Smart Pantry

2024 Pilot Report

HUNTER COLLEGE
NEW YORK CITY
FOOD POLICY CENTER

Share Meals
ending college hunger

Smart Pantry 2024 Pilot Report

Background and Mission: Food Insecurity in Academic Spaces a Growing Concern

Food insecurity statistics are discouraging when you consider the entirety of New York City, however specific subsets also have daunting statistics. In 2022, 40 percent of CUNY students self-reported as food insecure. This is an issue of nutrition and food justice, but also a matter of academic concern, with food insecurity acting as a detriment to student performance and a factor in classroom attrition. The trend, however, is far from exclusive to the CUNY system. Nationwide, 34.5 percent of undergraduate students report low to marginal food security, and this number only climbs for institutions serving Black, Latino, Indigenous, and Asian & Pacific Island communities (see Table 1 in this report from Temple University).

In light of these unsettling realities, over the past decade, the number of campus food pantries has grown from around 80 to more than 800 to meet the needs of the students. While the effort is clearly necessary, traditional pantry models have unavoidable drawbacks – from the hours they are open to their ability to train and keep staff, the physical space they must occupy, the dearth of vital data they collect, and the continued social stigma under which they operate.

The Hunter College New York City Food Policy Center (the Center) has collaborated with Share Meals (SM) to present a Smart Pantry Pilot Program as both a way to alleviate campus food insecurity and a promising alternative to the traditional campus pantry model. Founder and CEO of Share Meals, Jon Chin, formulated programming to be used in vending machines for food access while working with technology and food insecurity at New York University.

Under the leadership of Annette Nielsen, Executive Director, the Center operated two of these vending machines during the Spring semester of 2024. They were placed in a small student lounge area in the basement of the Hunter College Silberman School of Social Work, near the nutrition department's Food Lab. The machines were retrofitted with specialized software from SM facilitating food distribution at no cost to students and collecting analytics on food insecurity at the Hunter College campus each week. The pilot period ran for a total of 16 weeks, from February 6 to May 24, 2024.

Funding for the pilot also allowed the Center to provide tangential programming: culinary nutrition classes for our community and planting container gardens, both overseen and led by Annette. Students and staff learned how best to cook and enjoy the fresh local produce that was being distributed via the machines, and the culinary nutrition classes also included lessons in how to repurpose leftovers, how to plan a menu on a budget, safe food storage, and smart ways to minimize food waste. And, finally, as part of the Nutrition Department's Annual Wellness Fair the pilot included engagement with the nutrition department, where students and staff were given lessons

in how to plant, care for, and harvest herbs, as well as how to properly store and use them in recipes.

In light of the data we collected, the testimonies of student participants, Center interns and staff, the seamlessness with which we were able to distribute food to those in need, and the high rate of participation in our pilot, as well as its minimal operating costs, availability for students and staff (accessible when the building is open), and its elimination of much of the stigma that prevents those in our CUNY community in need from enjoying fresh, healthy food, we hold the Smart Pantry to be a viable and promising campus food pantry program in.

I. Challenge: Making Food Pantries Aligned with Student Schedules and Needs

The impulse to establish campus food pantries is admirable, and their presence is indeed necessary. However, unavoidable factors make the traditional food pantry model less than optimal for student and staff needs as compared to the Smart Pantry model.

For the purposes of this report, we define a traditional food pantry as a point of food access that distributes food at no cost to participants, exists in a physical space, and whose in-person staff may include packers, distributors, maintenance staff, and administrators.

Here, we list the factors that hinder the effectiveness of the traditional pantry model in a campus context.

Staffing, Training & Payroll*:* The traditional model of food pantry distribution requires a robust staff of distributors, packers, and administrators, working either as volunteers or as paid employees. The staffing requirement can present significant pain points, because a significant amount of time and energy goes into training, which becomes more challenging to manage when the workers are volunteers. In a food security context, training for all staff is critical, not only in terms of safe food handling, but also for addressing the socially sensitive situations that arise from food insecurity. On campus, volunteers tend to change every semester and often even more frequently. As a result, more resources are directed to ensuring high-quality training, leaving fewer resources available for things like community building and fundraising.

While hiring paid staff can work to solve the problem of constant retraining, allowing for a more stable, long-term crew, the cost of doing that becomes a significant issue, because it leaves less money available for purchasing and distributing the food.

Limited Operating Hours*.* The above-mentioned paid staffing needs also mean operating only during business hours when students in need are either in class or at work, because keeping the pantries open for more days and more hours, such as both mornings and afternoons, would quickly become much too costly.

A volunteer staff, on the other hand, means adjusting operating hours according to the availability of the volunteers, which means that it is difficult to keep the pantry open on a regular schedule and/or during times that are convenient to students.

***High Cost of Dedicated Physical Space*.** For academic institutions such as CUNY and specifically Hunter College, that are in high-density urban areas, it is often costly to dedicate the space required to operate a successful pantry. Beyond the necessary space for storage of inventory, refrigeration of perishable products, and receiving customers, many pantries also organize their products according to a “shopping model" also known as “client choice,” to look like a traditional grocery store. The purpose of this is to respect the dignity of their clients, but it requires wide aisles, a "checkout" space, and other features that take up a significant amount of floor space. For that reason, this model is not a first choice in New York, and specifically Manhattan, where rental costs are prohibitively high and existing on-campus space is limited.

***Lacking & Imprecise Data Collection*.** Many college pantries collect analytics and usage data from their service population. However, the data is often not as refined as it could be, and some pantries do not collect data at all. As a result, their decision-making regarding hours of operation, outreach strategies, and food ordering may be negatively affected. And, over the long term, the lack of data may limit their ability to respond to changes 5 or 10 years into the future. Additionally, even those pantries that do collect data may lack the expertise to analyze and transform it into useful action.

***Persistent Stigma in Receiving Pantry Food*.** One of the biggest obstacles for food pantries, whether on a college campus or elsewhere, is the stigma associated with receiving help, especially for something as fundamental as food. This can prevent people from receiving nutritious food and can also be correlated with anxiety, stress, and poor mental health. On a college campus the stigma comes primarily from being known to use a food pantry. Students may be afraid of running into someone they know, such as a classmate or professor who is staffing the pantry, and may, therefore, use the pantry far less often than they would like or refrain from using it at all.

II. Solution: Smart Pantry as an Effective & Versatile Response to Campus Hunger

Our Smart Pantry pilot was able to demonstrate a solution for each of the pain points described above, and we believe that the program is replicable, scalable, and viable as a model for addressing campus food-insecurity at Hunter College, other CUNY institutions, and across the city.

***Minimal Staffing & Training Requirements*.** In contrast to the constant in-person staffing required by traditional pantries, the Smart Pantry required significantly fewer staff members. With a team of six interns, one part-time paid staff member, and the full-time leadership of Annette Nielsen, we were able to make food available to students and building staff for the entire time the building was open by using vending machines.

In addition to these machines being more available for student use than a personally staffed pantry ever could be, the Smart Pantry itself had lower maintenance requirements, and needed cleaning and restocking only two to three times per week, depending on usage. Performing these tasks also requires significantly less training since there is little direct interaction with the service population, and increasing the usage of the Smart Pantry does not require a commensurate increase in staffing or the hours of the maintenance staff, making it more cost efficient.

***Wide Ranging Hours of Operation*.** Because it was fully automated, the Smart Pantry was available to all students during all hours that the Silberman Campus was open. This accommodated a wide range of needs, such as students who had to stay late to study or take evening classes, or students who needed to come to campus on weekends to use the library or the computer lab.

***Small Physical Footprint*.** The Smart Pantry pilot had a minimal footprint because the machines were located in a small corner of the Silberman Campus and required only about 20 square feet of space. The only required additional space was room for a refrigerator for cold storage in an adjacent Food Lab and the use of already-existing office space allotted to the Center for packing and dry storage. For those reasons, the Smart Pantry pilot was able to feed as many students as a traditional campus pantry using only a fraction of the space typically required.

Integrated Data Collection & Distribution. The Smart Pantry pilot automatically collected refined data, such as individual usage timestamps, the number of items distributed, and it tracked individual student patterns using anonymous and de-identified data. Along with the hardware, Share Meals provided a live data dashboard that transformed the raw data into visualizations to make it usable by staff members and administrators who might not have a background in data science. In addition to all the above, surveys were sent to students through the Share Meals app for insights.

Discretion & Destigmatization. The SP existed as a discreet distributor, with students also having access to the machines during off-peak hours, when they were less likely to be observed. In addition, the machines themselves resembled typical for-purchase food vending machines in every significant way except for the QR code that directed students to the software needed to participate in the program. In addition, the placement of the machines in an area of Silberman already used for eating and resting made their presence both less obvious and more accessible to students in need.

For all these reasons, our Smart Pantry pilot successfully addressed the drawbacks commonly associated with traditional campus pantries.

III. Operations & Methods: Smart Pantry Programming Details

As already mentioned, the retrofitted vending machines programmed by Jon Chin of Share Meals operated like a typical for-purchase vending machine, with the only major

difference being that the items they contained were distributed in exchange for answers to a survey administered by a mobile application attached to the machines.

The two machines we used, nicknamed Hydrogen and Helium. One featured healthful, dry, shelf-stable foods, and the other provided refrigerated prepared items and NYS-sourced fresh produce, respectively. All items were sourced and purchased by the Center, and the machines were restocked by Center staff at least once a week, but typically two or three times, as needed.

In addition, the Center dedicated itself to holding in-person culinary nutrition classes and instructing students on herb planting, thereby educating participants on how to use the products featured in both machines.

***Hardware & Machine Retrofitting*.** The two machines in the pilot program were used and refurbished, and the total cost for both was $2,000, including a $400 delivery fee. One was at least 20 years old, and we connected with a vending machine tradesman based in Long Island who provided us with consultation, repairs, and parts at a fair price. Throughout the semester, we spent a modest amount on maintenance, repairs, and parts.

Equipment required to retrofit the vending machines to run the Smart Pantry software included two Raspberry Pi computer; and a BluKey device. The services and consultation needed to run the software were also provided to the pilot program by Share Meals at a reduced price of $3,500.

Software & Data Collection*.* To access the machines, students scanned a QR code and logged into the system through their Hunter College email. Through this weekly log-in, they were assigned a total number of points (ten) to access a variety of items in both machines through that week. They were then asked two multiple-choice questions provided by Hager et al: (1) “Within the past 12 months we worried whether our food would run out before we got money to buy more” and (2) “Within the past 12 months the food we bought just didn’t last and we didn’t have money to get more.” (The answers between which students were prompted to choose were “Often True,” “Sometimes True,” “Never True,” and “Don’t Know”.)

The survey, which was based on a longer, 18 question screener survey developed by the USDA was validated and peer reviewed. The collection of this data during the pilot phase had three main objectives:

1. Test the ability to integrate such a survey into the food-distribution workflow.
2. Gauge the reaction of the service population to being required to take a survey to participate in the Smart Pantry program. (The response to this was extremely positive and students were generally understanding about both the need to collect such data and its role in advocating for better food security services.)
3. Perform exploratory data analysis on the current state of need.

Sourcing. Foods in the vending machines were sourced from a number of local institutions and generally included fresh foods and produce, with minimal or no processing and low-to-no added sugar. These foods included:

- Fresh produce, flour, pastas, canned beans, canned tomato sauces, and grains from GrowNYC, a New York City-based food access and agricultural nonprofit sourcing primarily from New York State farmers and producers. Through these wholesale purchases, we were able to make decisions about the types of farms (organic vs. conventional growers) as well as to select women-owned or BIPOC-led farms, in order to strengthen the regional food system with intention;
- Fresh-prepared, healthful, and culturally-relevant food items sourced from e.terra, an East Harlem-based, flexible commercial kitchen supporting local chefs and food entrepreneurs that is located across the street from the Silberman campus;
- Shelf-stable groceries and snacks from Wellfare, a New York-based nonprofit providing groceries to food-insecure New Yorkers; and
- Matriark Foods, a New York-based purveyor of upcycled soups and sauces using produce rescued from regional farmers and producers and saved from going to waste in a landfill and further exacerbating climate change.

Our primary purchasing decisions were made to support small to medium-size, local and regional farmers and producers as well as small food entrepreneurs and businesses looking to have a positive impact on climate change. These types of decisions ultimately play a role in fostering a more resilient food system.

Stocking, Cleaning & Maintenance. Fresh seasonal, produce from GrowNYC (including but not limited to mushrooms, lettuce, bok choy, potatoes, onions, carrots, and apples) and prepared items from East Harlem-based e.terra Kitchen (including but not limited to vegetable soups, quinoa salads, vegetable wraps, and turkey-croissant sandwiches) were delivered to the Silberman campus every Tuesday morning and kept in the refrigerated machine. After the GrowNYC produce (in bulk) arrived, students were given directions for placing specific quantities of vegetables in clear produce bags (a typical bag might include an onion, a couple of carrots and potatoes). These, along with packages of fresh mushrooms, and bags of spinach or salad greens were placed in the refrigerated vending machine. On that same day, prepared items from e.terra Kitchen were delivered and stocked in the Helium machine, all distributed to students throughout the week.

Additional product from e.terra was kept in a storage space in the refrigerated machine, and the rest of the produce from GrowNYC was stored in a refrigerator made available to us by the Hunter Nutrition Department's Food Lab. From these storage locations, either Center staff or interns were able to restock the machine up to three times a week to ensure a continual supply of food.

Shelf-stable grains from GrowNYC (regionally and locally produced polenta, pasta, and flour), boxed soups from Matriark Foods, and packaged goods from WellFare (including

but not limited to fruit leathers, granolas, and par-cooked chickpea rice) were available to participants in the non-refrigerated machine. Most of these products were delivered in bulk at the beginning of the Spring Semester, and the machine was restocked at about the same pace as the refrigerated one.

Throughout the 2024 Spring Semester pilot project, both machines were cleaned with every restock and continued to perform well. There were a couple of software glitches and a time or two when the machines had problems with WiFi connectivity; however, all in all, any issues were communicated to the Center and promptly resolved by either in-person Center staff or Jon Chin.

It is important to note that no students were ever turned away or denied food for a lack of points. Center staff was diligent about putting food directly into the hands of students wherever possible (most often during the restocking of the machines).

Programming.

1. Culinary Nutrition Education: Based on prior food insecurity programming undertaken by the executive director, it was never assumed that students would have any degree of fluency in menu-planning or food preparation. While the primary goal of the pilot was to distribute food on campus, it was understood that, without some basic skills, the students receiving that food might not use all of it and/or it would go to waste.

   Throughout the month of March, four (4) cooking classes were scheduled--one per week for about 1.5 hours each, in the afternoon and on a day when the greatest number of students had in-person classes on campus. The topics throughout the month included Kitchen Safety, Minimizing Food Waste, Repurposing Leftovers, Creative Menu Planning/Shopping on a Budget, and Eating a Rainbow, all with a number of recipes.

   With each class students prepared a recipe or two and received nutrition information on each dish. Each student left class with a bag of produce and ingredients so they could duplicate it at home with friends or family. (See end of document for sample handouts and recipes.)

2. Container Garden Planting: Another element we wanted to include in the pilot was growing herbs, in either a garden setting or a container.

   The Nutrition Department was hosting their annual Wellness Fair, and we saw this as an opportunity to demonstrate how to plant seeds and how to care for, harvest, and cook with herbs, which provide flavor to dishes without added salt or fat. They can, however, be expensive to purchase relative to their use; and at least a portion of what is purchased often goes to waste. Growing your own allows you to snip what is needed while the plant continues to grow and produce.

Center staff and interns working on the SP pilot helped students who attended the Wellness Fair to plant parsley, cilantro, and basil that they could then take home. In addition, the students received a handout with information on the benefits of urban gardening, how to care for the plants, how/when to harvest them, soil-health tips, and recipes (with nutrition information) in which the herbs could be used.

IV. *Data Charts, Budget, Student Testimony, and Handouts.*

***Data*.**

These surveys can be required or optional and can be directed to all students or a particular segment of the student population, such those who have used the Smart Pantry more than three times a week. Share Meals provides consultation on survey construction and results analysis, based on their 10 years of experience in the food insecurity space. (*see pages 12 through 15 for charts and more data details)*

Handouts.

Throughout the spring semester, we had students working as "ambassadors" spreading the word. Emails were also sent to faculty at the Silberman Campus asking them to alert students to the fact that there were SP machines in the basement of the building. We placed signs on the two machines, and provided handouts about different activations, whether the cooking classes or the 2024 Wellness Fair. All handouts were made by or with input of the students and interns. (*see pages 16 through 20 for samples of handouts.)*

Budget Break-down*: February 6 - May 24 (16 Weeks)

Food Sourcing/Supplies/Staff	**Total**
Food	9,040
GrowNYC (SP)	4,800
GrowNYC (cooking class)	360
Misc. Groceries (cooking classes)	240
Supplies	1,465
Conferences and travel	625
Staffing	8,060
Machine Service	384
Total Pilot Project	**$24,974**

Note:

* Vending Machine Purchase-2 Used Machines (FY 2023) $ 1,600

**This figure does not include pilot project oversight by Center Executive Director.

***Student/Intern Testimony*.**

> “Many students expressed gratitude for the food quality and found it convenient to have points that provided complimentary meals during their time on campus. Although there were some initial technical difficulties with the smart pantry, the students were understanding and displayed great patience, recognizing that it was a new project designed for their benefit. As the weeks progressed, I noticed that students became proficient in independently using the smart pantry without assistance and even developed their meal preferences.” — Ali Essa

> “When I began interning at the Food Policy Center, I was surprised to learn that an app connects to the Smart Pantry. Students simply have to make an account and answer a short weekly survey to receive points. I was also impressed to see how the Smart Pantry is just like a vending machine, something that students are used to utilizing.” — Nicole Hilarion

> “The prepared meals were a big hit amongst the students, and I’ve seen people enjoying the food throughout Silberman. I inventoried the produce and fresh meals at the end of every week, tracking them in our inventory spreadsheet. For most weeks, there were almost no prepared meals left, or only a few, and about a quarter of the produce was left by Thursday.” — Hafsa Haque

> “In my time working here, I have seen the fridge being full after a whole week to being empty the next week now. I see the regulars coming around the same time, sometimes with new people that are trying it for the first time, and sometimes those who have no idea what the fridge is. I love seeing the excitement on people’s faces when they realize they can rely on the pantry for a meal when they need it as they plan out how they are going to use this week’s produce. The best part, however, is seeing people using the machine without any hesitation or uncertainty. Food pantries can be scary for a lot of people because asking for help can come with shame, but seeing people just press buttons like they are at a vending machine and get tasty, healthy meals and produce gives me hope for the future of mutual aid.” — Prisha Rao

V. Expansion: Smart Pantry’s Vital Services are Scalable and Replicable

***Physical space*.** These machines can be spread across different campus buildings to provide access through satellite sites. Extra storage space will be required so that the

machines can be restocked; however, that space can be in less desirable locations, such as the basement level of a building. In contrast, some college food pantries exist wholly on the basement level, and their location reportedly has a negative effect on their degree of impact.

In addition to college campuses, the SP machines could be used in a variety of public spaces including medical centers, clinics, in lieu of street fridges, at community centers, older adult centers, and more.

***Discretion*.** The machines could be placed in locations that offer more privacy and could also continue to operate as traditional vending machines selling the items they contain for money, which would make it difficult to determine whether someone was paying for their items or receiving them free of charge.

***Institutional Participation*.** While there was awareness of the pilot project at the administration level, we did not have any participation by department directors. One recommendation would be for the Hunter College administration to consider including it as part of professional development days on all campuses that address issues of student (and staff) food insecurity. We need to be sure to note that while this pilot wasn't originally designed to include staff, we found that facilities, public safety, tech, and administrative support staff were eager to participate in food distribution, herb planting, and culinary and nutrition education programming in the Food Lab.

Data Analytics

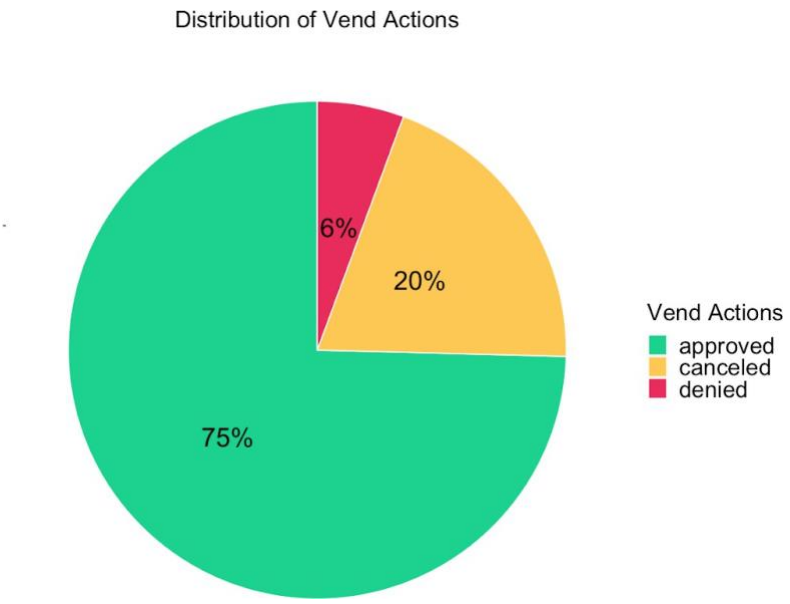
Vend Actions

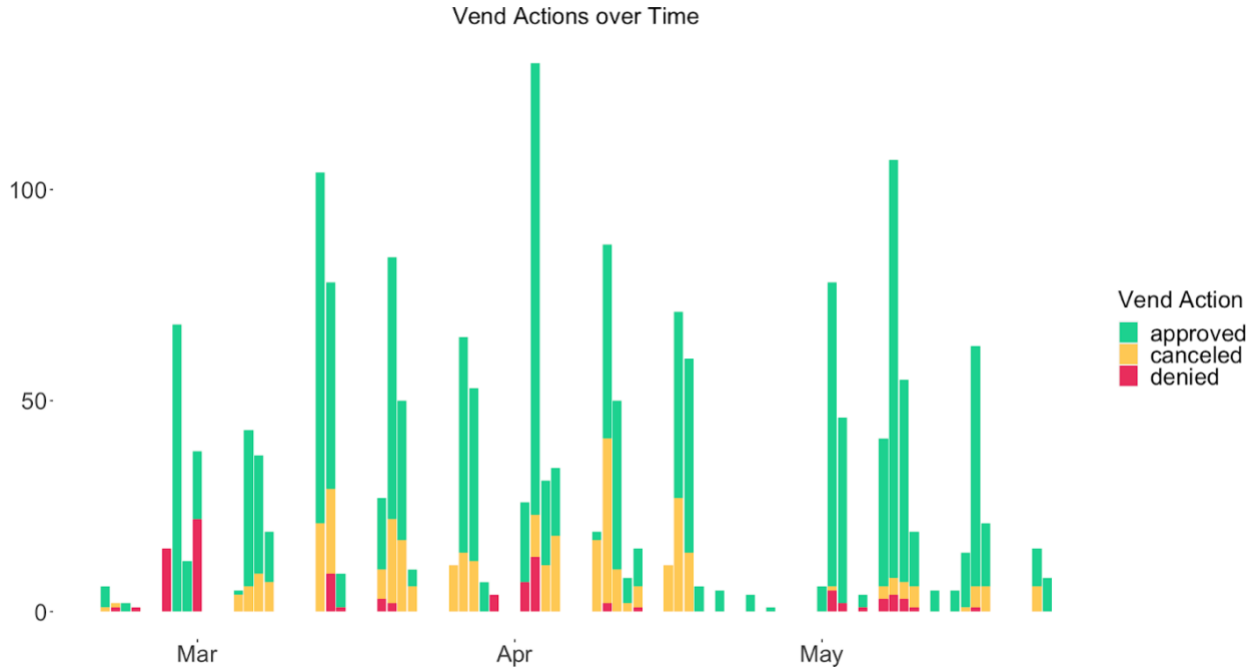
Definition Every time a student uses the vending machine, there can be 3 results:

1. Approved - The student chose an item, there were enough points in their account, the item was dispensed, and the appropriate number of points was deducted from their account.
2. Canceled - The student sent points from their account to a Smart Pantry but then pressed the cancel button on the machine. No item was dispensed and no points were deducted from their account.
3. Denied - the Student sent points from their account to a Smart Pantry and then pressed buttons on the machine for an item; however, there were not enough points on their account for the item they chose. No item was dispensed and no points were deducted from their account.

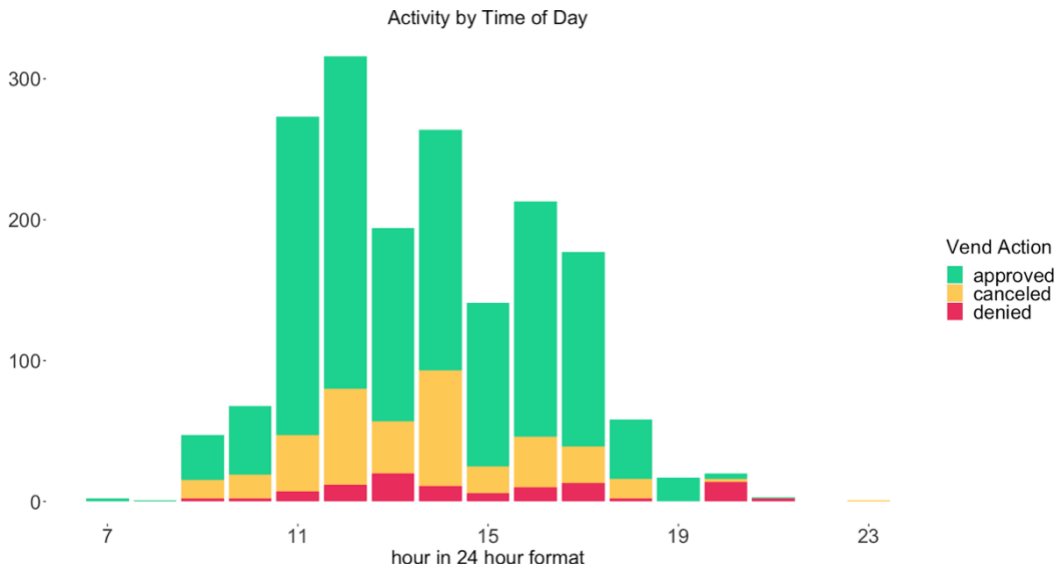
Interpretation Approved and Canceled actions indicate that the student was satisfied with their transaction, since the Smart Pantry responded in a way that the student expected. Only 6% of the time did the student try to interact with the Smart Pantry but got a result they didn't expect.

status	count
approved	1339
canceled	355
denied	101
total	1795

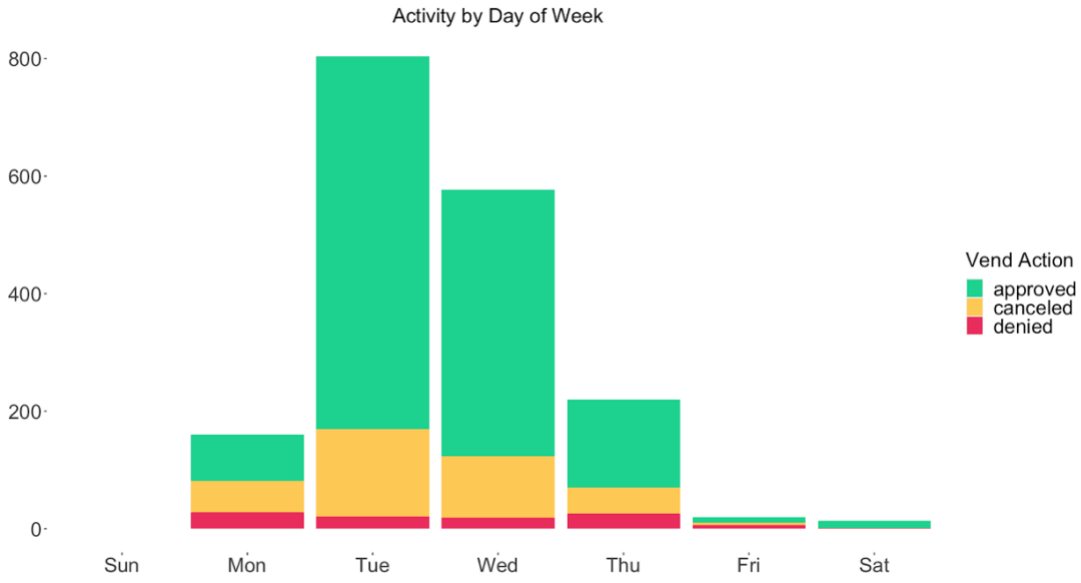




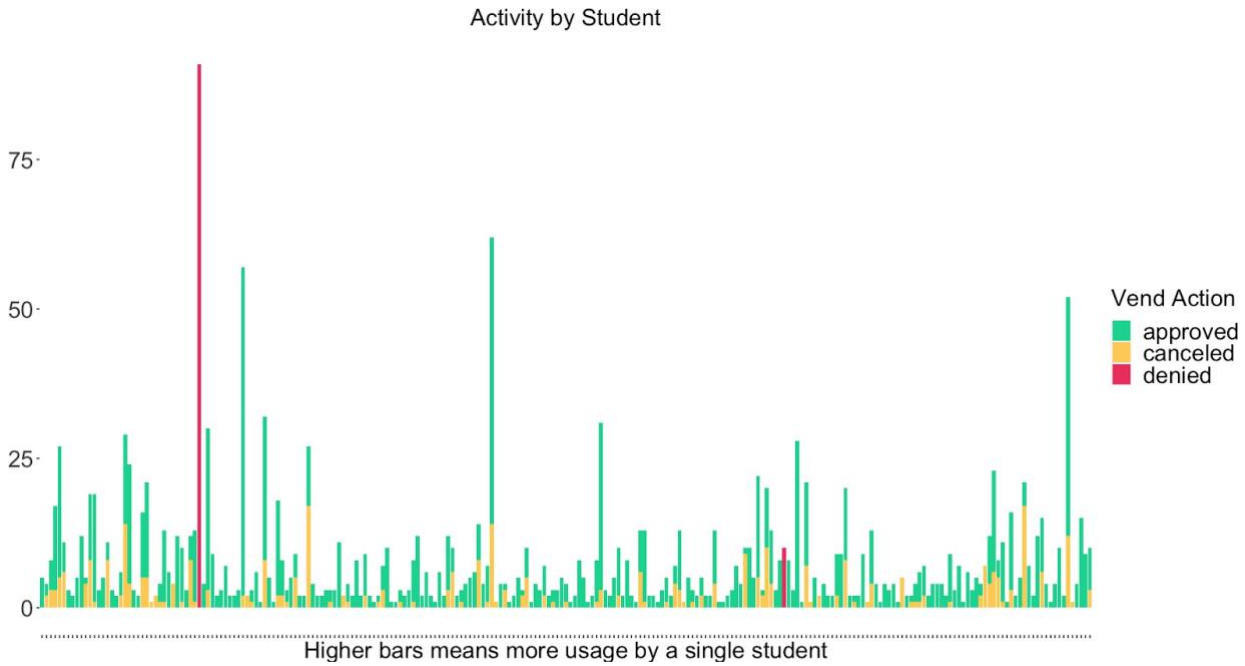
Interpretation: This presents as a standard normal distribution. The void toward the end of April corresponds with Hunter College's Spring Break in 2024, which explains the huge drop. Other patterns, such as the tendency for the second bar in each group of four to be the highest may be explained later when the data is disaggregated by the day of week.



Interpretation: Usage peaks around noon, which correlates with when the Smart Pantries were usually restocked. There are additional peaks around 2:00 pm and 4:00 pm, which, through anecdotal observation, may correlate with the start or end of classes. Often, we observed students using the machines directly after lecture, bringing classmates along with them, since they were already on campus. The decline in usage in the evening hours could be due to the Silberman building closing at 10:00 pm; the distribution may present differently in locations that are open very late or are open 24 hours a day.



Interpretation: There is a concentration in activity on Tuesdays, which correlates with when our fresh food deliveries were made.



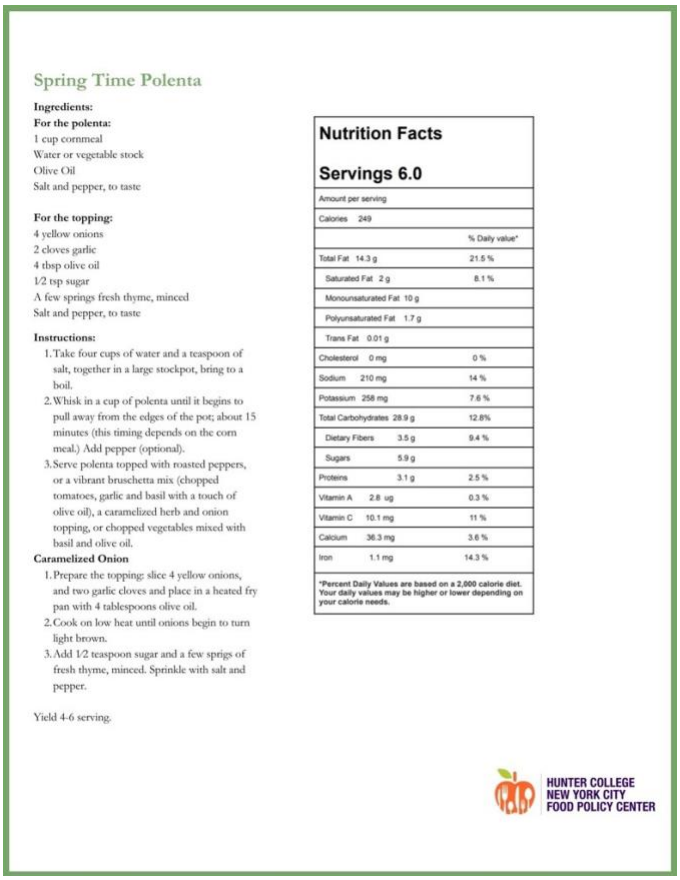
Interpretation: This shows that all the denied vend actions resulted from two students. This suggests that denied actions were likely isolated to those two accounts rather than being a software or hardware issue that affected many students. In fact, 99.17% of students interact with the machines without issue.

Our data does track individual students' usage over time in a deidentified way. This includes which Smart Pantry they used (fresh or shelf stable) and even which individual items they chose during each transaction. Further insights can be drawn from these longitudinal data points should additional funding and time be available.

total students	241
median usage count	4
mean usage count	7.45

Smart Pantry Instructional Handouts/Flyers/Signage

Cooking Class Flyer, Sample Recipe + Nutritional Information:



Spring Time Polenta

Ingredients:
For the polenta:
1 cup cornmeal
Water or vegetable stock
Olive Oil
Salt and pepper, to taste

For the topping:
4 yellow onions
2 cloves garlic
4 tbsp olive oil
1/2 tsp sugar
A few springs fresh thyme, minced
Salt and pepper, to taste

Instructions:
1. Take four cups of water and a teaspoon of salt, together in a large stockpot, bring to a boil.
2. Whisk in a cup of polenta until it begins to pull away from the edges of the pot; about 15 minutes (this timing depends on the corn meal.) Add pepper (optional).
3. Serve polenta topped with roasted peppers, or a vibrant bruschetta mix (chopped tomatoes, garlic and basil with a touch of olive oil), a caramelized herb and onion topping, or chopped vegetables mixed with basil and olive oil.

Caramelized Onion
1. Prepare the topping: slice 4 yellow onions, and two garlic cloves and place in a heated fry pan with 4 tablespoons olive oil.
2. Cook on low heat until onions begin to turn light brown.
3. Add 1/2 teaspoon sugar and a few sprigs of fresh thyme, minced. Sprinkle with salt and pepper.

Yield 4-6 serving.

Nutrition Facts

Servings 6.0

Amount per serving		
Calories	249	
		% Daily value*
Total Fat	14.3 g	21.5 %
Saturated Fat	2 g	8.1 %
Monounsaturated Fat	10 g	
Polyunsaturated Fat	1.7 g	
Trans Fat	0.01 g	
Cholesterol	0 mg	0 %
Sodium	210 mg	14 %
Potassium	258 mg	7.6 %
Total Carbohydrates	28.9 g	12.8%
Dietary Fibers	3.5 g	9.4 %
Sugars	5.9 g	
Proteins	3.1 g	2.5 %
Vitamin A	2.8 ug	0.3 %
Vitamin C	10.1 mg	11 %
Calcium	36.3 mg	3.6 %
Iron	1.1 mg	14.3 %

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

HUNTER COLLEGE
NEW YORK CITY
FOOD POLICY CENTER

Wellness Fair 2024 – Handout for Container/Urban Gardening

Planting Parsley, Cilantro & Basil

Parsley:

- Soak the seeds overnight to promote germination
- Sow the 2-4 seeds ¼ inch deep in a container, keeping them about 1/2 inch apart
- Keep the soil moist during germination.
- Empty the saucer under the pot every time so the root doesn't sit in the water

Cilantro

- Soak the seeds overnight to promote germination
- Sow 4-6 seeds about ½ inch deep in the soil, in a container with drainage holes.
- Water and keep in a humid environment.
- Empty the saucer under the pot every time so the root doesn't sit in the water

Basil

- Plant basil 3-4 seeds about 1/4 inch deep in the soil and cover them with a thin layer of soil.
- Keep the soil moist but not soaking wet.
- Place the container in a warm and sunny spot.
- Empty the saucer under the pot every time so the root doesn't sit in the water

Growing Conditions for Parsley, Cilantro & Basil

Parsley

- Sunlight: Parsley prefers partial shade to full sun and requires about 4-6 hours of sunlight daily.
- Watering: Water parsley when the soil surface feels dry to the touch. Depending on factors like temperature and humidity, you can water every 1-2 days.

Cilantro

- Sunlight: Cilantro prefers partial shade and requires about 3-4 hours of sunlight daily. Too much direct sunlight can cause it to bolt prematurely.
- Watering: Keep the soil consistently moist by watering whenever the top inch of soil feels dry. Depending on environmental conditions, you may need to water cilantro every 1-2 days.

Basil

- Sunlight: Basil prefers full sun and requires about 6-8 hours of direct sunlight daily for optimal growth.
- Watering: Water basil when the top inch of soil feels dry to the touch. Depending on factors like temperature and humidity, you may need to water basil every 1-2 days. It's crucial to keep the soil consistently moist but not waterlogged.

(continued)

More on Parsley, Cilantro & Basil

Germination, Harvest times, Regrowth

Parsley: 14-28 days, Harvests in 2-3 months. Regularly harvest a few leaves since it grows back in 2-3 weeks. Trim any yellow or damaged leaves regularly and cut the outer stems rather than the central ones to promote bushier growth.

Cilantro: germinates in 7-10 days. Harvest in 4 weeks. Harvest no more than 30% at a time. While cilantro can regrow from the remaining stem after harvesting, this regrowth is limited, and the plant may exhaust itself over time.

Basil: germinates in about 10-14 days. Harvest in 3-4 weeks. Regularly harvest a few leaves since it grows back in 2-3 weeks. Cut stems just above a set of leaves. If flowers start to grow, snip the buds off for more leaves.

Soil Health

Healthy soil provides proper nutrients, oxygen, water and root support. Some signs of healthy soil are:
Dark color indicates the presence of organic matter
A crumbly texture when soil easily falls off the plants roots
Spreading roots means plants have enough space to grow

Urban soil, like in New York City, often has higher levels of metals due to human activity. Planting directly into the soil can increase the exposure to metals if you breathe in soil particles or eat food raised in the soil. Some common metals include Arsenic, Lead, and Mercury. All of them, especially lead, can be a health concern, specifically for younger children. If large amounts of lead are ingested, it can lead to developmental and growth issues for children.

Reasons for contamination include paint from before 1978, traffic, treated lumber, petroleum spills, dry cleaning, burning waste and pesticides, etc.

What type of plant is it?

Perennials are plants that will regrow every year, without needing to be replanted. The upper portion of the plant dies in the frost, but the base and rootstock stay alive and germinate when the weather is warmer. Annuals die off completely when the weather gets too cold and need to be replanted every year.

Basil and cilantro are annual plants that must be replanted. Parsley is biennial- meaning it survives for about 2 years, and will completely die after that. Mint and thyme are annual herbs that grow rapidly without needing replanting. Basil and Cilantro reseed well and can be grown next year.

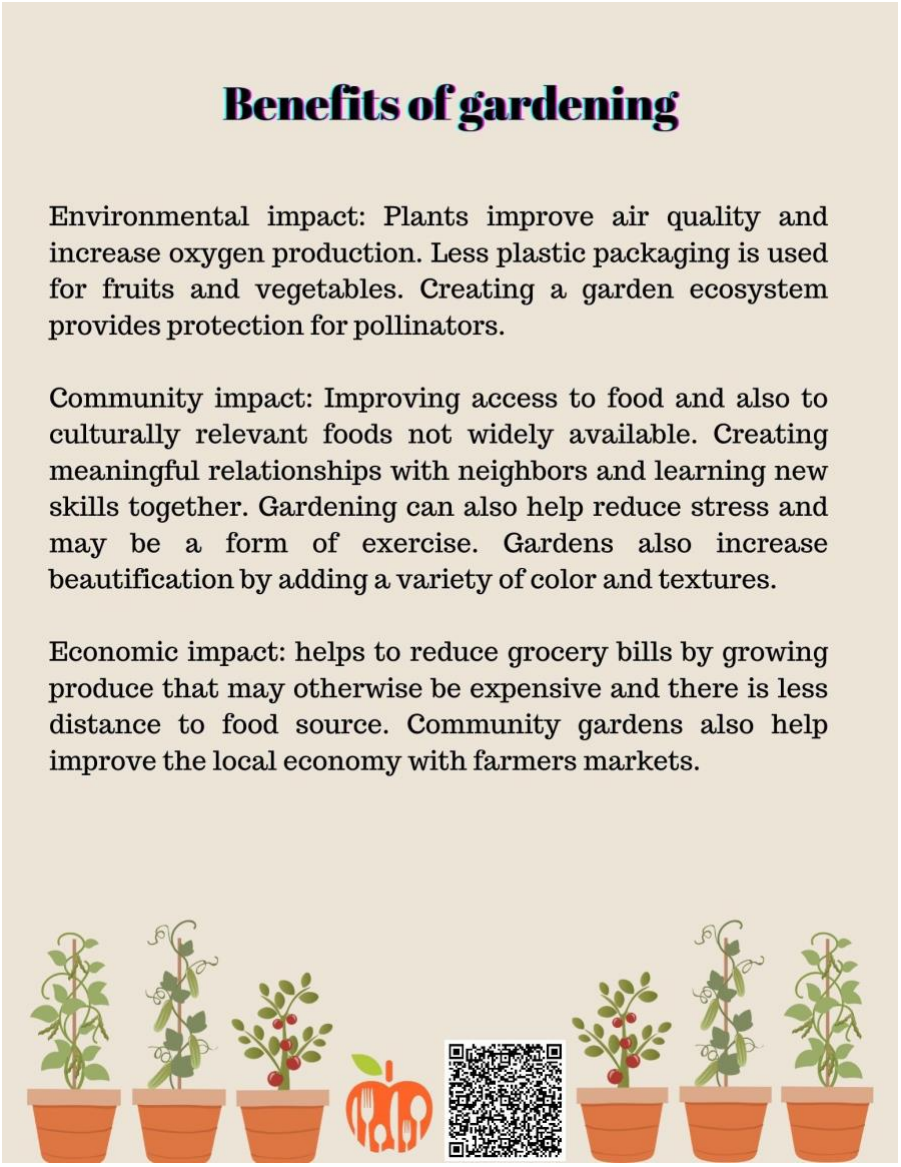
Tips for Safe Urban gardening

To minimize contact with soil contaminants:

a. Wear gloves while gardening.
b. Always wash your hands.
c. Wash and rinse fruits and vegetables before eating.
d. Peel below-ground vegetables and those grown in close contact with soil.
e. Watch children and make sure they don't ingest soil.

Standard soil testing often checks for ph, organic matter, nutrient and texture of soil. It involves collecting samples from different areas and sending them to a laboratory for analysis. Testing kits are also available at most hardware stores and garden centers. Alternatively you can contact your local county extension office.

(continued)



Report submitted: July 31, 2024

Annette Nielsen
Executive Director (former), Hunter College NYC Food Policy Center