberg, 1956). Other findings include the relationship between intensity, explaining that magnitude, which is the evaluative item for intensity, consistency of magnitude and direction can paint a stronger image of behavior projections. Other elements of attitude strength vary in correlation to the relationship of the other elements. It is important to note all of these relationships since attitude strength is dictated by them. Attitude strength will let us know the likeability of change in attitude, and the durability of that particular attitude. When the relationship among properties of the attitude structure is consistent, then the attitudes are most likely to be stable and more difficult to change. The same argument relates to structures and relationships that are weak and inconsistent, making attitude change more likely; for example, introducing new knowledge or information when an individual has weak understanding of the issue.

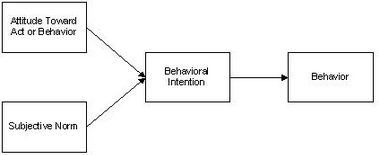
## 1.10 Theory of Planned Behavior

Many times it is in our best interest to predict behavior. It not only allows us to predict future behavior of a group of individuals, but also explains possible ways to shift the target behavior. For the beginning of times in the realm of social psychology it was believed that human attitudes were a key indicator in human behavior. Fishbein and Ajzen researched other possible indicators to human behavior, and refuting the theory that human attitude is everything instead the theory of planned behavior proved that attitude are the best indicator of human intention, and intention is the best indicator for behavior.

The theory of planned behavior by Fishbein and Ajzen (1977) allowed for a theoretical approach that answers those behavioral prediction questions. The theory of planned behavior states that to understand human behavior, we need to observe several different factors: human attitude, norms, all of these serve as good indicators of human intention. (Fishbein, 2011) Fishbein and Ajzen argue that human intention is the best indicator for behavior.

This study uses TBP and tests its validity of whether a CSA has a strong enough impact to predict positive sustainable behavior among individuals. By focusing on the model, strength of relationship from the different factors can be derived to understand the forces that predict a specific type of behavior. Understanding the complexity of how behavior is shaped allows for a more complex image of how individual makes a decision. TPB can be interpreted in a visual model as seen in figure 1 or as a formula in figure 2.

Figure 1: Theory of Planned Behavior Fishbein and Ajzen (1977)



After the theory of planned behavior was published, a group of social scientist added to the predictive power of the model including another important to component in order to predict behavior. Identity is known to be the core factors of what the individual values, and make a part of who they are. Identity was included in the theory of planned behavior model in order to expand the different factors that compose the formula to prevent behavior. “Identity theory is based on the premise that one’s behavior is the product of an interaction process whereby definitions of self, other, and the social setting are worked out” (Charng, 1988 ). According to this version of the model, identity works alongside attitudes and norms to provide a better prediction of behavioral intentions; the visual representation of this model can be seen in figure 2.

Norms T1

Attitude T1

Identity T1

Intention T1

Behavior T1

Figure 2: Updated Theory of Reasoned Action Model including Identity (Charng, Piliavin, & Callero, 1988)

### 1.10.1 The CSA Experience

The purpose of this study is to explore the overall experience of individuals in comparison to their current social norm, individual attitudes, identity, and intentions of change. To measure their CSA experience, an outcome variable was created which compared what individuals wanted to get out of a season of CSA participation, and whether they actually succeeded at meeting such goals. This variable is a unique way to not only measure the CSA experience outcome but also explore the different factors that may have a positive effect on it.

## 1.11 Hypothesis

The models tested in this study in order to predict human behavior after exposure to a CSA are a combination of the Fishbein and Ajzen model as well as the Charng, Piliavin model which includes identity as one of the measuring factors (Charng et al., 1988).

The major hypotheses underlying this research are as following:

1. CSA participation will strengthen attitudes and increase local/ organic food purchases and eating.
2. Participants’ attitude, norm, and identity at time 1 will be positively related to intention and intention which will positively affect behavior at time 1.
3. Those with stronger attitude, norm, and identity scores at time one will be more likely to believe at time 2 that their CSA experience improved their local food purchasing and eating habits.
4. Attitudes, norms, and identity at time one will positively affect behavior at time 2.
5. Those with stronger purchasing and eating behaviors at time 1 will have stronger norms, attitudes, and identities about CSA participation.
6. Those who believed that their CSA experience improved their local food purchasing and eating habits will have stronger norms, attitudes, and identity scores at time 2.

# CHAPTER 2: METHODS

To address these questions, this research used a pre-test, post-test experimental design administered at the beginning of the fall and spring CSA seasons and then again at the end of these CSA season. Furthermore, the theory of planned behavior was implemented and tested throughout the study in order to analyze any possible correlation between the different independent and dependant variables.

## 2.1 Study Site

The Intervale Food Hub was designated as the CSA for this study, in specific the University of Vermont pick-up location. The Intervale Food Hub delivery site at the UVM campus provided a convenient contact point for survey participants throughout different survey methods.

The Intervale Food Hub is a CSA housed under the Intervale Center in Burlington, Vermont, a non-profit organization designed to promote sustainable agriculture. The Intervale Center serves as a space for farmers to harvest their food, a shared community garden space, as well as educational opportunities for the community. The Intervale Food Hub sources food from different local farmers and provides a food share delivery business to their members. The Intervale Food Hub’s mission is “… to strengthen the relationship between you and your farmers. We believe in “community supported agriculture”.” The Intervale Food Hub sources its food from 45 individual farmers from around the Burlington area; some of these farmers are located at the Intervale Center. The Intervale Food Hub delivers to over 40 workplace and pick-up locations in Burlington, as well as three college campuses; University of Vermont being one of them.

**2.2 Sampling**

The population for study is all Intervale Food Hub CSA participants. The Intervale Food Hub services over 1000 members in the Burlington, Vermont area. A subset of 150 individuals was selected to represent the population of the study. The Intervale Food Hub University of Vermont location was selected as the CSA for this study. Participants were selected by inviting all CSA participants to take part in a survey. Individuals that took the pre-survey were then asked at the end of the CSA season to take a post-survey.

### *2.2.1 Contact*

Study participants were contacted via different communication tools: CSA newsletter, email, and face-to-face. The first contact method was administered via the Intervale Food Hub Newsletter; a link was included inviting members to take the survey. The second round of contacts was administered through a personal email, detailing the importance of their participation, and encouraging them to answer the online questionnaire. Finally, the last round of contacts took place in person the first day of the CSA pick-up. With the help of student volunteers, CSA participants were asked to take a paper survey when they came to pick up their first basket of vegetables.

This study was based on a panel study design. The same people were contacted for the pre-survey as well as the post-survey. To collect the post-survey responses, a list was assembled based on the participants that responded to the pre-survey. Participants who responded to the pre-survey were then asked to fill out a follow-up survey at the end of the CSA season in order to compare their responses. Participants were emailed, contacted via the Intervale Food Hub email, and asked in person the last day of CSA pick-up to take the post-survey. The post-test contact protocol was the same as the pre-test.

In addition, participation was encouraged by implementing the use of incentives. A grant from the Rubenstein School of the Environment and Natural Resources funded the purchase of four $25 Farmhouse Tap and Grill (a local high-end restaurant) gift cards, raffled out to the post-survey participants.

## 2.3 Response Rate

The fall semester CSA had a total of 135 customers. The pre-survey was taken by a total of 71 participants; out of those 71 participants 54 individuals took the post-survey at the end of the semester. The pre-survey had a 52% response rate, and the post-survey saw a 40% response rate. The spring semester CSA had a total of 96 customers. A total of 84 costumers took the pre-survey; out of those participants a total of 60 took the post-survey. The pre-survey had an 87.5% response rate, and the post-survey had a 62.5% response rate.

### 2.4 Dependent Variable: Behavior

A series of questions were asked about participants’ cooking, purchasing, and food preparation habits. Participants were asked to rate the frequency of such habits or the likeability of such habits to take place. For example: “How often do you cook your own meals?” The measuring scale for these set of questions ranged from 1 = extremely unlikely to 5= extremely likely.

### 2.5 Independent Variables (Norms, Attitudes, Intentions, Identity)

Questions which asked the participant to rank their preferences, and note in a scale how they felt about a particular statement. For example: “I prefer the taste of organic food over the taste of conventional food” The measuring scale for these set of questions ranged from 1 = extremely disagree to 5= extremely agree. This section also included questions which targeted their intentions and expectations of change by the end of the CSA season. For example: “How often do you intend to go out to eat this semester?” Participants were asked to rank their preferences which were coded with a scale of 1 to 5. For example, 1 = strongly disagree to 5= strongly agree. A paired t-test analysis was conducted in order to find any significant changes from the pre-survey to the post-survey.

### 2.6 Change over Time Variables

One of the theoretical models of this study explores the possible relationship of difference over time the individuals’ experienced. The change over time for norms, attitude, and identity were calculated by finding the difference between the T1 variables and T2 of both fall and spring semester together. To calculate the variable “change of norm over time” the questions identified by the factor analysis as norm questions were merged by semester, then the difference of each question was calculated, and then all of the individual differences were added to calculate a “change of norm over time” variable. The same procedure was done for the attitude, and identity variables. This allowed for three different variables that quantified the change over time in each category.

### 2.7 Other

This set of questions included a range of socio-demographic questions to have a better understanding of the composition of participants. Questions asked about the amount of people they cook for to their own definition of “local” food. The purpose of these questions was to note any possible additional relationships between the participants and experiences throughout the CSA season. Also, questions in regards to their family background were asked in order to measure any possible effect of family upbringing on the participants change over time.

### 2.8 Analysis

The survey results were analyzed using SPSS statistical package, by conducting a paired t-test. Survey answers were matched based on email addresses in order to guarantee the same person responses for the pre-survey and post-survey. After all the different questions were analyzed, a t-test was conducted and used to compare any significant differences between the differences between fall semester surveys and spring semester surveys.

Questions were formulated using the theory of planned behavior. (Fishbein & Ajzen, 2011) T The survey was divided into several categories with questions about individual’s purchasing preferences, their social nature of eating, food identity and values, and their behavior intention in regards to their participation with the CSA.

### 2.9 Survey Design

The survey consisted of a total of 25 questions, which asked the participant to rank their opinion in a Likert Scale style question. Participants’ were also background questions about such as age, gender, occupation.

Following are the different models that were tested by using the final data

**Figure 3: Model 1 Path Model Fishbein and Ajzen plus Chargn and Piliavin**

Norms T1

Attitude T1

Identity T1

Intention T1

Behavior T1

**Figure 4: Model 3 Path Model to test Behavior T2**

Norms T1

Attitude T1

Identity T1

Intention T1

Behavior T2

Figure 5: Model 4 Test Relationship between CSA Experience and Change in Norms, Change in Attitude, and Change in Identity

CSA Experience

Change in Norm over Time

Change in Attitude over Time

Change in Identity over Time

Using the Theory of Planned Behavior (Fishbein & Ajzen, 1991), four categories of questions were designed for the quantitative component of the study:

# CHAPTER 3: RESULTS

## 3.1 Fall Semester Survey Results

### *3.1.1 Participant Characteristics*

The age of the participants was predominantly between 20 and 21 years old (56.6%). A large number of respondents were first-time members of the Intervale Food Hub CSA program (72.5%); most participants lived-off campus (83%). Considering the location of food pick-up at the student union (Davis Center) there was also participation from non-UVM students such as faculty and staff (13.6%). Every survey participant indicated that they had access to a kitchen and a refrigerator.

### *3.1.2 Individuals’ Cooking and Purchasing Behavior*

Cooking behavior was affected by participation in the Intervale Food Hub CSA. Participants were asked at the beginning of the season about their cooking habits, and after the season ended participants were asked again about those same cooking habits. A paired t-test identified the difference between the first time survey (time 1) and the post survey (time 2), which was conducted after nine weeks (Table 1). From the data we can assume that cooking behavior changed over time. For example, participants were cooking less of their own meals after a season of exposure to the CSA (time 1= 4.1 and time 2 =3.22; t= 8.23, p < .01). Individuals cooked less with items they were not familiar with (time 1 = 2.75 and time 2 = 1.85; t= 7.31, p < .01). Finally, participants were fully taking advantage of the food purchased and producing less trash/ compost (time 1= 2.29 and time 2= 1.31, t= 8.30, p < .01).

Participants were questioned about their cooking skills, and the results showed that there was no significant change over time. Also participants were asked about whom they were cooking for and how often they were cooking their own meals. These indicators also showed no significant change over time.

Participants were also asked questions about their food purchasing patterns aside from their CSA. Results show that there was no significant change in the amount of “organic” or “local” food they purchased between time 1 and time (Table 1).

### *3.1.3 Individuals’ Attitude towards Local and Organic Food*

Participants were asked about their attitudes about organic, local, and conventionally grown food. Other questions related to the social norms they encounter, their food identity, and their preferences in food preparation and consumption. Results show that there was no significant change between the T1 survey and T2 survey. The only evident significant change in this set of responses was in relationship to individuals’ attitude towards joining the Intervale Food Hub (Table 2). Individuals did not seem to have any significant change in their particular attitudes for food. For example, individuals’ attitude towards the health benefits of organic food in comparison to conventional food seemed unchanged. Furthermore, other categories where individuals responses showed no significant changer where those in regards to their preferences, social norms, and individual identity.

## 3.2 Spring Semester Survey Results

### *3.2.1 Participant Characteristics*

The age of the participants was predominantly between 20 and 21 years old (57.3%). More than half of the survey participants were first-time members of the Intervale Food Hub CSA program (58.0%); most participants lived-off campus (88.4%). Each survey participant indicated that they had access to a kitchen and a refrigerator.

### *3.2.2 Individuals’ Cooking Behavior*

Results showed that there was no significant change in the spring semester sample group. Participants showed no significant change throughout the spring semester (Table 3).

Results show that there was no significant change in the amount of “organic” or “local” food they purchased from the time 1 survey to the time 2 survey (Table 3).

### *3.2.3Individuals’ Attitude about Local and Organic Food*

Participants were asked about their particular attitude in relationship to organic, local, and conventional grown food. Results show that there was no significant change between the T1 survey and T2 survey (Table 2). Similar to the fall semester individuals’ attitude, food purchasing patterns, and preferences seemed significantly unchanged. Throughout the semester the individuals’ purchasing preferences, behavior, and attitude towards the CSA did not shift significantly. This finding is similar to the fall semester findings considering during both semesters none of the questions in this section of the survey had significant change over time.

## 3.3 Theory of Planned Behavior Models

By using the theory of planned behavior model, data were tested for causality between individuals’ norms, attitude, identity, intentions, behavior, and the CSA experience. Theoretical models were then adapted to analyze any possible relationship between individuals’ behavior at time 1 and change over time in norms, attitudes, and identity. Also, an additional model was created to examine possible relationships between the CSA experiences and change over time in individual’s norm, change in over time in individuals’ attitude, and change over time in identity.

### 3.3.1 Model 1

Figure 6 presents the results to testing the theory of planned behavior model. The results indicate that the data do not completely support the expectations of the theory of planned behavior; As predicted by the model, organic and local food norms were positively related to behavioral intention (**β=** 24 sig <.05). Identity also had a positive relationship with behavioral intention (**β=** .27 sig <.05). The main contradiction to the theory of planned behavior, however was that attitudes were not correlated to behavioral intention. Moreover, there was no significant relationship between intentions and behavior. In addition, there was a positive direct effect of identity with behavior.

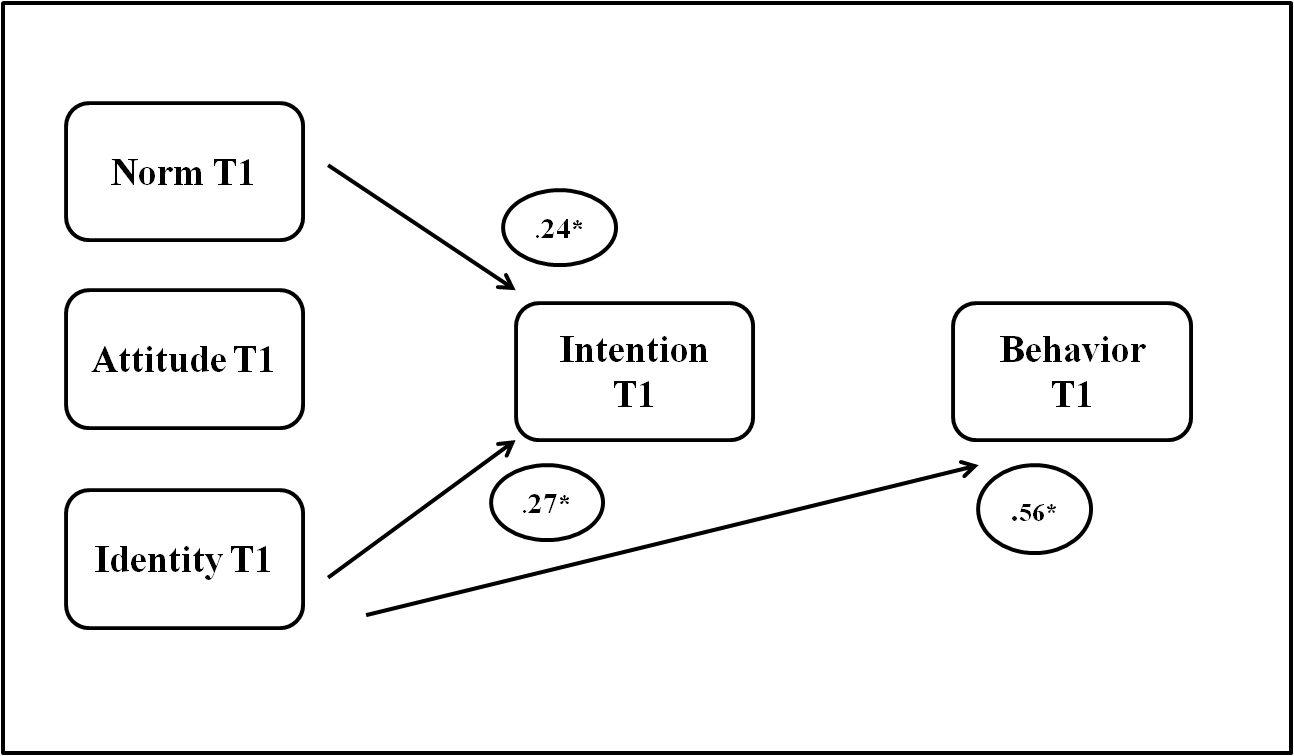


Figure 6: Model presenting the results of the theory of planned behavior. Dependant variable: Behavior Time 1.

### 3.3.2 Model 2

If the data failed to support the theory when behavior at time 1 is the dependent variable, will the data provide more support for the theory when behavior at time 2 is the dependent variable? Model 2 examines this question: do an individual’s attitude, norms, identity, and intentions at the beginning of the CSA season affect their purchasing and eating behaviors at the end of the season (time 2)? The results showed that there was no significant relationship between an individual having a positive attitude towards purchasing organic/local food and sustainable food behavior at T2. The results also show no significant effects of intentions on behavior at time 2. Finally, this model indicates that there was a strong direct effect between identity at time 1 and behavior at time 2 ( β = .33 sig <.01). In short, the results tell the same story as in Model 1: behavioral intentions at time 1 had no effect on behavior at time 2, while identity had a direct, though slightly weaker effect on behavior at time 2.

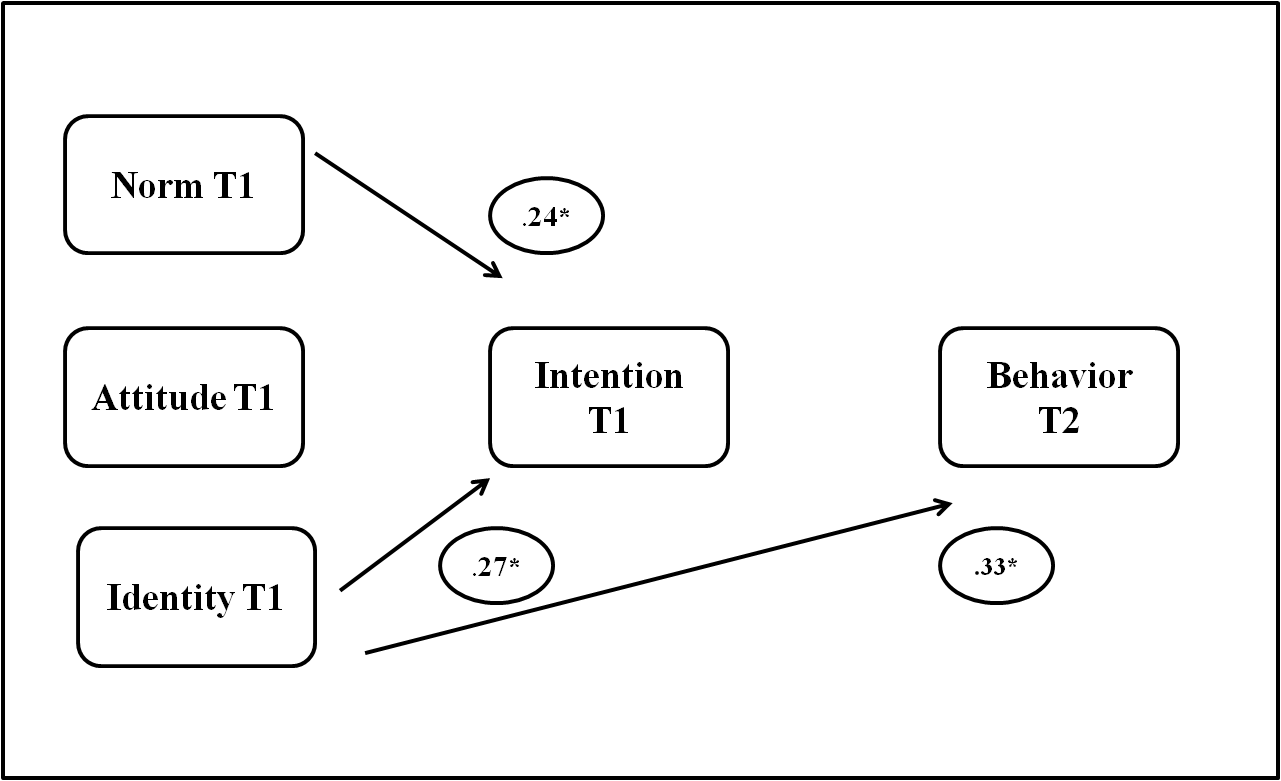


Figure 7: Model presenting the results of the relationship path model. Dependant variable: Behavior.

### 3.3.3 Model 3

Model 3 tests any relationship between the overall individual CSA experience and change over time of the individual variables. Change in identity overtime had a strong direct relationship with the individuals’ CSA experience. (β= .23 sig <.05) This means that the more successful a CSA experience an individual had, the more likely they were to experience change over time in their identity. Finally, the model provides evidence that there is a relationship between CSA experience and change in behavior over time (β = .24 sig < .01). Essentially, this result shows that the more likely you are to have a positive CSA experience the more likely you are to experience a change in behavior over time.

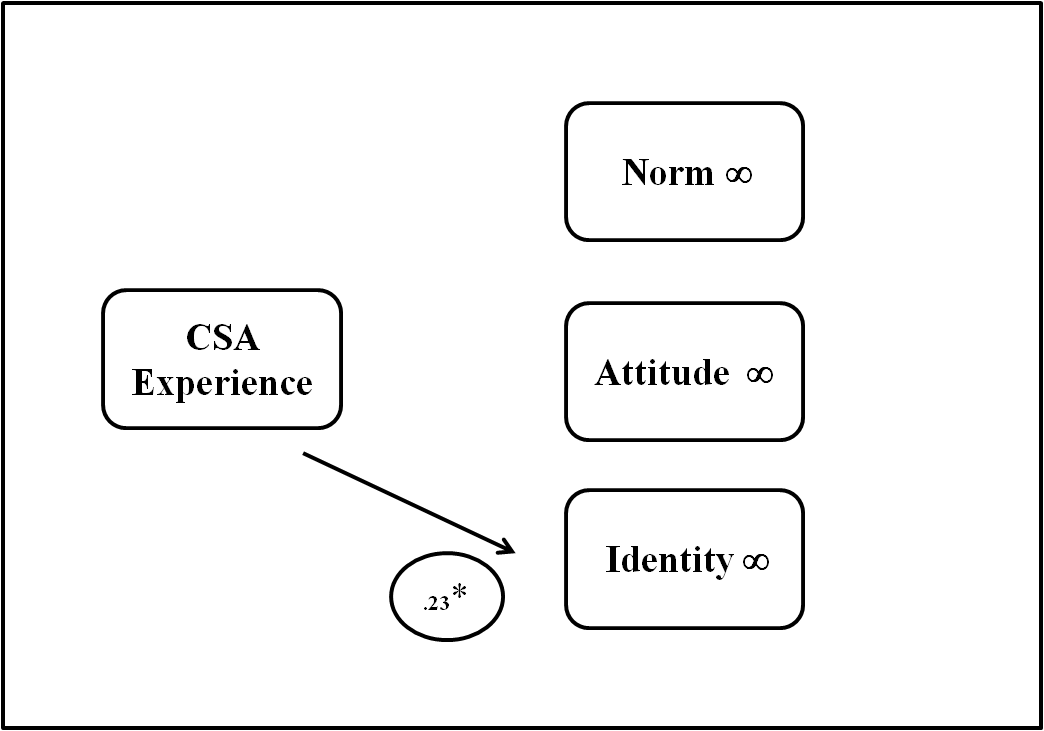


Figure 8: Model presenting the results of the relationship between CSA experience and the dependant variables: change over time in norms, change over time in attitude, and change over time in identity.

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# CHAPTER 4: DISCUSSION

# 4.1 Hypothesis 1: CSA participation will strengthen attitudes, norms and identity and increase local/ organic food purchases and eating.

This hypothesis was not met.

Fall semester participants cooked less after spending a semester in the CSA. An explanation to this trend could be tied to the number of people they share their CSA with, allowing them to cook less of their own meals and share the cooking duties with their roommate, it may also be possible that the individuals got tired of cooking their own meals. Fall semester participants were also throwing out less food in comparison to when they first joined the CSA. Spring semester participants did not show any significant change in any of these types of cooking behavior. There are many variables that could attribute to this difference. The mere fact that both seasons provided very different share of vegetables and one included more food than the other has a potential to ignite different behaviors among the individuals.

An important caveat to note is that although the fall semester participants noticed a difference in behavior, there needs to be further research conducted that would shed some light on the endurance of this behavior. It has been portrayed in several pieces of literature (Ajzen & Fishbein, 1977; Heberlein, 2012) that behavior is constantly changing, and that although one may find a type of behavior change, it doesn’t necessarily reflect attitude change.

## 4.1.1 Individuals’ Purchasing Behavior

Both fall and spring semester surveys showed no significant change among individuals’ purchasing behavior. A possible explanation to this finding could be that at this time participants were not purchasing much food outside of their CSA share. Furthermore, another possible explanation is that participants did not change their behavior because they were already doing the things they were asked about such as purchasing local, and organic food. Further research could take place which explicitly asks participants to outline their most common grocery products before and after exposure to a CSA for a season.

## 4.1.2 Individual’s Attitude Regarding Local and Organic Food

In both CSA seasons the data showed that participants’ attitudes towards local and organic food showed no significant change. Individuals’ attitudes were unchanged throughout their exposure to a whole season of a CSA. Many things could be attributed to the lack of significant change in an individual’s attitude. Human attitude relies on many different variables that may play a key role on changing such attitude. Possible explanations could lead to the duration of the CSA, the strength of education materials that participants were exposed to, the enthusiasm participants maintained throughout the CSA, or other circumstances not accounted for in the survey. Another good reason why individuals did not experience a significant change in their individual attitude is attributed to the preaching to the choir dilemma. A lot of individuals chose to be part of a CSA meaning they had a deep interest in this program, making it more difficult to change their attitude considering they were pre-disposed to positive perception of the sustainable food movement.

# 4.2 Hypothesis 2: Participants’ attitude, norm, and identity at time 1 will affect intention and intention which will positively affect behavior at time 1.

The results did not support this hypothesis. The only variable to have a significant relationship to human intention were norms and identity but the identity factor was the only one related to human behavior. The theory of planned behavior did not hold true in this particular study, making it as a weak model to predict behavior.

A possible explanation for this effect is the lack of strength among the individuals’ attitude and norm. This particular section of the study asserts the importance of human identity, and it’s value in predicting human behavior (Charng et al., 1988). The results of this model assert the importance of identity, and its power of relationship towards behavior. With a very strong correlation, identity is the only factor in the study that creates that connection. One of the reasons why human identity was so crucial to this model is due to the deep connection we as individuals have we food. As humans we need food to live, and we are constantly eating at different parts of the day – food is a strong part of our identity. This model reasserts the importance of human relationships to food and its strong predictor being human identity.

**4.3 Hypothesis 3: Attitudes, norms, and identity at time one will positively affect behavior at time 2.**

This hypothesis can be rejected since it replicated the same effects as the Hypothesis 2. The path model shows that attitudes and norms did not affect behavior at time two, only identity did. An explanation for this specific phenomena goes back again to the idea of human identity. The more the individual feels that a certain act, or belief is embedded to who they are the more likely certain behaviors may appear, and strengthen those notions. (Charng et al., 1988) Human identity once again proves to be a valuable indicator of predicting behavior, and also a very important tool in encouraging change and having a positive CSA experience throughout the season.

**4.4 Hypothesis 4: There will be a positive relationship between behavior at time 1 and the change over time in norms, attitude, and identity.**

This particular hypothesis did not hold true, there were no significant effects between behavior at time 1 and change over time in attitudes, norms, and identity. This specific model explores the beginning behavior of the individual at the start of the CSA experience and the possible effect it may have throughout time. Again, a reason why this may have occurred relates back to the “preaching to the choir” dilemma. CSA participants are highly motivated with strong personal identities. There is probably not much room for “improvement” or shift in their individual qualifiers among this crowd.

# 4.5 Hypothesis 5: There will be a positive relationship between the CSA experience and the change over time in norms, attitude, and identity.

This hypothesis only proves to hold true for a positive relationship among human identity and behavior. Individuals that are more likely at realizing their time 1 intentions are more likely to develop stronger identities, and more positive behaviors towards the sustainable food movement.

These sections of the study uncover a possible positive feedback loop. For example: the more likely one is to have succeeded at eating your vegetables, and fully utilizing your CSA the more likely you are to be proud about the sustainable food movement and continue to partake in alternative forms of agriculture. Essentially, individuals have shown to have a strong relationship among identity and other factors, and we can assume that such identities are strong since they chose to sign-up for a CSA in the first place but what this specific result is assuming is that by participating in the CSA this identity is potentially stronger.

CSA organizations, such as the Intervale Food Hub, can benefit from understanding how individuals could benefit from the CSA experience and also how to grow such organization. By understanding the importance of human identity CSA organizations could capitalize on the potential of growing the organization, i.e. more subscribers bringing in larger revenue, by playing into their customers’ identity, and even possibly create a CSA identity of their own. One of the most challenging aspects of what these results suggest is the complexity and difficulty of tapping into the process of identity formulation and maintenance. Human identity is embedded, and it is defined by the individual themselves, their preferences, desires, and what they value to be part of who they are. Coming in as a third party organization it is important to understand individuals’ identity, and from there on build off of that to change behavior or have a positive CSA experience. CSAs should not be trying to change human attitudes. The results of this study show they should be trying to build identities in their promotion efforts. This will allow them to have a consistent consumer base, and also expand as an organization.

# 4.7 How effective are CSAs in “growing” the local food movement?

Overall, the study showed that the Intervale Food Hub CSA has very little impact individual behavior, and change in attitude, norms, and identity. Essentially, the primary finding of the study is the importance of human identity in CSA participation behaviors. The descriptive analysis showed that there wasn’t strong enough or large enough significant changes in attitude and behavior in order to deem this specific CSA as an individual changing experience. That being said there are many reasons why this wasn’t the case. Instead, human identity was the stronger effect, not only on behavior at time 2 but also on the overall CSA experience. By looking at these results the Intervale Food Hub CSA is capable of expanding, and having a larger impact on the individuals’ lives as well as the larger picture of the sustainable food movement. The Intervale Food Hub can capitalize on the importance of food relationships and identity, in order to grow they will need to engage and emphasize the importance of food and identity. Part of their marketing efforts should be directed towards branding their organization as an embodiment of the individual’s identity.

Although human attitude and norms can tell us a lot about the individuals’ purchasing preferences, and eating habits, human identity was the main factor in the study. The way an individual purchases food, eats it, and shares it with others has a lot to do with “self-identity” and the pride that goes into the whole food production process (DeLind, 2002; Lyson, 2004). In order for CSAs and sustainable agriculture shift to a norm of food production, CSAs must create an environment where the individuals’ identity grows and becomes stronger. . The key factor is not only engaging the same individuals that already have this built identity, but how to attract other people that may have weaker identity towards the sustainable food movement and strengthen it over time in order to have a consistent behavioral change.

# 4.8 Future Research

It is possible that most people that sign-up for CSAs have an interest in sustainable food movement, or strong nutritional diets making their initial attitudes difficult to become stronger by the end of a CSA season. An ideal survey situation would be to involve people who are unlikely to join a CSA on their own, and observe their attitude changes throughout a semester.

Basing the study on only one CSA is another limitation of the study. Due to the lack of resources the surveys could only be repeated through the Intervale Food Hub CSA, limiting the variety of participants and types of CSA participants were exposed to. A possible more thorough analysis should include a variety of CSAs.

Harvesting seasons and farm location of the products also play a strong role in the limitation of the study. People who are used to winter vegetables and have grown up in a culture that is mostly common with winter vegetables may have a higher preference of CSAs that provide similar foods. CSA’s products will vary based on the location of the CSA and the season in which the consumer decided to join, making it a different “treatment” every time a participant joins a CSA. For example: in the summer months participants could experience a more varied CSA share in comparison to the winter CSA where the participant would receive more root vegetables if said CSA is located in New England.

# 4.9 Conclusion

The overall result of this study shows that individuals saw no significant change in behavior or attitude through time. Instead, the main finding of this study proved that human identity has a very strong relationship towards the individuals’ CSA experience, behavior at the beginning of the CSA season, and behavior at the end of the CSA season. The results of this study are fitting to the social psychology literature on attitude and behavior change, adding to the known findings that human attitude and behavior are very difficult to change.

Human attitude is a difficult component of an individual to change. There are a lot of different aspects that compose human attitude, making it complex and difficult to pin down what attributes to the lack of attitude shift. Herberlein makes a good point when he states: “Simply because attitudes are complex and difficult to pin down doesn’t mean we should disregard them.” If anything the lack of attitude shift opens up a whole new set of questions for further study and research into the possible ways CSA can shift human attitude. Looking at the structure of this CSA it is possible that educational materials were not strong enough to persuade an individual to change their views on local food, or perhaps the CSA structure is only one that invites people with already strong attitudes making it more difficult to change.

The study also shows the different relationships between the factors of predicting behavior. The main takeaway from testing the different modified models of the theory of planned behavior is that identity drives any significant finding. This is a crucial finding considering attitude tends to be the initial component when looking at behavior predictors. Human identity in this particular study was the strongest and most significant correlation towards behavioral intention, behavior, and CSA experience. The results also affirmed that most factors: attitude, intention, and behavior T1 have a significant relationship with the CSA experience overall, meaning they are good indicators of change. Behavior had a negative correlation with CSA experience, which proved the “preaching to the choir” dilemma of the study. Due to individuals selected for the study had originally an interest for the CSA they are less likely to experience change, since they are already doing certain positive behaviors. Finally, the relationship of the CSA experience and the change over time the individuals experienced, there only was a significant relationship between individuals change in behavior over time, and individuals change in identity overtime. This assumes that the more positive an individual places on their behavior change or identity change throughout the semester, the more likely they are to have a positive CSA experience.

The study also introduces a new idea of identifying the CSA experience from both a quantitative perspective, and a qualitative perspective. By utilizing both survey data the study presents an indicator of outcome, and a possible way of quantifying the CSA experience overall. The qualitative analysis of the study allows for a visual representation of the variable, allowing not only the audience to understand what the CSA experience looks like but also understand the popular patterns taking place among participants.

CSAs have a certain impact on the individual and that they do play a role in introducing individuals to the idea of sustainable agriculture. Most of the participants in the study voluntarily signed up for a CSA, so they had an interest in being part of a CSA. This could potentially lead to a small attitude shift since individuals already held certain strong attitudes. Furthermore, CSAs can vary from many different places, which allows for different vegetables and seasons, as well as the people consuming these vegetables. In order to understand the true impact of CSAs at large, and the role they play in the sustainable food movement a study should be constructed where there is enough variety in the different types of people and CSAs.

This study offers a first step in understanding human and CSA interactions in relationship to their social psychology. The findings of the study will help shape the Intervale Food Hub’s CSA program in order to effectively persuade individuals to adhere to the mission of sustainable food purchasing and cooking. More research should be conducted to potentially to define the possible ways of shifting human behavior and attitude towards food relationships. It also highlights the importance of human identity and the strong impact it has in regards to predicting human behavior.