

Spring 2014

Food Recovery through Donations as a Response to Food Waste: A Case Study of Two Grocery Stores Participating in a Food Recovery Program in Boulder

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Food Recovery through Donations as a Response to Food Waste:
A Case Study of Two Grocery Stores Participating in a Food Recovery Program in Boulder

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A thesis submitted to the
University of Colorado at Boulder
in partial fulfillment
of the requirements to receive
Honors designation in
Environmental Studies
May 2014

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Abstract

With the amount of food waste generated in the U.S. continually increasing, the misuse of food along each stage of the food lifecycle has become a serious environmental, social, and financial issue. One response to the issue resides in diverting generated food waste away from landfills by recovering edible food through donations. In Boulder, various grocery stores partner with Community Food Share, the local food bank of Feeding America, and Boulder Food Rescue, a nonprofit direct food rescue organization, for the collection and redistribution of food donations to charitable agencies feeding the hungry. Specifically, Boulder Food Rescue experiences variations in success that relate to differences in how grocery stores implement the food recovery program. Through a survey, informal interviews, observations, and data on donations, the case study seeks to determine what factors affect how the food recovery program functions at the grocery store level. Under the framework of socioecological theory and the theory of self-determination in relation to work motivation, the study identifies the organizational contexts of two grocery stores participating in food recovery and how their work environments either discourage or encourage the employees' internalization of the act of donating.

Preface

After I was introduced to the issue of food waste during my first year at the University of Colorado, I've been acutely aware of it both within my own actions and, more specifically, in the actions of the various restaurants I've worked for over the past few years. From having a close relationship with food service, I've become even more conscious of the waste generated at this level of the food industry. It always shocked me how much food gets discarded every day, especially when, as an employee, I was constantly reminded to minimize costs while the store ignored the potential to do so by eliminating unnecessary food waste. When I saw restaurants considering composting as an option more and more, I began to wonder about what other diversion efforts existed and what sectors haven't taken advantage of them. When presented the opportunity to develop my curiosity into a course assignment, I conducted basic background research on food waste, which, with the inspiration of Dale Miller, I transformed into a research project on food recovery through donations. After hearing about Boulder Food Rescue, I wanted to advance the organization's great work, so I decided to go to BFR with an agenda open to their desires and needs.

I want to thank my committee, most notably my primary advisor Dale Miller for encouraging me to pursue an honors thesis. To Rhonda Hoenigman and Jill Litt, thank you for joining me in this experience and giving me constructive feedback and advice throughout the project's development. In addition, I'd like to thank the administrative board of Boulder Food Rescue for openly accepting me and enthusiastically helping me in my effort to help them.

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Chapter one: Introduction

With a significant portion of the food available for consumption going uneaten in the U.S. each year, the unnecessary loss of food has been met with responses either reducing the amount of food waste generated or diverting the generated waste away from landfills. One method of diversion resides in food recovery through donations. Actors in the food industry, most notably food retailers, are encouraged to donate excess and unmarketable food items to nonprofit organizations that redistribute the donations to food insecure community members. In Boulder, a number of grocery stores have partnered with Community Food Share, the local food bank of Feeding America, and Boulder Food Rescue, a smaller nonprofit food rescue organization specific to the area, in order to redistribute their edible food waste to hungry community members. Specifically, Boulder Food Rescue (BFR) focuses on collecting perishable food items, such as produce and baked goods, under a direct food rescue model that strives to ensure the quality and freshness of donations by redistributing them right away; however, BFR experiences variations in success depending upon the specific grocery store implementing the food recovery program. A gap in research exists concerning how grocery stores interact with food recovery and what specific factors either encourage or discourage the practice of donating.

Through a survey, informal interviews, observations, and data on donation amounts, the case study seeks to determine what factors influence how two grocery stores partnered with Boulder Food Rescue implement their food recovery programs. By examining the program at Alfalfa's, a local, independently-owned grocery store, and Sprouts on Arapaho, a local branch of the corporate chain, the motivators behind employee decisions and activities as well as the impact of those activities on the ways in which the recovery process unfolds can be determined. Considered under the lens of the socioecological theory, the findings reveal how the content and structure of the work environment created and maintained by specific store-level initiatives affect employee disposition, and in turn,

employee engagement in the food recovery program. The theory of self-determination helps illuminate how the organizational context of each site invites, permits, or inhibits the internalization of the act of donating with the variations in autonomous motivation and internalized regulation contributing to the differences between the final outcomes of the two recovery programs.

The study adds to the field by providing an alternative framework for understanding food recovery programs that emphasizes the role of donors in the success of such efforts. By examining the effects of the organizational structure of two grocery stores on their employees' motivation, the study highlights areas open to improvement at the store level. Grocery stores can incorporate better motivational conditions into their own practices, such as adopting a store policy that promotes donating or giving meaningful positive feedback to those who engage in the activity, to improve the outcome of the program. The study can also help Boulder Food Rescue boost both the amount and consistency of donations. By knowing what influences employees' engagement in donating, BFR can potentially help mitigate the negative effects of certain store conditions, or even help stores restructure their environments to strengthen the presence of autonomous motivation.

Chapter two: Food Waste

Food waste refers to any post-harvest food losses that occur due to a decision made by a government, business, or individual consumer (*USDA* 2010, Buzby & Hyman 2012, *FAO* 2013). In other words, food waste represents any food that gets produced for human consumption but goes uneaten. With nearly half of all food available for consumption in the U.S. getting thrown out each year, the issue poses serious environmental, social, and financial implications (Gunders 2012). From farming to disposal, food waste emerges due to inefficient practices along the food lifecycle that misuse not only the nutritional and monetary values of the final product but also the various inputs of each step, such as energy and freshwater, while the main disposal practice of landfilling contributes to environmental degradation.

The Food Lifecycle

The food supply chain refers to the various stages of food production and consumption, or in other words, the process of 'from farm to fork'. The stages include farming and post-harvest; packaging, processing, and distribution; food retail such as grocery stores; food service such as restaurants; and households, which includes individual consumers (Canning et al 2010). Unlike the supply chain, the food lifecycle recognizes disposal as the final stage, which describes the dominant methods for discarding food by the food industry and households (Gunders 2012).

Beginning in the 1940s, the Green Revolution introduced new farming technologies, which led to a six-fold expansion in agricultural output (Heller & Keoleian 2003, Webber 2012). By the late 1960s the agriculture sector had fully undergone the shift to modern production with techniques and practices that provided Americans with an abundance of food at a lower price. Alongside the heightened availability of cheap food came increasing food waste as Americans waste 50% more food today than in the 1970s (Hall et al 2009, *nrdc.org* 2013). To understand the specific areas in which food

waste occurs, each stage of the food lifecycle must be examined, including how and why each sector contributes to the issue. While some practices and reasons behind them overlap between actors, the majority remain unique to each one.

Farming

Farmers must adjust to changing social, economic, and environmental conditions, which means that their practices may not always produce an efficient system in relation to food waste. To hedge against disease and unpredictable weather, farmers traditionally plant more crops than necessary and end up with an output higher than the market demands. When this occurs, farmers cannot sell their products for a reasonable price, so they toss the harvested crops (Kantor et al 1997, Gunders 2012). In addition, the buyers, either a manufacturer or wholesaler, impose strict standards on the aesthetic qualities of products, such as their size, shape, and color. This limits what farmers can sell based on their products' adherence to the highly specific physical criteria (Kantor et al 1997, USDA 2010, Lehner 2013(b)). Continually, perfectly fine crops go unharvested because of food safety scares and the resulting liability concerns of both farmers and their corporate buyers (Bloom 2010, Gunders 2012). Plus changing immigration laws can result in labor shortages whereby crops get left in the fields, as well (Gunders 2012). In each case, the farming practice generates unnecessary food waste by either leaving crops behind in the field or tossing the harvested, but unmarketable, crops.

Packaging, Processing, and Distribution

Post-harvest practices include culling and trimming during the packaging and processing stages, respectively. Culling removes the picked crops that don't adhere to the quality and appearance standards to ensure that only the 'right' food products get sent for processing, while the others get thrown out. Trimming removes both edible and inedible parts from the food product, with variations depending on the desired end product such as whole corn husks versus canned corn kernels (Gunders 2012). These edible parts become scraps that can no longer be consumed. During distribution, improper

storage temperatures and inconsistent refrigeration can cause spoilage before delivery (Kantor et al 1997, Gunders 2012). Due to fluctuating consumer demands and poor communication between the supplier and recipient, shipments may be rejected at the time of delivery. Often filled with one type of food product, the truckload can't be easily diverted to an alternative destination because of the excessive amount of a single item (Plumer 2012). The major practices of processing, such as culling and trimming, and of distribution, including rejected shipments and improper holding temperatures, produce food waste.

Food Retail

According to the National Resources Defense Council, in-store losses from food retail stores reached 43 billion pounds in 2010, which represents 10% of total food waste that year (Buzby et al 2014). At the retail level commodity loss ranges from 0.5% to 64% depending on the category of food and whether it's fresh, canned, frozen, or dried (Buzby et al 2009). Overall, though, the largest shares of losses consist of fresh fruits and vegetables at 12% per capita getting tossed annually and dairy products at 7% (Kantor et al 1997, Buzby et al 2009). Under the assumption that consumers will only purchase the most aesthetically-pleasing items, quality control ensures that any product below cosmetic perfection, such as a bruised apple, gets discarded since it won't get sold anyway and because it brings down the store's overall appearance of freshness (Davies & Konisky 2000, Lehner 2013(a)). Stemming from the belief that consumers need a variety of choices and an abundance of items for each choice, full-shelf standards narrow the chances of each item being sold before either becoming too spoiled for sale or reaching its sell-by date (Bloom 2010, Blomberg 2011, Lehner 2013(a)). Even though sell-by and expiration dates don't reflect food safety, retailers must follow the date given by the manufacturer in order to avoid liability charges (Gunders 2012, *wrap.org.uk* 2013). Without a universal or federally-regulated standard, the dates remain highly variable and greatly limit the length of marketability for safe and wholesome food (Lehner 2013(a)). Because grocery stores consider waste as an indication that

they're adequately meeting quality control and full-shelf standards, the losses directly associated with such criteria have become built into their business plans. Grocery stores also throw out seasonal, promotional, and new but unpopular items in the greatest amounts because of the tendency to overstock and the abrupt lack of demand (Davies & Konisky 2000, Bloom 2010). In addition, the rise in in-store prepared meals from buffets and specialized chef stations has increased the amount of retail food waste as stores now must keep these fully stocked along with the shelves and displays (Kantor et al 1997, Gunders 2012). Overall, quality control and full-shelf standards matched with unregulated sell-by dates, specialty and unpopular items, and prepared foods generate food waste at the retail level.

Food Service

USDA includes restaurants, cafeterias, fast food chains, entertainment venues, universities, and caterers under the category of food service. Even before serving food, restaurants lose from 4 to 10% of their purchased food solely due to kitchen practices, including prep waste and improper storage (Gunders 2012). Once customers receive their food, plate waste causes a significant amount of edible food loss due to the massive portion sizes served at 8 times over the USDA and FDA's recommended amount and people's inability to eat it all (Davies & Konisky 2000). Inflexibility within restaurant chain-style management leads to bulk orders that don't reflect specific store needs, which leaves some restaurants with excess food supplies and the subsequent spoilage. Further, the emphasis on having every item on the menu ready for order at all times while setting strict time limits for how long prepared foods can sit before sale results in waste throughout and at the end of the day (Plumer 2012). In all, over-preparation of menu items, increasing portion sizes, expanded menu choices with little flexibility in portion sizes, complicated inventories, and unexpected changes in sales have further contributed to the generation of food waste by the food service sector (Kantor et al 1997, Davies & Konisky 2000).

Households

According to the NRDC, households and individual consumers contribute 40% of food waste in the U.S. by discarding around 25% of all purchased food and beverages (Gunders 2012). The ERS calculated a slightly lower consumer-level impact of 21% with 90 billion lbs of food lost in 2010 (Buzby et al 2014). While consumers affect how the other sectors function by demanding perfection from food retail and often desiring full menu options from food service, they also generate food waste through practices of their own. Because food makes up a relatively low portion of Americans' budgets and largely remains easily available, Americans devalue food products, which leads to poor utilization of purchased items (Canning et al 2010). While over-preparation, improper storage, bulk purchases, and little meal planning contribute to household-level food waste, confusion over the meaning of sell-and use-by labels leads consumers to throw out food prematurely (Bloom 2010, *wrap.org.uk* 2013). Over 60% of Americans dispose of food when it reaches the posted date rather than using other methods for determining freshness, such as the 'sniff test', because they believe the dates indicate food safety (Lehner 2013(b)). From the prevalence of these practices and the devaluation of purchased food, households contribute the greatest amount of food waste over all of the other sectors.

Disposal

Disposal represents a deviation from the previous stages, because it refers to how the sectors handle their generated waste. As the point in which food waste either gets discarded into landfills or diverted through various methods such as donating, converting into compost, using for animal feed, or recycling for other industrial uses, disposal describes the ways in which food waste gets treated throughout the food supply chain, most notably at the retail, service, and household levels. Out of the 250 million tons of trash disposed of in municipal solid waste streams generated by these sectors in 2010, 134 million tons ended up in landfills with food scraps as the largest component at 21% of the overall contributions (EPA 2011).

Losses and Negative Impacts of Food Waste

The importance of food waste relates to the unrealized benefits and value embedded within the discarded food as well as the negative impacts of production and disposal. The unnecessary loss of wholesome food throughout each stage of the food lifecycle presents a social, financial, and environmental problem.

Nutritional and Monetary Losses

By throwing out food, the nutrition embedded in the product gets discarded and the benefits of the product go unrealized. Due to the long process between harvest and final sale, loss in calories occurs before reaching the final consumer; however, the the majority of caloric and nutritional losses occur from the final product going uneaten, with 1,400 calories worth of food discarded per person daily (Muths et al 2013, *nrdc.org* 2013).

Continually, according to the NRDC, the U.S. loses \$165 billion each year from the unnecessary loss of food (Gunders 2012). By discarding edible food, the food supply chain loses the monetary value of the final products. Even though households don't devote a significant portion of their income on food, what they do buy often goes unconsumed. In 2010 each family of four in the U.S. threw out \$1,600 worth of food, and today the number has reached \$2,000 (Stanislaus 2013, Lehner 2013(b)). For food retail, the USDA estimates that supermarkets in the U.S. lose \$15 billion annually from unsold fruits and vegetables and an average of \$2,300 per day from throwing out items nearing their sell-by dates (Gunders 2012). Plus trash collection and disposal fees associated with excess food disposal account for a noticeable part of both food retail and service's expenses with \$750 million devoted to this annually (*nrdc.org* 2013).

Environmental Impacts of Food Waste and Disposal Practices

As the production and distribution of food uses 80% of the freshwater, 50% of the land, and 10% of the energy currently consumed by the U.S. each year, the implications of input loss due to food waste has created an issue beyond basic nutritional and monetary costs (Webber 2012, *nrdc.org* 2013).

Irrigation and other farming practices often result in water depletion, water-logging, chemical runoff from fertilizers into nearby water sources as well as soil salinization and soil degradation, which reduce the land's capacity to continue producing (FAO 2013). The production of food also puts pressure on arable land, land for urban development, and land devoted to the preservation of wildlife. In 2007 the estimated amount of land surface used for production but with its products going uneaten amounted to 1.0 billion hectares of both arable (for crops) and non-arable (for industrial livestock) land out of the 13.4 hectares available globally (FAO 2013).

By deemphasizing manual labor and increasing the use of innovative farming practices, a dependency on energy-intensive technologies throughout the food supply chain has evolved. Since the Green Revolution, technological innovations have become a major part of the food supply chain within every sector including farming (diesel-fueled tractors, electric irrigation pumps, and nitrogen-based fertilizers produced with petroleum), processing (petroleum-based packaging and use of factory utilities), and distribution (diesel- and gas-powered trains and trucks used for transportation and electricity for refrigerated storage) (Canning et al 2010, Webber 2012). According to a study conducted by the USDA, between 1997 and 2002, energy consumption along the food supply chain rose by more than six times the rate of increase in total domestic energy use; this trend has leveled off to a relatively steady 10% of the country's energy budget (Canning et al 2010).

In addition, the decomposition of food scraps in landfills contributes around 34% of all methane emissions in the U.S. in 2011 (Buzby & Hyman 2012). With 25 times more powerful warming effects than carbon dioxide, methane has a much greater potential to contribute to climate change, and, in turn, exacerbate issues related to future agricultural productivity (Webber 2012). In 2011, by diverting merely 3% of the country's generated food waste away from landfills, 1.40 million tons of greenhouse gases from landfill emissions were avoided (EPA 2011).

The various costs of food waste from nutritional and monetary values to the loss of

environmental inputs and the consequences of current disposal practices, responses by various levels of government, for-profit businesses, and nonprofit organizations have come about to reduce the generation of food waste and minimize the disposal practice of landfilling.

Chapter three: Food Recovery through Donations

In the late 1990s, the EPA and USDA addressed to the growing issue by constructing a food waste reduction hierarchy with source reduction and food recovery as the major forms of action. Source reduction refers to reducing the amount of food waste generated before it occurs while food recovery indicates the diversion of generated food waste away from landfills. The hierarchy proposes the most preferred method of diversion as feeding hungry people, or in other words, food recovery through donations (*epa.gov* 2009). While one in seven Americans experience food insecurity, the amount of food available in the U.S. surpasses twice the amount needed to adequately feed everyone (Mabli 2010, Sitton 2011, Blomberg 2011). The federal government recognized that the diversion of food waste through donations, most notably at the retail level, could not only decrease the amount of food ending up in landfills but also increase the amount going toward relieving hunger and improving food security. The benefits for food retailers partaking in this form of food recovery include reducing waste and the associated costs of disposal, removing excess inventory costs, improving their image with customers and the community, promoting sustainability of business practices, demonstrating good corporate citizenship, and helping feed the hungry (Kantor et al 1997, Sherman 2004, Curtis & Curtis 2011, Dansky et al 2013). Backed by the Good Samaritan Act, which virtually eliminates all donor liability for food given in good faith to nonprofits, as well as tax credit, which offers donors either tax deductions or some degree of the market price for the food items donated, grocery stores are highly encouraged to adopt a food recovery program (105th Cong. 1997, L.L.M. Program 2013, Food Recovery Committee 2007, *USDA* 2010). Because grocery stores have neither the time nor means to personally deliver the food donations to emergency food assistance providers, including food banks and local charitable agencies directly serving the hungry, they must partner with external organizations that handle the collection and redistribution processes. Serving as a link between the donors and the final

recipients, food rescue organizations and some food banks engage in food recovery under different models of redistribution.

Food Banks

Most food banks sort, store, and redistribute both donated and purchased food using a central warehousing system. Traditionally, food banks partner with the food industry to redistribute nonperishable surplus food inventories for the purpose of providing charitable service agencies, such as food pantries and soup kitchens, with basic ingredients and food options. Food banks also depend upon monetary donations to purchase more food in an effort to fill the gap between food donations and demand (Youn et al 1999, Ellison 2004). In Boulder, the major food bank acquires food through an alternative method, as well. The local branch of Feeding America, Community Food Share, employs a food recovery program with daily collections of smaller-sized donations, including perishables, from grocery stores in the area, rather than just receiving food through the less frequent bulk nonperishable donations.

While Community Food Share helps reduce the amount of food going to waste, edible food still gets left behind or lost in transition. Feeding America's strict regulations on what Community Food Share can and can't take limits the food bank's ability to collect everything generated by its donors (Food Recovery Committee 2007). Plus its inflexible pick-up schedule denies the possibility for unplanned collections. For example, if a grocery store unexpectedly ends up with an excess amount of unsalable perishables that need to be redistributed quickly before spoiling, Community Food Share won't administer a pick-up outside of its predetermined schedule. In addition, because perishables have a much shorter period of time before reaching spoilage than nonperishables, the food bank's indirect redistribution system diminishes the quality and freshness of perishables and often leads to their unnecessary loss during the process. These factors hinder the food bank's ability to effectively recover food, especially perishables.

Food Rescue Organizations

According to the Food Recovery Committee, food rescue organizations collect food donations from commercial production and distribution channels, including food service's prepared and processed foods and retail's perishable products, and then redistribute them to charitable agencies feeding the hungry (Food Recovery Committee 2007). While food banks acquire food through multiple channels, food rescue organizations solely participate in food recovery by partnering with not only grocery stores but also restaurants and cafeterias. By recognizing the vulnerability of perishable food items, food rescue organizations propose an alternative model to the traditional indirect redistribution practiced by food banks. Under direct food rescue, these organizations emphasize the quick turnaround of time-sensitive donations from the donors to the final recipients, and in doing so, provide service agencies with more produce, baked goods, and other perishable food items at a higher quality, while also reducing the amount of food waste going to landfills. In Boulder, various grocery stores partner with both Community Food Share, the local food bank of Feeding America, and Boulder Food Rescue, a local food rescue organization, to divert their generated food waste away from landfills and into the mouths of hungry residents.

Boulder Food Rescue

Before establishing Boulder Food Rescue, the founders of the local nonprofit conducted a study with Community Food Share and determined that even with the food bank's food recovery program, the amount of food thrown out in Boulder County each year was enough to adequately feed everyone experiencing food insecurity in the County (Phillips et al 2013). To fill the gap between what the food bank takes and what gets generated by the grocery stores, the researchers formed Boulder Food Rescue to expand donor involvement by capturing the edible food still left behind by Community Food Share and to handle the perishables in a more suitable manner than the food bank's indirect redistribution model.

Functioning at a much smaller scale than Community Food Share BFR has redistributed almost 900,000 lbs of food over the past three years (CFS received around 7 million lbs in 2012 alone). With donors mainly consisting of grocery stores in the natural foods grocer industry, BFR has gained the support of both the local branches of corporate grocery stores, such as Whole Foods and Sprouts, as well as independent, locally-run ones, such as Alfalfa's and Lucky's Market. Recipients include soup kitchens, food pantries, after-school programs and daycares, women's centers, and day shelters. By having flexible and frequent pick-up and delivery times, BFR works around both sides' schedules while maintaining timely, and manageable, donations. The main aspect that differs from other direct rescue models relates to BFR's mode of transportation. Ninety percent bike-run, the program minimizes transportation costs, its environmental impact from bypassing any emissions associated with driving a vehicle, and storage time.

Boulder Food Rescue relies on the participating grocery stores and their employees to actively take part in the recovery process by putting unmarketable, but still safe and nutritious, food aside for donation rather than throwing it out. BFR cannot function without the active involvement of the donors in the process; thus the success of the food recovery program depends upon how the donors actually implement the program within their business plans and daily functions. The variations in the food recovery program's success at each grocery store suggests that the donors implement the program differently and those differences affect the outcomes of the program. Evaluations of the internal circumstances of grocery stores either encouraging or discouraging the practice of donating are necessary to determine what steps should be taken to improve donor involvement and strengthen the success of Boulder Food Rescue.

The case study considers how two grocery stores partnered with Boulder Food Rescue interact with their food recovery programs. It seeks to determine how the store-specific work environments impact the employees' commitment to donating and how the variations in both contribute to the

differences in success between the two sites. The study uses organizational theories alongside theories of work motivation to reveal the interplay between the work environment and the grocery store employees in creating and maintaining a system either conducive with or unfavorable for actively donating edible food waste.

Chapter four: Methods

A case study approach emphasizes both the context and the participants' perspectives as central to the process of understanding a specific phenomenon (Yin 1997). This model provides the best research framework for considering why and how food recovery programs function differently at the grocery store level. Through qualitative and quantitative research methods, the study examines how employees interact with the food recovery program in specific ways as a result of the work environment and the subsequent attachment employees experience in relation to the act of donating.

Recruitment

First, the grocery stores of interest were identified and contacted. Boulder Food Rescue provided a list of partners, from which I chose a few grocery stores based on variations in company size and BFR recommendations. Since BFR gained the support of Whole Foods' Ideal Market first, they strongly advocated for the store to partake in the study, but due to a hectic schedule, Ideal Market politely declined. On the other hand, Sprouts on Arapaho and Alfalfa's both showed enthusiasm in participating and became the study's main sites. Sprouts represents a local branch of a corporate chain while Alfalfa's represents a singular, independently-owned store. From differing levels of external management and influence as well as variations in the capacity for decision-making at the store level, these two grocery stores can be not only evaluated for their own recovery programs but also compared to each other.

After contacting store representatives, including the managers and marketing coordinators, over email and by phone, I scheduled in-person meetings with the stores that expressed interest in participating. During these meetings, I further explained the purpose, methods, and goals of the study whereby the representatives granted me access to the site. Second, the subjects within these stores were identified and recruited. From speaking with BFR representatives and looking at the organization's

record of donated food types, I decided to focus on two specific departments most involved in the program; thus within the perishables departments of produce and bakery, both the managers and clerks were determined as most relevant to the study. Plus, in order to get a better idea of overall store involvement, the managers from a few of the other perishables departments, such as dairy and prepared foods, as well as nonperishables, such as grocery and vitamin, were recruited to fill out a survey. As the overseers of the store's food inventory and the movement of food in and out of the store, the head receivers represent the last category of grocery store subjects while BFR volunteers who regularly pick-up from these locations comprise the final category of the study's participants. The gatekeepers from the grocery stores helped me initiate contact with potential participants whereby they either agreed or declined to participate in the study. As an administrator on BFR's system, I had access to the collection schedules for each store and the volunteers responsible for them. I emailed the volunteers most suitable (veterans, new volunteers, those only scheduled for shifts at a single location, and those scheduled for shifts at multiple locations) for the study.

Data Collection

The research methods include a short survey (refer to Appendix A), informal interviews (refer to Appendix B), observations, and data on the donation amounts. The survey uses 'yes or no' questions with further options given if the respondent chooses 'yes'. The questions concern the subject's role in the recovery process and the factors that possibly influence how he or she interacts with the program. The interview elaborates on these responses with descriptions of the recovery process, the subject's role, the motivators for choosing one activity over another, and other potentially important factors. The questions concerned with motivators and the other factors stem from reasons BFR representatives, including one of the co-founders and both the former and current executive directors, stated during preliminary interviews as possible influences on how the program functions at the grocery store level as well as reasons given by previous research on both the establishment of partnerships between donors

and food rescue organizations and the decision to donate in other settings, such as a university research farm and a farmer's market (Sherman 2004, Guthman 2006, Baldwin & Chung 2007, Curtis & Curtis 2011, LL.K. Program 2013). The specific factors suggested include:

- the level of store emphasis on donating, such as including it in employee training and job duties, talking about it at meetings, having a store policy that either actively promotes it or acts as a reminder of the disposal option, and positively reinforcing the activity to employees
- the relations and perception of Boulder Food Rescue, such as the degree of open communication between the employees with BFR and with the volunteers, reliability of volunteers, and the level of mutual regard and respect between the store and BFR
- the presence of Community Food Share, including the store's relationship with the food bank and the appearance of competition between BFR and Community Food Share
- the personal devotion of employees to the food recovery program and their involvement throughout the recovery process and during the collections

Since the purpose of the study is to find what factors have the greatest impact, I allow room for ones not given in the survey to be recognized through the interviews and observations. I also use BFR's web-application for the volunteer-recorded donation amounts over the course of the 70-day study.

Before I could start collecting data, I had to receive approval from the Institutional Review Board (IRB) at the University of Colorado at Boulder. After gaining approval under the exempt category of qualitative research, I began my fieldwork. The managers from the produce and bakery departments as well as the head receiver from each grocery store of interest filled out the survey and served as an interviewee. Clerks from these departments filled out a survey and some served as an interviewee. Plus the managers from a few of the nonperishables departments (and store managers from Sprouts) completed a survey, too. Some subjects completed the survey electronically and sent it to me

over email; however, all of the interviews were conducted in-person to ensure both detailed and complete responses and the chance for follow-up questions when necessary. Before completing the survey, each grocery store subject provided his or her voluntary signed consent to act as a subject in the study, and before the interviews, everyone gave verbal consent for their responses to be used as further data for analysis. Even though they did not complete a survey, the BFR volunteers were informally interviewed, after providing verbal consent, on their interactions with store employees and experiences with the store's recovery program overall. In addition, the observations took place during the collections to examine the final steps of the recovery process at the store level. I focused on the interactions between the grocery store subjects and volunteers as well as the actual activities of the store subjects once the volunteers arrived. I also recorded relevant information when interacting with the grocery store subjects outside of the interviews, such as their interactions with each other and the demonstrations they did for me of the collection process (when a volunteer wasn't present). In all, there were 36 participants with 18 from Sprouts on Arapaho (15 grocery store subjects and 3 BFR volunteers) and 18 from Alfalfa's (15 grocery store subjects and 3 BFR volunteers).

To ensure the convenience of the interviews, I worked around the subjects' schedules. Depending on the preferences of both the stores and subjects, I gave the option for interviewing store subjects during either their shift or work break, either before or after work hours, and either on-site or at an external location; however, all of the actual interviews took place on-site during the subjects' work shifts. For the interviews with the BFR volunteers, I met with them either before or after their shift at the store or at a different time at an external location. I recorded the responses of the interviewees by hand and then typed them up within 24 hours. In addition, I shadowed at least one shift for each volunteer participating in the study to understand what the collection process looks like from the rescue organization's side of it. I openly took notes during these observation sessions. After each of these visits, I typed up my notes and added anything else from my memory that I didn't have time to write

down while at the site. Plus every few days I checked the collection records for updates on donations and added them to my own external data tables. I excluded the collections left blank since the volunteer may not have actually shown up for his or her shift, which didn't necessarily mean that the store didn't have any donations.

Data Analysis

For the surveys, in order to see if one of the response choices had greater importance than the others, I counted the occurrence of each one given by the subjects for each question. The response choices chosen by the participants most often were highlighted in the interview and observation analyses to determine why the subjects chose it and how it influenced the recovery process. By counting the number of times volunteers recorded zero pounds for a donation pick-up from the stores of interest as well as calculating the average weight of donations for the stores, the outcome of each site's food recovery program, or the final expression of the entire process, could be applied to the understanding of the other findings.

After gathering sufficient interview responses and observations, I grouped and coded the data. Due to time constraints, the interviews were not transcribed but rather the responses were referred to through my typed notes. While I recorded the interview responses, I also noted any other relevant observations and started creating possible codes and interpreting the responses; these were included in the typed notes for each interview. As the transitional phase between data collection and further data analysis, codes refer to the essence-capturing words or short phrases that summarize or condense the data. Used to reveal patterns, they allow for the creation of categories whereby larger concepts can emerge (Saldaña 2009). After coding the interviews and observations and developing categories, I then examined the relationships within and between the categories to discover a consistent pattern that connected store and individual-level motivators with employee behavior under the frameworks of socioecological and self-determination in relation to work motivation. I focused on the categories

relating to expressions of certain characteristics that these theories highlight as important for their application.

Concerning the validity of my analysis, I practiced both data source triangulation and methodological triangulation in which I collected data from multiple subjects at different times (grocery store subjects from different departments and Boulder Food Rescue volunteers over six weeks) and gathered data using multiple methods (a survey, interviews, observations, and donation records), respectively (Creswell & Miller 2000). Plus I referred back to those studies that determined the major obstacles to establishing effective partnerships between donors and food rescue organizations to see if their findings surfaced again within my own research, and I also compared my results to studies that looked at the decision-making process on donating of relevant actors under different settings, such as a university research farm and a farmer's market. To minimize the subjectivity of coding, the explicit survey responses and the recorded donation amounts provided a solid basis to compare the interview analyses to. Since coding is an interpretive act, it remains highly impressionable by both my personal biases and goals for the project; thus I exercised self-reflexivity by remaining aware of my predispositions and constantly referred back to the data to secure the credibility of my interpretations (Saldaña 2009). In addition, to make sure that my understanding matched what the subjects meant, I practiced member checking by repeating their responses back to them during the interviews (Creswell & Miller 2000). Through each of these practices, I diminished the likelihood of inaccurate interpretations.

Chapter five: Findings

For the survey responses, the frequency of each of the response choices determined its basic importance to the overall functioning of the program. At both Alfalfa's and Sprouts on Arapaho, the participants (nonperishables and perishables managers, produce and bakery clerks, and the head receiver) unanimously chose certain response choices for multiple questions, including knowing about the food recovery program, having a role in the recovery process, and believing that the store emphasizes the program.

At Alfalfa's, only one respondent didn't include donating as a disposal options while six of the subjects included trash in combination with either compost and donation or compost, donation, and repurpose. Seven circled the combination of compost, donation, and repurpose within the store, one subject circled compost and repurpose, and one subject circled donation only; thus the major disposal options that surfaced through the surveys were repurposing, composting, and donating (refer to Figure 1). At Sprouts on Arapaho, trash was included in every response, except for four respondents who either chose donation only (three subjects) or the combination of compost and donations bins (one subject) (refer to Figure 2). Since Sprouts doesn't have compost, the responses that include it actually refer to throwing food away. Overall, the major disposal options at Sprouts are trash and donation.

Figure 1: The Disposal Options Available at Alfalfa's as Chosen by the Grocery Store Subjects

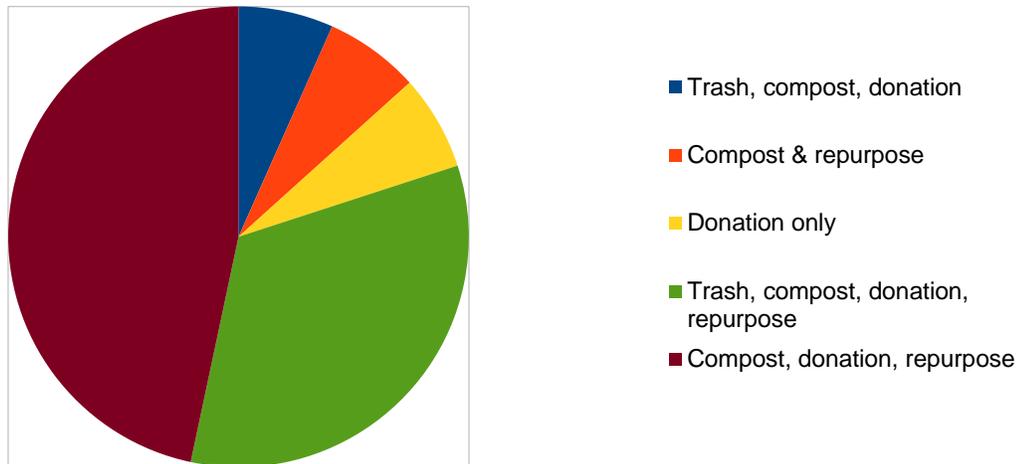
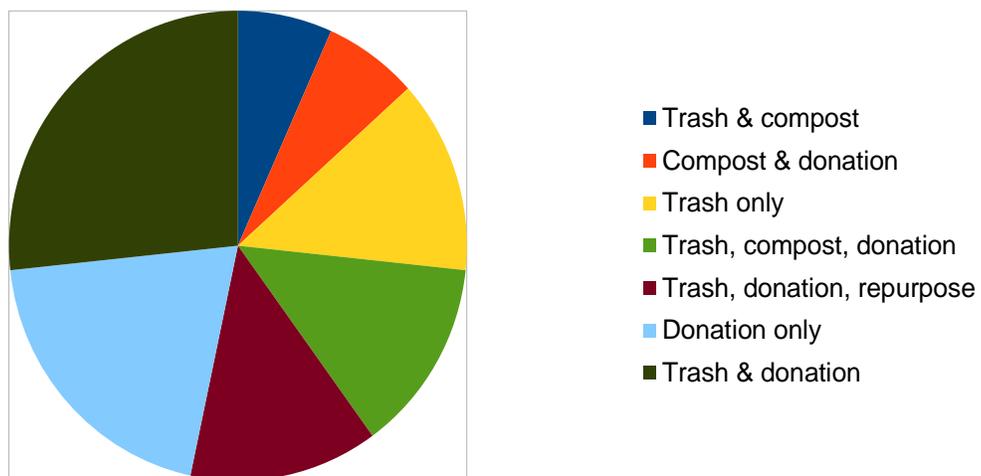


Figure 2: The Disposal Options Available at Sprouts on Arapaho as Chosen by the Grocery Store Subjects



At both sites, the majority of respondents claimed that they donate the most often (refer to

Figures 3 and 4). While almost half of the respondents at Alfalfa's included trash as a disposal option, no one chose it as the practice done most often. At Sprouts, one-third of the subjects throw away food the most often (composting refers to throwing away food at Sprouts), and the same number of respondents who gave donation as a disposal options chose it as the practice done most often.

Figure 3: The Disposal Practices Done Most Often by the Grocery Store Subjects at Alfalfa's

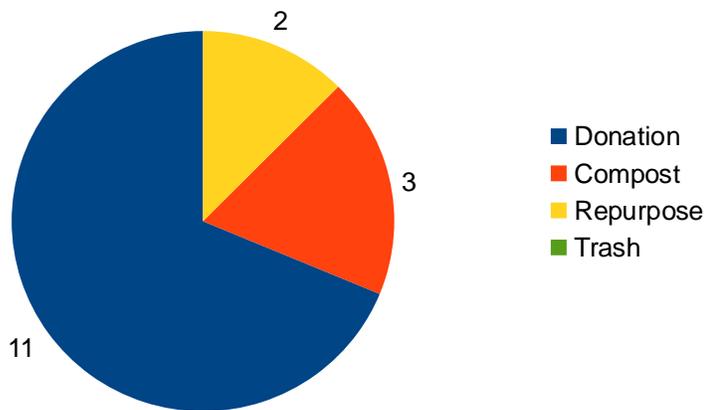
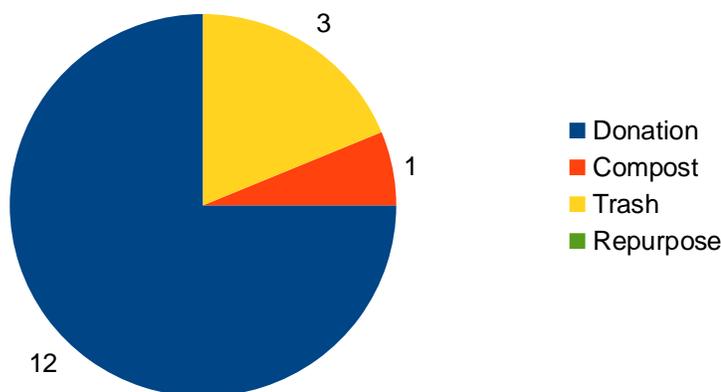


Figure 4: The Disposal Practices Done Most Often by the Grocery Store Subjects at Sprouts on Arapaho



At Alfalfa's, the motivators for donating (refer to Figure 5) consisted of a personal desire to salvage good food (14/15), the condition of the food (11/15), and then both job duties (8/15) and the

store's waste reduction goals (8/15). At Sprouts, the condition of the food was chosen most often as a motivator for donating (9/15) as well as a personal desire to salvage good food (9/15), then the store's waste reduction goals (6/15), and finally job duties (5/15). For the motivators given by the subjects from the perishables departments, refer to Figure 6.

Figure 5

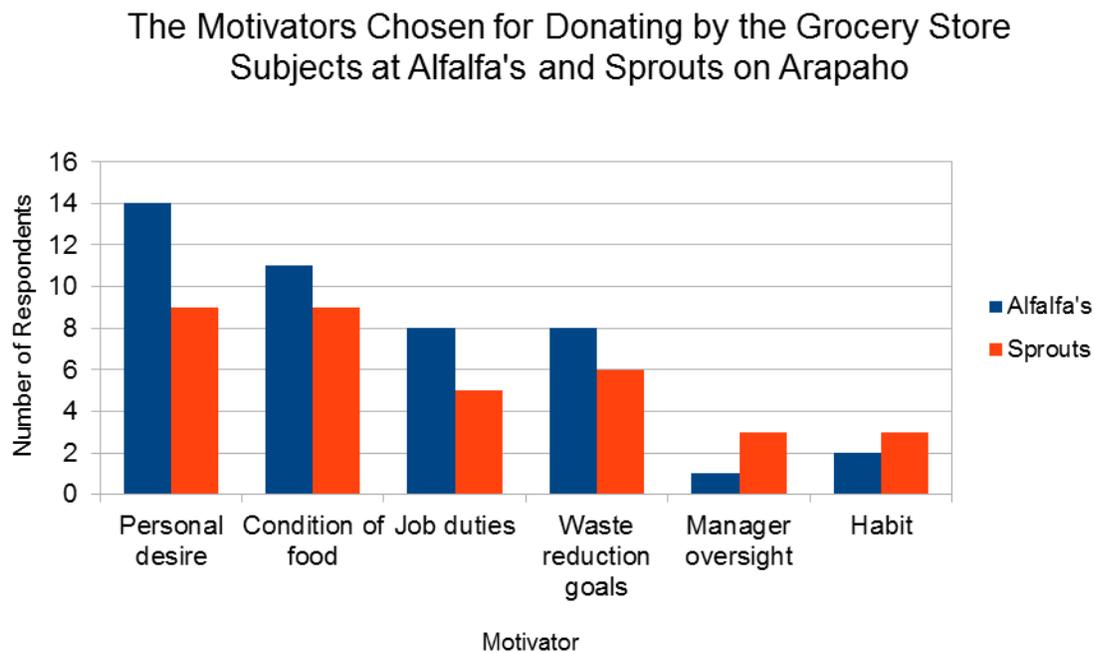
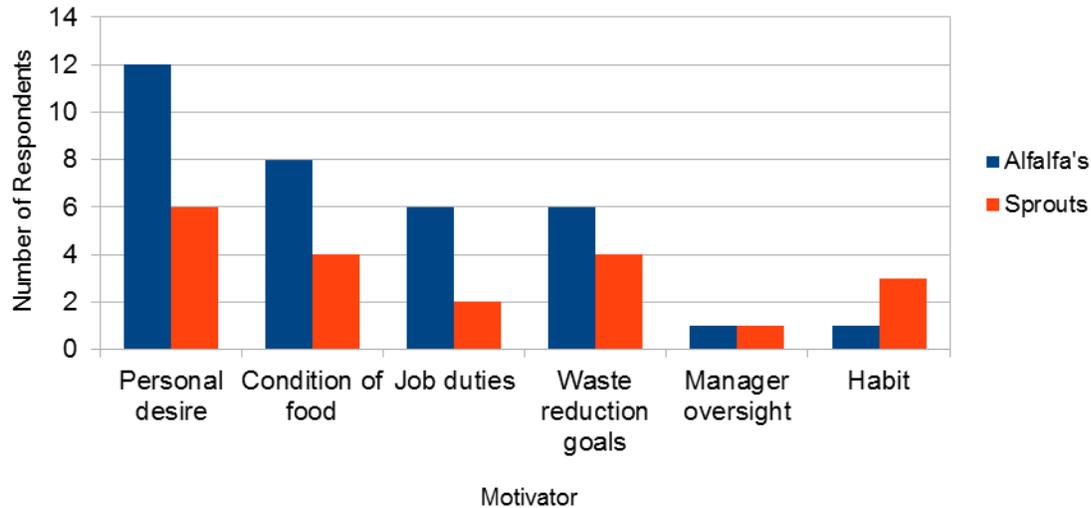


Figure 6

The Motivators Chosen for Donating by the Subjects from the Perishables Departments at Alfalfa's and Sprouts on Arapaho

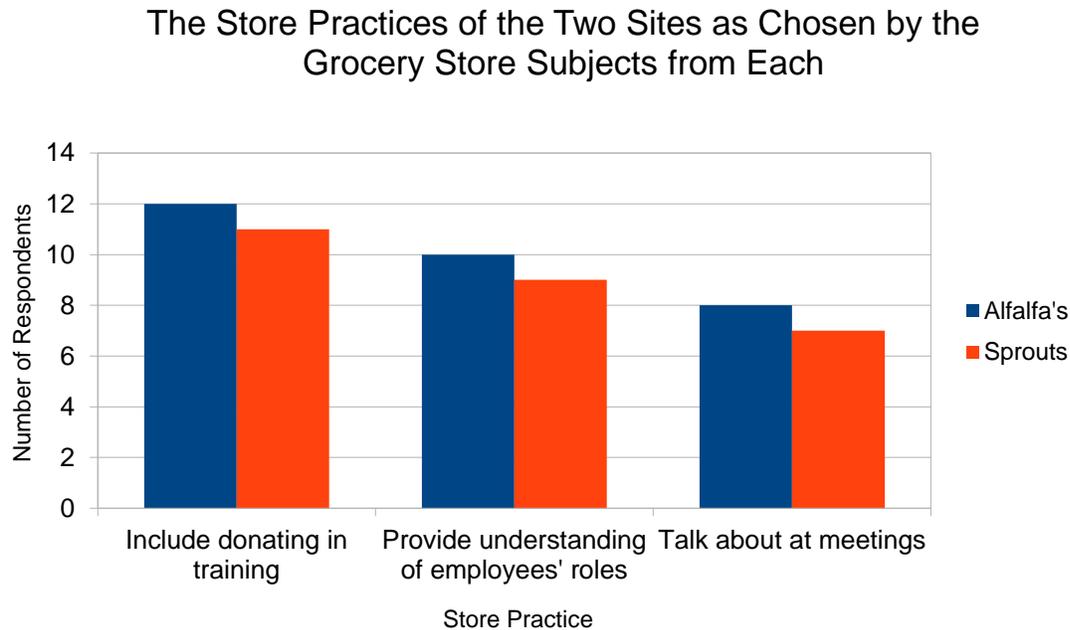


At both sites, subject participation varied between departments and management levels; however, some practices overlapped across the individual stores. At Alfalfa's, 13 out of 15 put food aside for donating while 12 out of 15 help both determine which items are suitable for donating and train new employees on the recovery process. At Sprouts, all of the respondents put food aside for donations and, except for one, determine which food items are safe to donate while a little over half help train new employees on the recovery process (9/15).

At Alfalfa's, the produce and bakery departments determine which items are safe to donate and which ones aren't and sort donations by perishable and nonperishable items while the other perishables departments don't. Continually, the produce department helps gather donations when the rescue organization arrives and oversees the donation pick-ups while both produce and the bakery let the receiver know what items are for donations. In general, the bakery encourages employees to donate more so than the produce section. At Sprouts, produce helps gather donations when the rescue organization arrives as well as store donations overnight or set outside on the dock while bakery sorts

donations by the type of food and they both sort donations by nonperishables and perishables. Only one respondent (from produce) claimed to oversee donation pick-ups. For store-level practices, refer to Figure 7.

Figure 7



The major themes pulled out of the interviews and observations include the various aspects of the organizational context of the grocery stores including store policy, store mission and values, store practices, and manager oversight plus the roles, interpersonal relations, and other activities of the grocery store employees that relate to these. The code of 'personal values' relates to each instance an employee expressed some degree of internalizing the act of donating. During the study, Sprouts had almost twice as many scheduled pick-ups as Alfalfa's in which the volunteers received nothing. The average donation amounts were relatively equal between the stores but Alfalfa's was slightly higher at 55.97 lbs while Sprouts had an average of 52.82 lbs for each pick-up.

Chapter six: Analysis

I analyzed the findings under the frameworks of the socioecological theory and the theory of self-determination in relation to work motivation through need satisfaction. The socioecological theory recognizes the interrelations of environmental conditions and personal attributes, including disposition and behavioral patterns, under a process-person-context model (Bronfenbrenner 1994). The outcome of an organizational system refers to the cumulative impact of the interplay of these characteristics (Stokols 1996). The give-and-take between the environment and human subjects creates a pattern of activities, social roles, and interpersonal relations that promotes, permits, or inhibits certain behaviors (Bronfenbrenner 1994). In the case of grocery stores implementing a food recovery program, the organizational context refers to the grocery store, including its policies, mission, and norms or standards, and how it interacts with the grocery store employees' dispositions, including their knowledge, attitudes, and beliefs. These both relate to the employees' behavior, specifically their choice to donate over the other available disposal options, and their feelings of well-being, which stem from self-fulfillment in the workplace and contribute to job satisfaction. The reciprocal interactions of the employees and the organizational environment create and maintain the final outcomes of the food recovery program by either encouraging or discouraging the act of donating.

Continually, the theory of self-determination recognizes the motivational bases associated with effective organizational behavior (Gagne & Deci 2005). While various factors go into a person's total motivation, it represents a single variable that serves as the foundation for acting. The framework of self-determination allows for a deeper examination of the specific impacts organizational structure and content have on individual differences, which refers to a person's autonomous causality orientation, and vice versa. The theory proposes three main psychological needs that must be satisfied for participants to internalize a particular behavior and engage in it independent of external contingencies that relate to

its realization. For autonomous motivation to occur (a person acting with a sense of volition and experiences choice), feelings of autonomy, competence, and relatedness must surface through the internalized regulation of that act in which a person adopts the values, attitudes, and regulatory structures associated with a behavior as a reflection of his or her own values and goals (Gagne & Deci 2005). If they aren't satisfied, controlling motivation under external regulation occurs in which subjects act with a sense of pressure to engage in an activity because they want to avoid the unappealing consequences. The theory suggests that different levels of internalization occur due to variations in the facilitating factors present with autonomy as the most important for the fully integrated regulation. In the work setting, a meaningful rationale for the task, acknowledgment of the employees' perspective and feelings toward the task, and low control from interdependence among employees promote internalization by satisfying the need for autonomy (Deci, Connell, & Ryan 1989). Under this viewpoint, the organizational context instigates specific types of autonomous causality orientations (the participants' dispositions), which define the participants' attachment to a behavior as well as their engagement in it. Concerning food recovery through donations, the act of donating is viewed as the outcome of this process with the variations between the stores dependent upon the organizational context's impacts on the employees' internalized regulation and autonomous motivation toward donating.

First, I'll examine the organizational context of the two grocery stores. These span from store policy to the physical layout of the store. Since the employees' dispositions at the time they began working can't be known and employees tend to have little influence on how the store decides to structure its policies, mission, and practices, the study only considers the impact of the environmental conditions on employee character, rather than viewing employee attributes as shaping the management and corporate level activities, as well. Second, I'll apply the theory of self-determination to evaluate how the factors within the work environment aid in either the promotion or deterrence of autonomy. By

determining the level of autonomous motivation and internalized regulation, the behavior, specifically the act of donating, can be better understood as the outcome of these processes. I then compare the two stores' implementation of the food recovery program to each other based on how well they satisfy the need for autonomy and how the subsequent variations in the internalization of donating lead to different outcomes of the program.

Organizational Context

The organizational context refers to what the grocery stores do to structure the environment. Various store-level activities at Alfalfa's and Sprouts on Arapaho make up the environmental conditions under which the employees function, including store policy, store mission and values, store practices, manager oversight, and the store's physical characteristics. Each aspect relates to how the grocery stores create and maintain certain conditions that promote, permit, or inhibit employee engagement in the food recovery program.

Store Policy

At Alfalfa's, the zero waste policy reflects the store's desire to reduce food waste and minimize the improper disposal of recyclables, such as plastic and cardboard packaging materials. In an effort to decrease generated food waste, the store imposes a hierarchy of methods for handling unmarketable perishables. The first method refers to discounting and the second concerns repurposing within the store. If these don't capture everything, then composting and donating are the next options. One subject stated that "trash is the last resort [and] if organic, [then] we compost." For the produce department, before pulling less physically appealing items that haven't reached their sell-by date but won't sell at full price next to better looking products, employees put the items in the discount bin, such as bagging a few browned limes and taking up to 50% off the original price. For the bakery, they put out day-old items at 30% off. For products that still can't be sold, the next option of repurposing moves the unsold food items to another department with the intention of reducing monetary losses and ensuring that good

food gets sold. If another department can't use the specific items then employees choose between donation and compost. Since both reside under shrink, they hold equal weight when considered from a financial standpoint (Alfalfa's doesn't currently qualify for tax credit on donations); however, the condition of the food determines where it ends up. The store's policy emphasizes donating over composting when the food is still safe for human consumption.

Without any methods for reducing food waste before it occurs, Sprouts' store policy concerns the procedures for determining whether a food item can be donated or not. In conjunction with Feeding America, the corporate-level launched a standardized set of conditions that food donations must comply with about ten months ago. It includes a system of grids posted around the back of the store for the employees to refer to when deciding which disposal option is appropriate. Because employees could lose their job if they deviate from the posted rules, donations abide by the guidelines. In addition, Sprouts doesn't have a food waste reduction policy. Just like any other grocery store, departments must stay below their given margin. The store doesn't consider the potential for donating as a method for reducing current margins and instead is only concerned with keeping costs below it.

Store Mission and Values

Alfalfa's claims behaving ethically and supporting both the community and environment as two of their core beliefs. By giving priority to sustainable business practices and to the community, while only recently turning a profit, Alfalfa's places value on the act of donating not because of the potential money the store could receive in tax credit but because it believes in the good that donating does for the environment and local community. One subject remarked that "it (food recovery) is entrenched in the ideology of the store and we really take it seriously," and that "the mentality of the store" promotes the notion that "less waste is better." To ensure the fulfillment of its mission, the store even allows employees and some well-known customers to take home certain perishables, such as wilted greens, that can't go to the recovery organization because it's either not fit for human consumption or can't be

collected before spoilage. The store's stated, and realized, mission represents a specific set of values that promotes the proper use of food.

Concerned with excellent customer service and providing good food at a lower price, Sprouts' store mission doesn't necessarily evoke a specific set of values in relation to food recovery. Multiple subjects mentioned that they believe the store's reason for adopting a food recovery program is rooted in the tax credits. One subject mentioned that "it gives them (Sprouts) a tax write-off and makes them (Sprouts) look good in the community." Rather than doing it directly for the benefit of the community or as a pursuance of a sustainability mission often seen with stores in the natural foods market, Sprouts, from the corporate level, may only have a financial incentive for adopting a recovery program. In general, Sprouts doesn't express certain attitudes and beliefs through its store mission that actively promote donating.

Store Practices

Based on the survey responses, both Alfalfa's and Sprouts include donating in new employee training, provide each employee with an understanding of his or her job position's role in the recovery process, and talk about the recovery program at meetings. Each of these activities contribute to the employees' basic awareness of the food recovery program and the option to donate. The Boulder Food Rescue volunteers at both sites mentioned that they could approach any employee and he or she would know what to do or who to ask. One volunteer indicated that "everyone seems to know what's going on," which can be attributed to employee awareness. At Alfalfa's, though, the store engages in these activities more often and more comprehensively. The store includes educating new employees on food waste and food insecurity during training, and even administers periodic field trips to EcoCycle with all of its employees. Alfalfa's not only gives donating as a disposal option at the time of training but also considers it as a part of its employees' job duties. One subject mentioned that "*not* throwing away food is part of our job." Continually, the store reinforces the program at meetings by expressing its centrality

to both the store's mission as an environmentally- and socially-conscious business and its effort to reach zero waste. The store conducts waste audits multiple times per year to reevaluate how well the current efforts are doing in realizing the zero waste goal. While Alfalfa's addresses the food recovery program as an important separate topic of discussion at meetings, Sprouts only talks about it in reference to other concerns, such as reminding employees to keep up quality control. A few employees at Sprouts mentioned that the training process for donating was informal and that they understood their position's role through "more spoken word" than from an explicit explanation given by the store under their job duties. One of the clerks indicated that "[he] picked up on it after a while" by watching the other employees and learning the store's policy on what can and can't be donated. Rather than receiving a standardized description of his role in the recovery process, he adopted the practices of the current employees, which suggests that their actions and devotion to the program determine those of new employees. One of the store managers mentioned that he relies on the posted guidelines in the back of the store to guide employees' decisions. Because donating doesn't relate to any waste reduction goals or a strong mission of sustainability and community goodwill, it rarely gets addressed by either the management or corporate levels.

From a socioecological standpoint, the organizational context also includes the pattern of roles, activities, and interpersonal relations of the employees, which relate to the store practices. At Alfalfa's the store practices created a standardized structure in which, as one subject said, "all departments have their own systems [and] all work towards shared goals." The survey responses showed a variation in activities between the departments but consistent forms of participation within the same ones. While the bakery doesn't oversee pick-ups or help gather the donations when the recovery organization arrives, it isn't due to a lack of either awareness or overall involvement in the program but rather because an employee from the department doesn't need to be present for the collections. Each morning before either Community Food Share or Boulder Food Rescue comes, the bakery already pulls

everything from the front and places anything worthy for donation in the back. Since all of the baked goods on the dock are solely for donating, clearly marked as so and kept in a designated spot that the receiver and recovery organizations know about, and weighed and logged by the department, the employees don't need to be there during the actual pick-ups. Plus as the receiver and bakery employees noted, anything deemed unmarketable during the day will be taken to the back and stay on the dock overnight for donation the next day. While the store designates the receiver as the overseer of the collections, at least one other employee, most often from produce, plays a role in the pick-ups, as well. For the produce department, the food items taken to the back may have different destinations. Because one box may be repurposed by going to the culinary department, a produce worker needs to intervene to let either the recovery organization representative or the head receiver know which boxes are specifically for donations. The interactions between the volunteers and employees help create an environment of mutual understanding and regard for each other. In addition to interacting with the BFR volunteers, produce constantly communicates with the other departments when trying to repurpose unmarketable, but still edible, food within the store.

At Sprouts, the survey responses showed a greater variation in participation for the employees within the same department. Certain activities didn't emerge as specific to any one department. Because everyone defers responsibility to the head receiver for handling the donations and overseeing the collections, no one appears highly involved in the entire process except when deciding to donate over throwing away food. For the bakery, the subjects don't regularly put the donations out on the dock because the manager must scan and log the items beforehand and has limited time during the day to do so. The food gets set aside in the bakery's side room instead of going to the dock right away. Often the food will stay in the room overnight and in the morning, after the manager logs the food items, they'll no longer adhere to the donation regulations and will end up going to the trash. The process moves much quicker in the produce department as the employees take any food pulled from the front of the

store to the back and then decide to either throw it away or donate it right then. For all of the items put in the back for donation, none of the participants from any of the departments feel particularly inclined to be present for the actual pick-ups since they've already logged the donation weight and type and depend upon the receiver to take care of the rest; however, the receiver usually isn't around for BFR's afternoon pick-ups. One volunteer stated that “it's pretty decentralized [and that] they don't care to be ultra involved.” The system loses structure from no one heading the operation, plus the volunteers don't have a single person of contact to go to when picking up donations, which hinders the development of good relations and the establishment of mutual goals between the organizations. In addition, little to no communication occurs between the departments, and when it does, the store manager serves as the messenger with the exchanges most often regarding something other than the food recovery program.

Manager Oversight

At both stores, little manager oversight appeared during the observations and few people mentioned it in their interview responses. At Alfalfa's, the employees function under a system of trust in which the managers don't feel as if they need to be present during every decision the clerks make. They know that everyone understands their position's job duties, the available disposal options and the hierarchy of activities between them, and their actual role in the recovery process. Plus the managers trust their employees to abide by store policy and make appropriate decisions that follow the store's mission. The assumption that everyone does understand their job duties and the store policy proved correct with the employees easily replacing the managers during collections—a Boulder Food Rescue volunteer actually thought one of the produce clerks was a manager because of the employee's awareness and high involvement in the pick-ups.

At Sprouts, a few subjects mentioned manager oversight as a motivator for donating in their survey responses; however, the participants claimed that the program “[isn't] strictly enforced” by either the store managers or their department managers. One manager said “I enforce it a little bit” but

didn't seem necessarily concerned about what the employees chose to do with the food deemed edible. Another manager remarked, “[I’m] not really saying 'hey are you separating it right?' or 'is it really shrink (trash) or could it be donated?’” Managers trust that their employees won't deviate from the donation regulations because it would compromise their employment standing. When oversight does occur, it usually refers to the managers making sure that employees are still following the guidelines, rather than encouraging them to donate more often when the food does comply with the regulations.

Physical Characteristics

The physical characteristics include the store size, the layout of the front and back of the store layout, and the placement of donation bins as well as the area designated for donations. Sprouts has a much larger store area and bigger departments than Alfalfa's. The smaller size of Alfalfa's allows employees to come into contact more often with the receiver's desk between the bakery and produce departments' areas in the back. Concerning produce, the departments at Alfalfa's and Sprouts reside right next to back area of the store. At Alfalfa's, the cart used to hold donations remains on the other side of the door to the back while at Sprouts, the employees must walk all the way to the back dock to either put out donations or throw the food away. At Alfalfa's, employees from the bakery department mentioned that they moved the donation bins from the back of the store to underneath the counter in the front. Now, the employees can put anything no longer salable, such as a broken cookie, directly into the bins without having to leave the floor and walk back to the loading dock. At Sprouts, the bakery doesn't have a counter for personalized service. Instead, the department has a back room connected to the floor that it uses to bake and hold unmarketable baked goods. The bakeries at both sites don't take donations to the back dock right away because of these physical attributes.

The forms of disposal available at the stores differ in not only type but also physical expression. At Alfalfa's, three cans equal in size are situated in the back for compost, recycle, and trash. The store doesn't have a large dumpster since it doesn't generate enough trash for one. The produce donations

remain on a cart in the back with other boxes meant for repurposing while the baked goods get placed beside the dock door by the receiver's desk. At Sprouts, the dumpster sits next to the space designated for donations. The produce donations go in a crate and the baked goods go into a shopping cart placed next to the dumpster on the dock outside. The dumpster remains open for employees to toss in food, and other items, at any time. Posted throughout the back of Sprouts, the visual diagrams stating what can and can't be donated are available for the employees to reference. At Alfalfa's, the store doesn't have written guidelines for donating posted anywhere, but it does have directions on what items go into which disposal can in the back.

Autonomous Causality Orientation

To understand the full impact of the organizational context on the employees' dispositions concerning donating, it must be evaluated under the theory of self-determination. Variations in autonomous motivation at the two sites regulate the act of donating differently but in a predictable manner based on the satisfaction of autonomy. The store-specific structure and content of the workplace act as supportive, controlling, or amotivating depending upon the amount of social support and free choice it provides the employees. The following section examines how well the organizational contexts of Alfalfa's and Sprouts satisfied the need for autonomy. I also propose two other facilitating factors that emerged in the absence of satisfaction. I refer to one as convenience and the other as habit.

Social Support

Social support includes the store providing a meaningful rationale for doing the task, offering positive feedback for completing the task, and having supportive management styles and interpersonal relations. At Alfalfa's, the store emphasizes each of these forms of fulfillment through its work environment. One manager stated that “a lot of people...are more aware of social issues so [we're] starting with more consciousness of food scarcity issues.” Educating employees on the issues of food waste and food insecurity, the store sets the foundation for donating by giving them not only an

awareness of the issues but also an understanding of the purpose and goals of the food recovery program. As one employee said, there are “so many people starving so I'd rather see it (food) go to other people than in the trash.” The presence of background knowledge on the issues transcends over into how the subjects interact with the program since they hold a deeper realization of the impacts of food waste and the good that can come from diverting it through donation. Because of this, a give-and-take occurs between the employees and the store, and as one subject said, “we put it into practice.” The employees take on the store's mission and policy and act in such a way that helps accomplish both. Continually, the store's zero waste initiative helps solidify the practice by setting a goal that the employees work toward together. The interdependence between the departments necessary for fulfilling the store policy of repurposing and minimizing waste maintains strong interpersonal relations. The stable communication between the store with its employees on the food recovery program and the employees from different departments with each other aids in the development of feelings of teamwork and mutual effort while the employees become more attached to the store overall. Plus since the store allows employees to take home some unmarketable food, the employees feel a greater appreciation for and connection to the store beyond the average employee-employer relationship. One respondent wrote, “I like the idea of our donations doing some good” and wants to donate “to help out the less fortunate.” He adopted the values associated with donating as his own through the store's active promotion and reinforcement of the reasons behind the behavior. The store's attention to the food recovery program at meetings also provides positive feedback for those actively involved in it. The employees are reminded of their role in, and importance to, helping the store fulfill its mission and reach its zero waste goal. Through each of these activities, Alfalfa's builds a firm foundation for internalization by providing its employees with social support.

On the other hand, during the study, Sprouts expressed minimal focus on donating and didn't provide employees with a meaningful rationale for donating, reinforce the behavior through positive

feedback, or establish strong interpersonal relations between the employees and the corporate level in relation to the food recovery program. While some of the participants recognized that the food recovery program “helps out a lot of people” and is “all for the better,” they remained openly detached to the goals of the program. By leaving the food recovery program up to the discretion of current department managers and employees, the store doesn't educate new employees on the reasons for the program. Without receiving an explanation for why they should engage in the act of donating, employees don't experience that first push toward internalization. In addition, while the store may mention the food recovery program at meetings, that fact that it doesn't get recognized for its environmental and social values but rather its instrumental value in earning the store tax credit denies the validity of the program to the employees. Plus those who do engage in the behavior don't receive any recognition for doing so. The management seems less concerned with the merit of the program in and of itself and more worried about the employees keeping up quality control on the floor, following the store policy's donation guidelines, and maintaining efficiency. Continually, the employees at Sprouts also showed less attachment to the store than those at Alfalfa's. By referring to Sprouts as 'they' in almost every response, the subjects didn't seem as devoted to the store in general. The store manager acknowledged the store's struggle with getting everyone to show up for their shifts and in keeping the same employees for an extended period of time. Both the lack of connection to the store and the constant turnover hinders the development of a relationship with the store, the other employees, and the food recovery program. Plus the solidarity of departments keeps the employees separated from each other instead of working together toward a single goal. One subject said that the amount of donations depends upon not only the dates on the food but also who's working that day. As one person mentioned, “if I'd feel like I'd be willing to eat it then I'd definitely donate it but that's just me.” Both statements reveal the individuality of decisions, which reflects the absence of an overarching system guiding the internalization of donating by the employees. Overall, Sprouts doesn't provide strong social support for

its employees, which inhibits their internalization of the act of donating.

Free Choice

Store policy can be viewed as a form of controlled motivation in which the employees feel inclined to act because of the potential negative consequences associated with not following the rules. In this sense, store policy serves as an external regulator that ensures employees will engage in certain behaviors to avoid punishment. However, in the case of Alfalfa's, the strong social support instigates the internalization of certain behaviors in such a way that makes the choice to donate appear as a reflection of the employees' own values and goals rather than as a controlling form of motivation. One subject said, "the main motivating factor is store policy...but I believe in it too." Rather than viewing store policy as an imposed set of rules and behaviors that control their employment standing, the employees understand the purpose of the food recovery program and have adopted its values within their own belief systems. Each of the subjects participating expressed a variation of the thought that "if food is good, then we might as well use it right." The subjects at Alfalfa's hold a deep attachment to donating and to the proper use of food in general. Identifying with the value of the behavior, employees associate their choice to donate as an expression of themselves instead of a behavior motivated by the desire to avoid unappealing consequences. The store policy encourages the perception of free choice because the employees associate the behavior as an outward expression of themselves. On the other hand, at Sprouts, the strict store policy acts as a deterrence to donate as the employees expressed feeling overwhelmed by the extensive restrictions. One employee indicated that the store could donate more but most people feel pressured by the guidelines. Employees end up throwing away food because they know that they could potentially lose their job if they broke the donation rules, so they decide not to engage in it. In this case, store policy serves as a force guiding employees to not partake in donating because they feel that their free choice becomes compromised under the restrictions while the fear of the negative consequences outweighs any internalization that may be present.

Continually, the controlling aspect of manager oversight could be considered as a form of external regulation, as well. Since the managers from both sites don't actively regulate their employees' activities in relation to the food recovery program, the employees' perception of having free choice could have materialized. At Sprouts, though, without social support backing the decision to donate, the absence of manager oversight tends to reinforce the message of just getting rid of the food over trying to salvage as much as possible. Overall the participants expressed less dedication to the program asserting that "some of the stuff we'll just throw away." Without managers monitoring the employees' decision to donate, the employees may have had free choice but, in this instance, it doesn't aid in their internalization of the values and goals of donating. In the work environment at Alfalfa's, the lack of manager oversight enhances the employees' feelings of competence since they aren't constantly confronted about their choices on how to handle the unmarketable food. They feel empowered and emboldened by the recovery process because they view their job as a chance to act upon their values, which Alfalfa's helped shape, and decide to donate from a personal stance.

The culmination of Alfalfa's zero waste policy, its mission that promotes the environmental and social value of donating, its active role in educating employees on the issues of food waste and food insecurity, its constant reinforcement of donating as central to the store's mission and policy fulfillment, its creation of interdependence between departments in which perpetual communication is necessary, and its lack of manager oversight in dictating employee decisions presents an advantageous environment for the internalization of the values and goals of the food recovery program by its employees. Acting under autonomous motivation with a sense of volition and the experience of choice, the employees consistently engage in the act of donating. While the organizational environment at Alfalfa's can be considered conducive to the internalization of donating under autonomous motivation, for Sprouts, the deficiency in social support and free choice inhibits it. But, the employees still engage in the act of donating, so what motivates their decision to donate over the other available option of

throwing food away? I suggest that in the absence of an organizational context that supports internalization of donating, other facilitating factors appear that fit in the category of neither external nor internal regulation. In the case of Sprouts, convenience and habit serve as the motivators driving the decision to donate.

Convenience

Convenience refers to how accessible, simple, or easy employees consider the act of donating. The employees at Sprouts weigh the costs and benefits of donating along a spectrum of convenience. Multiple subjects mentioned that the busyness of the store plays a part in their decision to donate. One subject said that he donates “when [they’re] not super busy” but otherwise he considers it more of a hassle to do so over throwing it out. The time of a day also plays a role in which multiple employees stated that they sometimes toss food after five or six in the evening since all of the donation pick-ups have been completed for the day already. They don't want to bother with logging the food items when most of the food won't abide by the regulations in the morning. A few subjects said that they don't keep food donations overnight because the process of having to first find space for it and then put it away takes too much time and effort, so they'd rather just throw it out. One subject said, “if it's in the way, it will get thrown.” Each of these instances reveal how convenience greatly matters since donating doesn't appear as a major priority under either the employees' job duties or the store's own worries. On the contrary, the dumpster and donations area are right beside each other. This may not only remind the employees of the option to donate but also inspire them to do so because the convenience of both disposal options remain relatively equal. In addition, as one employee pointed out that “with the signage, it's (the guidelines are) pretty easy to follow.” The standardization of the donation system has made the process more convenient since the employees have both explicit guidelines they must follow and easy access to them; however, the actual content of the guidelines disrupts the perception of convenience since the employees feel disillusioned by the expansive restrictions. Overall, the

employees undergo an implicit evaluation of how convenient donating appears to be at the time and then act based on what they decide.

In general, the strong social support at Alfalfa's leads the employees to consider donating as neither an inconvenience nor an extra effort because it's part of their and the store's duties, although convenience may serve as an extra source of inspiration for engaging in the food recovery program. One participant mentioned that once Alfalfa's developed a good system with understood procedures for handling food, the practice of donating has become much easier through its standardization. Plus the physical layout of the store makes donating a simple act that doesn't disrupt the functions and flow of the bakery and produce departments. Overall, though, convenience doesn't serve as a major facilitating factor at Alfalfa's because the employees function under autonomous motivation and choose to donate from a personal connection to the activity.

Habit

Habit refers to the actual act of donating becoming a motivator for continually engaging in the act. At Sprouts, the survey responses revealed the importance of habit in guiding the decision to donate. Multiple subjects expressed that “donating has become part of the process” in which it's “entrenched in people's behavior” from their repetitive engagement in it. The actual act of donating transcends into a motivator for the continuation of the behavior. While the reason for throwing away edible food stems from it being easier and less intrusive on other employee job duties, when they do donate, it becomes a habitual practice rather than either a personal preference under autonomous motivation or a store-imposed activity under controlled motivation.

The survey and interview responses didn't advance habit as a major motivating factor for donating at Alfalfa's, although one employee commented that “it's become habitual [and] we don't even think about it.” The fact that Alfalfa's includes donating in job duties and continually stresses the importance of it for fulfilling the store's overarching mission and for reaching its zero waste goal,

donating has become habitual because employees constantly engage in it, yet it doesn't serve as a direct motivator on its own. The importance of habit resides in systems that don't provide employees with social support and free choice.

Impacts on the Food Recovery Program's Outcomes

The organizational contexts of Alfalfa's and Sprouts define their employees' autonomous causality orientations. The differences in the two stores' satisfaction of autonomy contribute to the variations in their employees' dispositions in relation to donating. The employees' attachment to and engagement in donating directly relate to the outcomes of the food recovery program as expressed by the donation amounts and consistency in donating.

Concerning the data on donations, Alfalfa's donated more as well as more often than Sprouts during the study. Even though Alfalfa's emphasizes activities such as discounting and repurposing and also has a smaller store size than Sprouts, the store still offered more donations in weight than Sprouts during the study. The difference in weight could be attributed to the greater presence of fresh produce at Alfalfa's in comparison to the bread-based donations that weigh less from Sprouts. If accounting for this, the amount of food donated from each site could be closer to each other than thought, or perhaps Sprouts with a greater amount than Alfalfa's as the volunteers suggested in their given weight ranges; however, even if that were the case, Alfalfa's still donated more of its generated waste than Sprouts. Even though Sprouts hasn't conducted a waste audit recently, I can assume that all of the generated food waste doesn't get diverted because the store doesn't compost and the subjects openly mentioned throwing away food. During the study, Alfalfa's conducted a waste audit with EcoCycle and scored a 98% diversion rate with the only loss from plastic in the trash. Concerning consistency in donations, Sprouts had almost twice as many days that it didn't have donations for Boulder Food Rescue. One BFR volunteer remarked that at Sprouts, “sometimes there's nothing [like] every two weeks that happens” while all of the volunteers at Alfalfa's said that they have never leave empty-handed unless

Community Food Share has already come.

As shown by the donation amounts and consistency in donating, the success of the food recovery program differed when implemented at either Alfalfa's or Sprouts on Arapaho. The outcome of the food recovery program at Alfalfa's can be attributed to the organizational context of the store that actively promoted the internalization of donating by its employees. Because they considered donating as an outward expression of their own values and goals, the employees at Alfalfa's engaged in the activity more often. At Sprouts, in the absence of internalization, the importance of convenience and habit diminished the consistency of donating since other conditions were viewed as more important than the value of the act.

Chapter seven: Conclusion

Overall, the food recovery program at Alfalfa's presents an effective model for the successful diversion of edible food through donations due to the organizational context's fulfillment of the need for autonomy. The presence of certain factors within the organizational context exist at both sites but have different effects on the employees' dispositions. The organizational context at Alfalfa's provides the conditions necessary for the satisfaction of autonomy by supporting the act of donating through its store policy, mission and values, certain store-level practices, physical layout, and the absence of manager oversight. Alfalfa's offers its employees a meaningful rationale for engaging in donating, positive feedback for doing so, supportive interpersonal relations, and the perception of free choice that all help guide the employees to view donating as an outward expression of themselves. At Sprouts, the work environment doesn't promote internalization; however, employees still engage in donating due to convenience and habit. These two factors play an important role in the decision to donate in the absence of internalization. Rather than the employees being committed to donating from its attachment to their identity, they donate either out of habit or when they perceive it as convenient. The lack of internalization and autonomous motivation hinder the employees' active involvement in donating, which contributed to the lower donation amounts and weaker consistency in donating during the study as compared to Alfalfa's.

Chapter eight: Recommendations

The study can be help further the effectiveness of food recovery programs at the grocery store level by adding a deeper understanding of what factors both promote and repress donating. Since grocery stores in the natural foods market often express similar store missions of socially- and environmentally-conscious business practices, the basis for a successful program may already exist at many other locally-owned and operated stores. Boulder Food Rescue, as well as current donors, can respond to the study's findings in a way that enhances the success of the food recovery program at different grocery stores. For example, Boulder Food Rescue could help facilitate positive feedback by showing store employees how their actions have helped improve the lives of community members. The organization could possibly host a dinner at one of the recipient charities for the donors to attend in which the employees could actually see how their involvement in the food recovery program contributes to feeding hungry locals. Plus donors who want to improve the success of their programs can use Alfalfa's as a model for restructuring their work environments to make internalization of donating easier for the employees.

Further research should be conducted on more grocery stores currently partnered with Boulder Food Rescue, as well as other food rescue organizations, in order to develop a stronger consensus on the motivators at the store and individual levels driving the act of donating. Limited by the number of participants, the case study's findings can't be evaluated for statistical significance as most studies on the theory of self-determination have done; thus a larger scale research project should be carried out. Research should continue to give attention to the store-level activities of donors and how they influence their employees' dispositions and behaviors in relation to food recovery. Plus more research should be done on the facilitating factors, such as habit and convenience, that emerge in the absence of need satisfaction in this context. Overall, the case study provides a starting point for the extension of

research on the organizational context of grocery stores participating in food recovery and how specific work conditions either promote or inhibit the satisfaction of needs in relation to certain behaviors.

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Appendix

Appendix A: Survey

1. How long have you worked at this store and what is your position?
2. Do you know about the store's recovery program (the donating of excess and unmarketable food)? (Circle one) **Yes** **No**
3. Do you have any background knowledge on food waste? (Circle one) **Yes** **No**
4. Have you worked with a food recovery program before? (Circle one) **Yes** **No**
5. How are you trained to dispose of excess or unmarketable food? (Circle all that apply)

Trash	Compost	Donation bins	Repurpose within the store
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6. Which practice do you do most often? (Circle one)

Trash	Compost	Donation bins	Repurpose within the store
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7. What motivates you to choose composting or throwing out food over the other options? (Circle all that apply)
 - Job duties
 - Condition of the food/food safety
 - Convenience
 - Habit
 - Didn't know about the recovery program
 - Other:
8. Do you participate in the food recovery program here? (Circle one) **Yes** **No**
 - If yes, how? (Circle all that apply)
 - Put food aside for donating.
 - Determine what items are suitable for donating and which ones aren't.
 - Sort the donations by perishables and nonperishables.
 - Sort the donations by type of food, such as separating vegetables from fruits.
 - Help gather donations when the rescue organization arrives or let the head receiver know what items are set aside for donating.
 - Help store donations in the cooler overnight, put on the donation shelves, or set outside on the dock.
 - Encourage other employees to donate.
 - Help train new employees on the recovery process.
 - Oversee the donation pick-ups.
 - Other:
9. What motivates you to choose donating over the others? (Circle all that apply)
 - Job duties
 - Condition of the food (safe for consumption)

Convenience
 Habit
 The store's waste reduction goals
 Manager oversight
 Personal desire to salvage good food
 Other:

10. Does the store emphasize the recovery program? (Circle one) **Yes** **No**

If yes, in what ways? (Circle all that apply)

Includes donating as a method of handling unmarketable food in employee training.

Provides a clear understanding of your position's role in the process.

Talks about the program at store meetings.

Promotes its participation to customers.

Other:

Appendix B: Interview Guides

Head Receiver

1. How long have you worked for “”, and how long as the head receiver?
2. What types of food does the store donate? From your perspective, how do the donation amounts correlate to the store's waste generation?
3. Does “” consider donations important from a business standpoint, as a corporate responsibility, or as something else? Do you feel like the company encourages donating?
4. Who makes the decisions concerning the recovery program? Do you have power over how it functions? If so, please offer an example of a decision you make that changes how the process unfolds.
5. What does or doesn't motivate you to oversee the donating of food? Such as corporate waste reduction goals. Do you encourage employees to put unmarketable food aside for donations?
6. What does the recovery process look like and what is your role in each step? From overseeing every food item that comes into the store to managing how it leaves (other than by sale). How do you account for the donated food?
7. Have you worked with a food recovery program before? If so, where else and how was it either different than or the same as this one? Was it [as] successful?
8. Are there any difficulties in working with the food rescue organizations? Such as not having a specific predetermined pick-up time or inconsistent volunteers.
9. Is there anything else I'm missing that could be helpful for the purposes of the project? What other factors may contribute to the [success of] “” 's recovery model?

Produce & Bakery Managers

1. How long have you worked for “”, and how long in this position?
2. Do you have any specific roles in the recovery process? If so, what are they?
3. How are the employees trained to discard of food? Does the process differ at different times of the day or by department?
4. Do you encourage employees to put the unmarketable food to the side for donations? If so, is it part of the store's business plan, such as reducing waste, and/or part of your job description? Do you talk about BFR at store meetings?
5. Do you oversee any of the donation pick-ups? If so, why and what is your role while doing so?

6. Can you explain the process, from putting good food aside to having it ready for pick-up, of ""'s food recovery program?
7. Are there any changes you'd like to see from the recovery organization, such as having a specific predetermined pick-up time, not having to sort the donations beforehand, etc.?
8. Is there anything else I'm missing that could be helpful for the purposes of the project? What other factors may contribute to the [success of] ""'s recovery model?

Produce & Bakery Clerks

1. How long have you worked for ""?
2. What are you trained to do with the food you remove from the shelves and displays?
3. Are you encouraged to place unmarketable foods aside for donating? If so, by who or what, such as either the managers or the store's rules/incentives? Is it part of your job description?
4. Is it more convenient to dispose of food in the trash, in the compost, or to set it aside for donating?
5. When you do either throw out or compost food, why is that? Because of the time of day, convenience, it seems too spoiled for consumption, or...?
6. Do you feel like you throw out more of the food waste or put it aside for donating?
7. How do the donations fit into the daily store procedures? Do you help put them in storage overnight, set them outside on the dock throughout the day or when closing, or help sort them?
8. Do you interact with the BFR volunteers? If so, what does the interaction consist of?
9. Is there anything else I'm missing that could be helpful for the purposes of the project? What other factors may contribute to the [success of] ""'s recovery model?

Boulder Food Rescue Volunteer

1. How long have you volunteered for BFR? What stores have you worked with?
2. Can you give me an overview of the pick-up process?
3. What do you experience when you pick-up from ""? Is it quick and efficient, confusing, unorganized, or...?
4. Is there someone from "" overseeing the pick-up or directing you in any way, whether beneficial or not?
5. Do you have an expectation of what you'll receive or does it seem more sporadic in volume?
6. Does the company seem to encourage donating? If so, in what ways and by who, such as the head receiver?
7. What does this collection process look like in comparison to others you may do at different locations?
8. Is there anything else I'm missing that would be helpful for the purposes of the project?

