Helping Students Help Themselves: An Intervention to Facilitate Campus Food Pantry Use at a Public University

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Approval of the Dissertation Committee

This dissertation has been duly read, reviewed, and critiqued by the Committee listed below, which hereby approves the manuscript of Kianna D.G. Valoa as fulfilling the scope and quality requirements for meriting the degree of Doctor of Philosophy in Education.

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Abstract

Helping Students Help Themselves: An Intervention to Facilitate Campus Food Pantry Use at a Public University

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Estimates of student food insecurity at California's public universities range from 42–47%. This study conducted at a public university in California investigated the impacts of an intervention on increasing campus food pantry use by increasing students' knowledge of the pantry and reducing cognitive barriers. A sample of enrolled students (N=11,400) were randomly assigned to be in either the partial intervention (n=3,800), full intervention (n=3,800), or control (n=3,800) group. The partial intervention group received a postcard in the mail and an email invitation to complete the post-test survey online. The full intervention group received the pretest survey, a postcard, and the post-test survey. The surveys evaluated students' knowledge and perceptions of the prevalence of food insecurity, who the food pantry is meant to serve, the normalcy and acceptability of food insecurity, and pantry design aspects. The average survey response rate was 5.3%. An analysis of the survey responses from the three groups revealed no statistically significant differences in students' self-reported pantry visits, knowledge, and perceptions. Similarly, an analysis of weekly pantry visitors over the academic term revealed no changes in pantry use. An interview with campus food pantry staff discussing the findings led to the evaluative decision that using postcards alone is an ineffective way to increase campus food pantry use. Future inquiries should explore the effectiveness of other communication mediums such as texts, emails, and letters alone and in combination with postcards—especially interventions co-designed with students. Other approaches to improving pantry visibility should also be explored.

Keywords: campus food pantry, food insecurity, intervention, postcard, cognitive barriers

Dedication

The woman who started this quest is not the same woman who concluded it.[1] The internal transformation was so vast and so far-reaching that she could not conceive it until it was completed—and, even then, she looked upon the photos and writings of the past as a stranger might. To finish this quest means successfully resisting the paradigm and efforts of her oppressors. To finish this quest means honoring the investments of those in her past and present who helped her. To finish this quest means strengthening herself to then strengthen others. To finish this quest means starting a new one, for until her last breath there is more adventuring to be had.

This dissertation is dedicated to her and to those in the middle of their own quests for whom she aspires to help.

[1] While completing this dissertation, Kianna D.G. Valoa changed her name twice, first by using a preferred name (Dae Kianna) and a second time by changing her legal name from Nancy LePage to Kianna D.G. Valoa. To avoid confusing readers, all references to Kianna Valoa's former names in this document, including the appendices, have been replaced with her new legal name.

Acknowledgements

The completion of this dissertation would not have been achievable without the guidance, investment, and encouragement of Dr. Gwen Garrison. I would not be who I am and where I am today without you.

To my stepmother, this dissertation and the academic endeavors surrounding it played a bigger role in my life than I expected. It empowered and protected me. Thank you for throwing me into that fateful first meeting with Dr. Garrison and for highly prioritizing my studies in every way possible.

Ryan Choi, thank you for your patience and persistence in the face of numerous complications and setbacks. Your support allowed this research endeavor and its contribution to the broader dialogue on basic needs insecurity to go from concept to reality. Our partnership was an answer to prayer.

And lastly, Riley, thank you for unwittingly financing the device that the majority of this ginormous document was written on.

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Chapter 1: Purpose of the Study

Introduction and Statement of the Problem

Food insecurity undermines the efforts of college students across the United States. Estimates of food insecurity rates based on non-representative samples of college students from individual campuses, public higher education systems, states, and nationwide range from to about one-quarter to two-thirds—far exceeding the general population (Community College League of California, 2023; Crutchfield & Maguire, 2018; Goldrick-Rab et al., 2019a; Government Accountability Office, 2024; Nazmi et al., 2018; Rabbitt et al., 2024). Recognizing this, postsecondary institutions have responded by providing more food resources, with one of the most common resources being campus food pantries (American Association of Collegiate Registrars and Admissions Officers [AACRAO] & Hope Center for College, Community, and Justice, 2020; Fetter & Gilboy, 2018; Nazmi et al., 2018; Swipe Out Hunger, 2024b). Despite high rates of student food insecurity, campus food pantries are underutilized (Crutchfield et al., 2020; Crutchfield & Maguire, 2019; El Zein et al., 2018, 2019; Goldrick-Rab et al., 2021a). This underutilization is in part because students lack knowledge about campus food pantries and have certain perceptions that prevent them from visiting (El Zein et al., 2018, 2021a; Henry, 2017; Landry et al., 2024). In addition, design aspects of campus food pantries may make accessing the resource difficult or undesirable (Hernandez et al., 2021; Idehai et al., 2024; King, 2017; Moreno-Yamashiro, 2019). Postsecondary institutions are responsible for informing students about food pantries, addressing their negative perceptions, and implementing pantry design aspects that facilitate resource use. However, the current literature focuses primarily on the barriers to campus food pantry (CFP) utilization. Empirically proven and effective ways campuses can help their students overcome these barriers are only beginning to be explored, with many solutions being theorized but not tested in real-world settings.

This mixed methods study at a public university in California measures the effectiveness of an intervention that postsecondary institutions can implement to increase CFP use. In

partnership with campus stakeholders, an intervention featuring a single postcard was sent to a sample of students. This study evaluates the impacts of the intervention on facilitating food pantry use and explores several underlying mechanisms that influence student behaviors. Ultimately, this study aims to discover a practical, effective way that postsecondary institutions can encourage students to access campus food pantries to support their wellbeing and academic success.

In this opening chapter, I clarify the significance of the study as it relates to higher education practice and research. Next, I describe my research objectives, questions, and hypotheses. The chapter concludes with a reflection on my positionality as a researcher with lived experience and with a list of key terms. In Chapter 2, I review the existing literature on food insecurity in higher education, the responses of policymakers and campuses, campus food pantries, barriers to campus food pantry use, and potential ways to increase utilization. Next, I explain my conceptual framework of food pantry use based on the literature and the theoretical framework guiding this study. In Chapter 3, I describe my research methodology and design, plan to answer each research question, and plan for protecting participants' privacy. In Chapter 4, I begin with descriptions of the study site, student population, student sample, survey respondents, and the campus food pantry. I then describe how the survey was administered and the strength of the survey's design. After that, I describe the findings for each research question. Lastly, in Chapter 5, I discuss the findings and implications of each research question. Given the findings and the study's limitations, I reflect on future study improvements. I conclude with reflections on how the theoretical framework was applied and implications for future inquiry.

Significance of the Study

This study is significant because it sheds light on the effectiveness of an intervention—a single postcard sent in the mail—which postsecondary institutions can implement to connect students with campus food pantries. The literature on campus food pantries primarily focuses on barriers to utilization and recommends pursuing "clearer expectations and requirements"

(Moreno-Yamashiro, 2019, p. 130) and “[reduced] concerns of social stigma” (El Zein et al., 2018, p. 1). However, few studies systematically explore how postsecondary institutions can best accomplish these goals. Campus staff lack guidance on which interventions to implement based on empirical evidence. This guidance must be provided as soon as possible. Food pantries are one of the most common ways that colleges and universities have responded to student food insecurity (Fetter & Gilboy, 2018; Nazmi et al., 2018; Swipe Out Hunger, 2024b). Although their effectiveness at reducing food insecurity is still being determined, at a minimum campus food pantries provide short-term relief to hungry students. When campus food pantries are underutilized, postsecondary institutions waste limited resources and students in need do not receive available aid.

This study contributes to a gap in the literature. Researchers commonly conclude with recommendations to address observed barriers, yet few studies have explored how exactly to accomplish this. Building on the literature, this study extends into the less explored frontier of effective interventions. The identification of an intervention that increases food pantry use will begin to confirm or disconfirm researchers’ theorized solutions. Taking a holistic approach, this study also examines the relationships between campus communication efforts; food pantry design; and students’ knowledge, perceptions, willingness, and behaviors to understand how the intervention may have led to the desired outcomes (or why it failed to do so).

Findings from this study could apply to far more than its specific campus setting and resource type. An effective intervention could be applied to other public four-year postsecondary institutions statewide and nationwide which share similarities with the study site. The findings could also apply to other basic needs resources like emergency housing and mental health resources which face similar challenges in increasing students’ knowledge of the resource and altering their negative perceptions surrounding resource use. Campus-based resource hubs (locations on campus that serve as one-stop shops for basic needs resources) may particularly benefit from employing the intervention if this study finds it to be successful (Goldrick-Rab et al.,

2021a). When postsecondary institutions take informed actions to improve CFP use, there are additional benefits for both the students and their institutions. Beyond food aid, students who visit campus food pantries can be connected with resources provided by the government, the campuses, and local nonprofits. Lastly, underutilization may give the false impression of a lack of need, leading to less investment in the CFP. When utilization better reflects students' needs, campus staff better understand the scope of the food challenges and adjust their student services accordingly.

Research Questions and Hypotheses

This mixed methods study conducted at a public university in California explores the effectiveness of an intervention[2] that postsecondary institutions can implement to increase student utilization of campus food pantries and explores how the intervention led to changes in student behaviors, if any. To this end, I aim to answer four main research questions and six sub-questions (which have six corresponding hypotheses):

I. What intervention do staff at a public university in California consider to be the most feasible and effective at reducing students' cognitive barriers to campus food pantry use?

II. To what extent does the intervention improve CFP use at this university?

    1. To what extent is the intervention associated with increases in pantry visitors?
    2. To what extent is the intervention associated with increases in students' self-reported pantry visits?

III. What are the underlying mechanisms between the intervention and changes in CFP use?

    3. To what extent is the intervention associated with increases in students' *knowledge* of the CFP?

[2] For the purposes of this study, the intervention refers to a specific instance of communicating information to students that consists of (a) a communication medium and (b) intentional messaging.

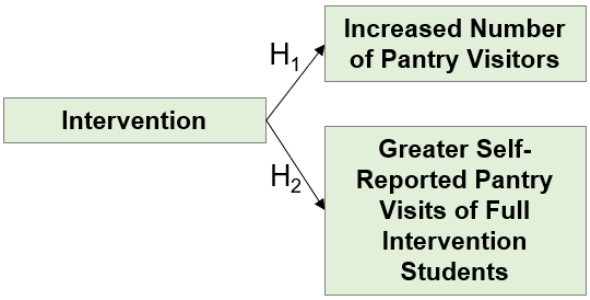
4. To what extent is the intervention associated with decreases in students' *negative perceptions* (e.g., cognitive barriers) of the CFP and food insecurity?
5. To what extent are increases in students' knowledge and decreases in their negative perceptions associated with greater *willingness* to use the CFP?
6. To what extent are increases in students' willingness to use the CFP associated with greater *self-reported visits*?

IV. What design aspects of the food pantry at this public university facilitate or hinder its use?

For the second research question, I have two hypotheses (see Figure 1). First, I hypothesize that the intervention will result in a significant increase in food pantry visitors, as measured by the number of food pantry visitors (H_1). Whether the increase warrants calling the intervention "effective" in light of the intervention's costs will be decided in collaboration with staff at the study site. Second, I hypothesize that the intervention will also result in the intervention group self-reporting using the CFP at a higher rate compared to the control group (H_2). These alternative hypotheses are based on the literature; qualitative and quantitative studies have repeatedly found that students are not using campus food pantries because they do not know about them at all, do not know enough about them, or have certain negative perceptions about them and about food insecurity. While prior studies mention a variety of interventions that may reduce these barriers, few studies have empirically tested their effectiveness in real-world settings. The intervention used in this study will be designed to increase students' knowledge and reduce their negative perceptions. Nevertheless, there is a possibility that the intervention will result in no significant difference in total food pantry visitors and self-reported rates of utilization (H_0).

Figure 1

Visual Organization of Hypotheses Associated with Research Question II



Whether there are statistically significant changes in actual and reported food pantry use or not, I will analyze underlying mechanisms to explore what led to the changes or lack of changes in student behaviors after they received the intervention. These underlying mechanisms include students' knowledge of the resource, perceptions (which may act as cognitive barriers), and willingness to use the resource. To this end, I have four hypotheses related to Research Question 3 (see Figure 2).

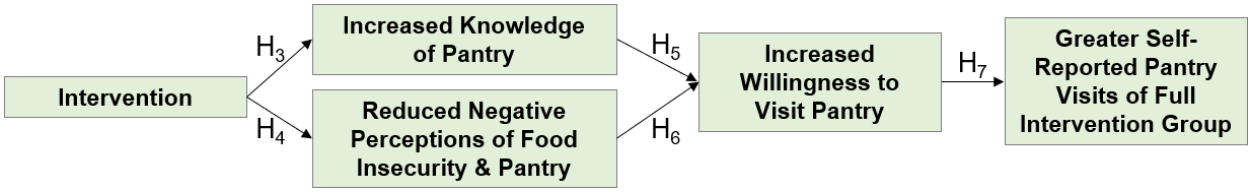
- First, the intervention will lead to a significant increase in student knowledge of the CFP (H_3).
- Second, the intervention will lead to a significant decrease in students' negative perceptions related to food insecurity and food pantry use (H_4).
- Third, students who experience a significant increase in their knowledge will have a significant increase in their willingness to visit the CFP (H_5).
- Fourth, students who experience a significant decrease in their negative perceptions will have a significant increase in their willingness to visit the CFP (H_6).
- Fifth, students who experience a significant increase in their willingness to visit the CFP will be more likely to visit the CFP, as measured by self-reported visits (H_7).

However, there is a possibility that intervention will result in no significant difference in students' knowledge, negative perceptions, willingness to visit the CFP, and self-reported visits (H_0).

Students' knowledge of campus food pantries, perceptions of food insecurity and food pantry use, and willingness to use the CFP are abstract constructs which I will attempt to measure using online pre- and post-test student surveys. Exploring the underlying mechanisms that connect the intervention to CFP use can help postsecondary institutions understand how to effectively reduce students' cognitive barriers and, ultimately, increase food pantry use.

Figure 2

Visual Organization of Hypotheses Associated with Research Question III

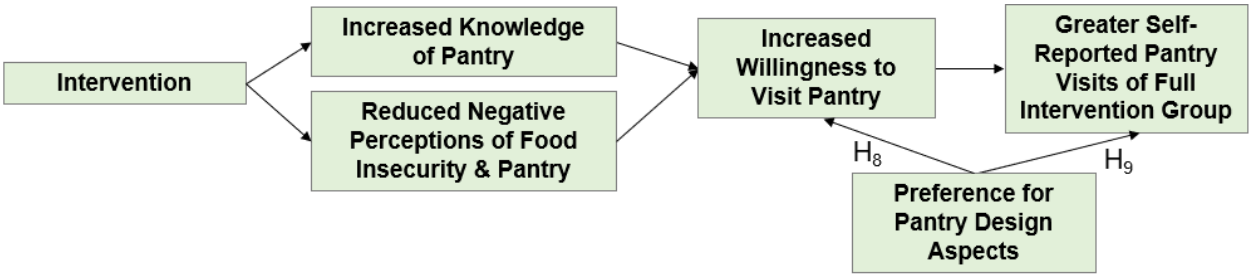


If I find that students have an increased willingness to visit the food pantry after receiving the intervention but there is not an increase in their self-reported visits, then a possible explanation is that food pantry design aspects make it difficult or undesirable for them to visit, acting as structural barriers. Thus, my two hypotheses associated with Research Question 4 is that food pantry design aspects will have a positive correlation with students' willingness to use the food pantry (H_8) and that these design aspects will have a positive correlation with students' self-reported visits (H_9; see Figure 3). Thus, pantry design aspects will be a confounding variable between "willingness to visit the food pantry" and their self-reported frequency of pantry visits (ICPSR, 2025). Conversely, the null hypotheses (H_0) are that pantry design aspects have no relationship with students' willingness to visit the pantry nor their self-reported visits, respectively. To determine the extent that food pantry design aspects impact resource utilization, I will include several questions in the post-test survey which ask students to share their perspectives on the pantry's hours, food, employees, location, and interior. High rates of dissatisfaction may correlate with reduced food pantry visits, in that the resource is difficult

and/or less worthwhile to use. In addition, the findings from the student survey will be compared to pantry staff perspectives on the pantry's design aspects (collected via a semi-structured interview and the pantry information survey) as well as students' written responses to two questions about aspects of the pantry that are and are not working well.

Figure 3

Visual Organization of Hypotheses Associated with Research Question IV



Researcher Positionality

Food insecurity in higher education is a topic close to my heart. As an undergraduate student, I experienced food insecurity to varying extents from 2011 to 2016, first while attending a public two-year college and then at a public four-year university. Despite lacking financial literacy, lacking skills in food preparation and meal planning, and living on a limited budget, I felt fully responsible for not having enough money for food. Consequently, I did not reach out to anyone for help and rarely used food pantries in the community and on my campuses; instead, I employed other strategies to obtain food. This challenge led to a strained relationship with food for several years, where I would overeat when the opportunity arose to ward off fears of future hunger. Impacted by these experiences, after graduating with my bachelor's degree I spent five years as a research consultant focused on basic needs insecurity in higher education and potential solutions. I summarized literature on the topic, took stock of campuses' resources, and explored students' resilience strategies in the face of many challenges (California Research

Bureau, 2020b). These personal and professional experiences grant me an insider perspective on the topic of food insecurity, and they informed the focus and design of my dissertation study.

However, I do not claim to be an expert compared to students who face food challenges today and to campus staff who understand the realities of implementing basic needs programs like campus food pantries. In these regards, I am an outsider. Thus, I sought to unite my knowledge and vantage point with others to conduct my dissertation study with boldness and humility. This plays out in my study design. Using semi-structured interviews, I consulted campus staff on which communication medium was expected to work best in their specific campus context, ways to improve the intervention's design and content, and potential threats to the validity of the findings. To protect students' privacy, I also depended on campus staff for sampling the student population, distributing the pre- and post-test surveys, implementing the intervention, and collecting weekly data on CFP visitors. This collaborative approach may contradict the routine dissertation, where the PhD candidate independently prepares and executes a plan. Both the collaborative and the solo approaches have benefits and risks. I accepted the risks associated with a collaborative study design because I prioritized discovering an intervention that is both feasible and effective in public higher education settings.

Concerning my philosophical approach to conducting research, I most closely align with the interpretive framework of pragmatism which focuses on study outcomes—namely, "the actions, situations, and consequences of inquiry" (Creswell & Poth, 2018, p. 26). This is evident in my research career, where research is not an end unto itself but rather a way to elevate an issue as being important enough to warrant seeking deeper understandings and urgent enough to act on the findings. To this end, my choice of which research methods to use depends upon the research topic and goals. Furthermore, in alignment with the pragmatist approach and in alignment with my Bachelor of Arts in Sociology, I am careful to attend to each phenomenon surrounding social, political, historical, and other contexts (Creswell & Poth, 2018, p. 27). In the case of food insecurity, the importance of broader contexts is evident in my review of the

literature and in my study's theoretical framework: students' negative perceptions are not deficiencies in students' minds. Rather, both are social realities rooted in systems of oppression.

My hope is that this study will provide insight concerning what interventions work well within a specific postsecondary context, so that staff overseeing campus food pantries in similar contexts will have greater guidance on how to increase the use of basic needs resources like campus food pantries. Concerning other expected gains from this study, I will complete the requirements for a PhD in Education at Claremont Graduate University and expand my professional network. Otherwise, I received no compensation for this research endeavor; on the contrary, I personally funded $350 in Amazon gift cards as an incentive for students to complete the pre- and post-test surveys and $1,800 to the study site towards the costs of mail materials.

Key Terms

For the sake of clarity, I provide several key terms used throughout this dissertation. The definitions below are drawn from the literature on food insecurity and campus food pantries. Several definitions are rewritten in my own words to distill concepts for ease of understanding and to highlight the aspects applicable to this study, while other definitions are direct quotes.

Basic needs: the minimum supports necessary for someone to have physical, mental, and emotional wellbeing. Traditionally, the literature on basic needs in higher education has been narrowly defined as sufficient food and housing (Crutchfield & Maguire, 2018; Goldrick-Rab at al., 2019a). However, some researchers in the higher education space have expanded the definition to include other aspects, such as access to healthcare and affordable transportation (California Community College Chancellor's Office, 2023; Crutchfield & Maguire, 2019; LePage, 2019; Martinez et al., 2020).

Basic needs insecurity: "the lack of the minimum necessary supports for well-being" (Regents of the University of California, 2020, p. 6). More specifically, having inadequate access to "food, housing, childcare, health care (including mental health care), transportation, and technology" (McKibben & Qarni, 2022, para. 4). Notably, just as there is a lack of agreement on

and regulation of the term “basic needs,” different institutions define basic needs insecurity differently.

Campus: a single postsecondary institution, even if it has numerous physical locations.

Campus food pantry: a resource physically located on campus where eligible students can receive free groceries. Campus food pantries varied greatly in physical size, number of students served, types of food provided, and other design aspects (California Community College Chancellor’s Office, 2023; Goldrick-Rab et al., 2018). In addition to food, pantries may also provide food-related services, such as Supplemental Nutrition Assistance Program (SNAP) enrollment assistance, and non-food resources, such as hygiene items and clothes.

Campus food pantry (CFP) use: measured in this study by (a) the total number of food pantry visitors within a given timeframe (not counting repeat visitors) and (b) students’ self-reported rates of food pantry visits.

Cognitive barriers to food pantry use: situations where college students (a) lack sufficient knowledge and/or (b) have perceptions that prevent them from using campus food pantries. Insufficient knowledge includes being unaware that the CFP exists and knowing that it exists but lacking further knowledge about it, such as how it works, who is eligible to use it, and the kinds of food provided (see Figure 4). Perceptions that prevent students from using campus food pantries (also called “negative perceptions” throughout this paper) include perceptions of stigma associated with food insecurity and pantry use; perceptions that food insecurity is rare and “non-normal”; perceptions that food pantry use is “non-normal”; perceptions that campus food pantries are intended to serve for someone other than themselves; and perceptions that food insecurity is a normal aspect of the college experience (i.e., acceptance of the starving student narrative).

Figure 4

Organization of Cognitive Barriers to Food Pantry Use

Cognitive barriers to food pantry use

Insufficient knowledge	Negative perceptions - Stigma associated with food insecurity and food pantry use - Perceptions that food insecurity is rare and "non-normal" - Perceptions that campus food pantry use is "non-normal" - Perceptions that campus food pantries are intended to serve for someone other than themselves - Perceptions that food insecurity is a normal aspect of the college experience (i.e., acceptance of the "starving student" narrative)

Control group: a portion of the sample of students who received the pre- and post-test surveys but not the intervention.

Food insecurity (or food insecure): an "economic and social condition of limited or uncertain access to adequate food," according to the United States (U.S.) Department of Agriculture (Economic Research Service, 2021b, para. 11). In the context of higher education, food insecurity is considered a condition affecting individuals (Community College League of California, 2023; Crutchfield & Maguire, 2018; Goldrick-Rab at al., 2019a; University of California Institutional Research and Academic Planning, 2024).[3] Food insecurity has two levels. Low food security refers to "reduced quality, variety, or desirability of diet [yet] little or no indication of reduced food intake" (Economic Research Center, 2021b, para. 4). In contrast, very low food security refers to "multiple indications of disrupted eating patterns and reduced food intake" (Economic Research Center, 2021b, para. 5).

[3] This is implied by how the questions measuring student food insecurity are asked.

Food security (or food secure): experiencing no food access challenges or experiencing stress related to food but "little to no indications of changes in diet or food intake" (Economic Research Center, 2021b, para. 3).

Intervention: a form of communication to students. The intervention has two aspects: a communication medium and intentional messaging. In this study, campus staff selected mailed postcards as the desired intervention over emails or texts. The intervention's intentional messaging aims to address students' cognitive barriers to food pantry use by (a) increasing their knowledge of the CFP's existence, how it works, and what it has to offer and (b) decreasing their negative perceptions about food insecurity and CFP use.

Partial intervention group: a portion of the sample of students who received the intervention and only the post-test survey, not the pretest survey. The partial intervention group is necessary to evaluate the extent to which the pretest survey sensitizes students to the intervention, resulting in different outcomes compared to the intervention alone.

Structural barriers to food pantry use: aspects of a CFP's design that make accessing the resource difficult or undesirable for students. Design aspects include eligibility/enrollment processes, hours, employees (e.g., customer service interactions, whether the employees are student peers), food (e.g., quality, selection), and interior design.

Intervention group: a portion of the sample of students who received the intervention as well as the pre- and post-test surveys.

Chapter 2: Literature Review

Food Insecurity in Higher Education

Food insecurity is the “limited or uncertain access to adequate food” (Economic Research Center, 2021b, para. 6) including eating food of a lower quality, irregularly, and less than one should. While food insecurity experienced by children and the general adult population has been a topic of research for some time, studies examining the intersection of food insecurity and higher education emerged in the literature more recently, in 2009 (Chaparro et al., 2009). Since then, food insecurity among college students has increasingly gained the attention of media agencies, researchers, campus administrators, lawmakers, and advocates in the United States due to its prevalence and negative impacts.

This literature review on food insecurity and college food pantries includes the following: (a) the definition, prevalence, causes, and impacts of food insecurity in higher education, (b) common responses to alleviate student food insecurity, (c) CFP types and impacts, (d) CFP underutilization, and (e) potential ways to promote utilization. While the first three themes provide foundational information that situates food insecurity and campus food pantries in higher education, the last two themes shed light on the interactions between students, pantry design, and resource use.

Definition of Food Insecurity

The experience of food insecurity varies in intensity and duration. The U.S. Department of Agriculture defines two levels of food insecurity (Economic Research Center, 2021b, para. 3–5):

- Low food security refers to “reports of reduced quality, variety, or desirability of diet. Little or no indication of reduced food intake.”
- Very low food security refers to “reports of multiple indications of disrupted eating patterns and reduced food intake.”

Conversely, people who have “little or no indication of changes in diets or food intake” or just “anxiety over food” are considered food secure.

Because a college student’s financial, housing, and food situations can change dramatically from one academic term to the next, it is common for questions about their food insecurity to reference the past 30 days instead of the U.S. Department of Agriculture’s timeframe of the past 12 months (Community College League of California, 2023; Crutchfield & Maguire, 2018; Goldrick-Rab at al., 2019a). Furthermore, it is common for questions about students’ food insecurity to be asked individually instead of the U.S. Department of Agriculture’s framing by household (Community College League of California, 2023; Crutchfield & Maguire, 2018; Goldrick-Rab at al., 2019a; University of California Institutional Research and Academic Planning, 2024).

Food insecurity is experienced differently based on the circumstances surrounding its causes and the students. For example, a commuter student navigating food insecurity may face challenges picking up food from the pantry during limited hours, storing and carrying the food with them until the end of their classes, and traveling home with the food via public transportation (Brito-Silva et al., 2022; Yamashiro et al., 2023). Conversely, a freshman living in the student dorms at a university may be required to buy a meal plan as part of their on-campus residency. If the most affordable, limited meal plan was selected, the student may opt to consume a large, nutritious prepared meal only once a day and replace their other two meals with cheap, less nutritious snacks or skip the other meals entirely. This strategy ensures that the student can survive even if they experience hunger throughout the day; however, their food insecurity is exacerbated when the dining halls close for academic breaks and holidays.

Prevalence of Food Insecurity

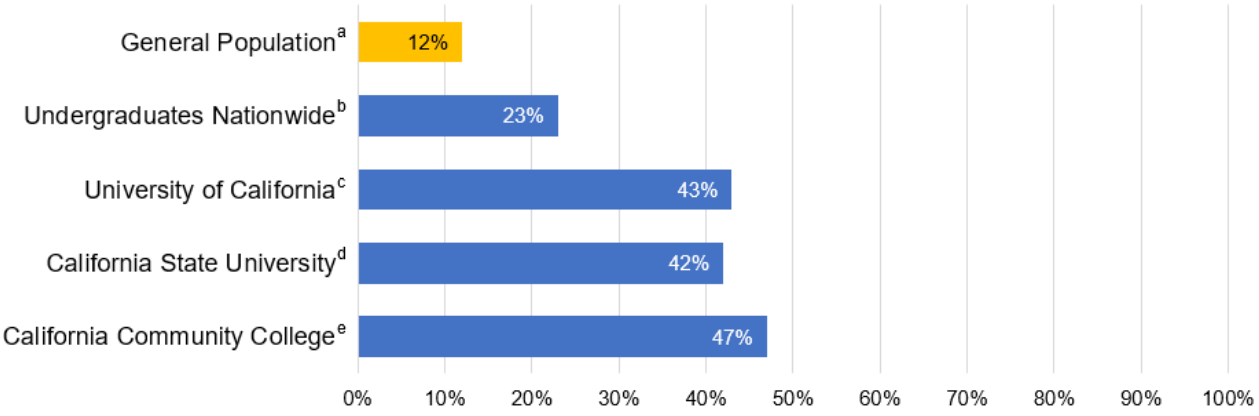
Concerning prevalence, “an estimated 23 percent of college students (3.8 million) [in the United States] experienced food insecurity in 2020, according to the U.S. Government Accountability Office's (2024) analysis of student data from the Department of Education's

National Postsecondary Student Aid Study (NPSAS)" (p. i). Estimates of food insecurity rates based on non-representative samples of college students from individual campuses, public higher education systems, states, and nationwide range from to about one-quarter to two-thirds—with variations based on geography, type of institution, academic goals, and student demographics (see Figure 5; Community College League of California, 2023; Crutchfield & Maguire, 2018; Goldrick-Rab et al., 2019a; Government Accountability Office, 2024; Nazmi et al., 2018).[4] In the 30 days preceding students' responses to a survey, California's public postsecondary students experienced food insecurity at an estimated rate of 47% at the California Community College (CCC) and 42% at the California State University (CSU; Community College League of California, 2023; Crutchfield & Maguire, 2019). Similarly, 43% of University of California (UC) undergraduates experienced food insecurity in the past 12 months (Regents of the University of California, 2023). Postsecondary food insecurity rates are higher than the general population, which was estimated by the U.S. Department of Agriculture's Economic Research Service to be 14% in 2023 (Rabbitt et al., 2024).

[4] Due to variations in how food insecurity is measured and a lack of standardization in surveying protocols, these are truly estimates (Ellison et al., 2021; Nikolaus et al., 2020).

Figure 5

Estimated Food Insecurity Rates in the United States



[a] Based on survey respondents who experienced food insecurity in the last 12 months, based on 2023 data. From *Household food security in the United States in 2023* (p. 8), by M. P. Rabbitt, 2024, U.S. Department of Agriculture. https://doi.org/10.32747/2024.8583175.ers

[b] Based on survey respondents who experienced food insecurity in the last 30 days, based on 2020 data. From *Supplemental Nutrition Assistance Program: Estimated eligibility and receipt among food insecure college students* (GAO-24-107074; p. 6), by U.S. Government Accountability Office, 2024. https://www.gao.gov/assets/gao-24-107074.pdf

[c] Based on survey respondents who experienced food insecurity in the last 30 days, based on 2023 data. From *Student basic needs* [Infographic], by Regents of the University of California, 2023. Retrieved January 13, 2023, from https://www.universityofcalifornia.edu/about-us/information-center/student-basic-needs

[d] Based on survey respondents who experienced food insecurity in the last 30 days, based on 2016 data. From *Study of student service access and basic needs* (p. 12), by R. M. Crutchfield & J. Maguire, 2019, California State University Office of the Chancellor. https://www.calstate.edu/impact-of-the-csu/student-success/basic-needs-initiative/Documents/BasicNeedsStudy_Phase_3.pdf

[e] Experienced food insecurity in the last 30 days, based on 2023 data. From *Real College California: Basic needs among California Community College students* (p. 4), by Community College League of California, 2023. https://files.eric.ed.gov/fulltext/ED631784.pdf

College students experience food insecurity unequally. Based on non-representative studies that examined more than one postsecondary institution:

- Students who identify as non-binary, homosexual, or bisexual are more likely to experience food insecurity (Community College League of California, 2023; Goldrick-Rab et al., 2019a; Regents of the University of California, 2023; U.S. Government Accountability Office, 2024).
- Students from low-income backgrounds, such as students who are receiving federal Pell grants, are more likely to experience food insecurity. Pell Grants are financial aid "awarded only to undergraduate students who display exceptional financial need" (Office of Federal Student Aid, n.d., para. 1) and who have not yet earned a degree beyond the Associate-level (Community College League of California, 2023; Crutchfield & Maguire, 2018; El Zein et al., 2019; Goldrick-Rab et al., 2019a; Regents of the University of California, 2023).
- Students who had experience in the foster care system have higher rates of food insecurity compared to those who never entered the foster care system (Community College League of California, 2023; Crutchfield & Maguire, 2018; Goldrick-Rab et al., 2019a; Regents of the University of California, 2020; U.S. Government Accountability Office, 2024).
- Students who identify as African American, Native American or Alaska Native, or Pacific Islander experience food insecurity at higher rates compared to other racial/ethnic groups, although which racial/ethnic group has the highest rates varies by study (Community College League of California, 2023; Crutchfield & Maguire, 2018; Goldrick-

Rab et al., 2019a; Regents of the University of California, 2023; U.S. Government Accountability Office, 2024).

- Students who are also parents of young children, especially single parents, are more likely to experience food insecurity (Community College League of California, 2023; Kienzl et al., 2022; U.S. Government Accountability Office, 2024).

Food insecurity rates are often higher when multiple intersecting identities are taken into account (Kienzl et al., 2022). A study examining the California State University found that 66% of African American respondents who were first-generation college students experienced food insecurity in the month prior to the survey (Crutchfield & Maguire, 2018). Similarly, students who identify as Hispanic/Latinx and non-binary at the University of California experience higher rates of food insecurity (51%) than similar students who do identify as male (34%) or female (36%) (Regents of the University of California, 2023). Given these disparities, addressing food insecurity would make the experience and outcomes of higher education more equitable.

Causes of Food Insecurity

Food insecurity experienced by college students results from numerous, complex, and oftentimes interrelated phenomena; yet, fundamentally, food insecurity is a financial challenge. Over the past thirty years, college students have faced rising cost of living, rising tuition, low minimum wages, and a failure to increase federal and state financial aid both in the amount provided per student and the availability to support students experiencing financial need (California Student Aid Commission, 2023; Congressional Research Service, 2021; Freudenberg et al., 2019; Intelligent.com, 2021; Renter, 2021; United States Government Accountability Office, 2018; Urban Institute, 2017a, 2017b; Zinshteyn, 2021). For example, based on the design of the Free Application for Federal Student Aid (FAFSA), the federal government assumes that parents or guardians will contribute financially to their college-attending child (Wesley Chamberlain, 2020). In reality, about one third of all FAFSA applicants have zero Expected Family Contribution, and, even when the Expected Family Contribution is

greater than zero, parents may be unwilling to contribute (Conroy et al., 2021; Urban Institute, 2017a). Furthermore, the FAFSA fails to take into account situations where students have a negative ability to pay for their college expenses, such as when students are providing financially for dependent children or relatives, meaning that they need access to even more aid to cover their living expenses while attending college (Kelchen, 2020; Regents of the University of California, 2019).

Beyond grants, some college students are unable or unwilling to take on federal loans (Boatman et al., 2017; Snellgrove, 2020; The Institute for College Access & Success, 2016; Urban Institute, 2020). Students may also choose not to work to prioritize making progress towards their degrees, resulting in them having less income (Cabrera et al., 2020; Crutchfield & Maguire, 2018; Regents of the University of California, 2020, p. 14). Furthermore, some students may lack life skills like meal planning, cooking, and financial management (Crutchfield & Maguire, 2018; Hagedorn et al., 2019; McArthur et al., 2018). In addition, several studies found that (a) the time necessary to shop for food and cook and (b) transportation access to buy or pick up free groceries are also barriers for students (Esaryk et al., 2021; Henry, 2017; Hernandez et al., 2021; Martinez et al., 2020; Moreno-Yamashiro, 2019; Weaver et al., 2021). When finances fail to cover expenses, students may reduce their food budgets because food is a more flexible expense compared to other expenses like rent, utilities, and transportation (McArthur et al., 2020; Moreno-Yamashiro, 2019; Paola & DeBate, 2018). In short, while each student's situation is unique, there are known system- and student-level phenomena that contribute to a lack of access to sufficient food.

Impacts of Food Insecurity

Food insecurity negatively impacts students' health and academic outcomes. Numerous quantitative and qualitative studies found that college students experiencing food insecurity are more likely than their food secure peers to report symptoms of stress and anxiety, difficulties concentrating, disordered eating, depression, and/or poor mental health generally (Bruening et

al., 2017; Crutchfield & Maguire, 2018; El Zein et al., 2017, 2019; Goldrick-Rab et al., 2015; Hege et al., 2021; Oh et al., 2022; Stebleton et al., 2020; Tjaden et al., 2018; Wood et al., 2017). These findings are consistent with the studied impacts of food insecurity on the general population (Hazzard et al., 2020; Jandaghian-Bidgoli et al., 2024; Myers, 2020; Pourmotabbed et al., 2020). Furthermore, food insecurity negatively impacts students' physical health, “with food-insecure students more often reporting poor health … although the mechanism is debated” (Hagedorn-Hatfield et al., 2022, para. 12). Not having enough food and having limited access to nutritious food may also contribute to “the development of obesity, hypertension, diabetes, and cardiovascular disease-related comorbidities” (Celik et al., 2023, para. 7) even after graduating college. Similarly, one study spanning eight universities across the United States found food insecurity to be a significant predictor of obesity in college students (El Zein et al., 2020). Another study that included 8,705 randomly sampled graduate and undergraduate students across the University of California found that food insecurity “was directly and indirectly related to higher BMI and poor health” (Martinez et al., 2019, para. 1) in part due to less sleep, less physical activity, and less fruit and vegetable consumption compared to students who were food secure.

Numerous studies find food insecurity is associated with negative academic outcomes, including lower grades and grade point averages (Baker-Smith et al., 2020; Bruening et al., 2017; Community College League of California, 2023; Crutchfield & Maguire, 2018, 2019; Cuite et al., 2023; El Zein et al., 2019; Goldrick-Rab et al., 2019a; Lee et al., 2018; Regents of the University of California, 2017; Taylor et al., 2019). With food insecurity directly impacting wellness and academic achievement, this issue has the attention of postsecondary institutions and policymakers nationwide.

Policymakers’ Responses to Student Food Insecurity

College students may be eligible for Supplemental Nutrition Assistance Program (SNAP), a longstanding federal program which aims to alleviate food insecurity challenges.

SNAP provides participants with a benefits card that functions like a debit card which can be used to buy groceries and some prepared foods. The average monthly SNAP benefit per person is $121 (Center on Policy and Budget Priorities, 2024). However, according to the White House (2022), “SNAP’s college student eligibility restrictions are out of date given the current population who seek higher education credentials, many of whom are older, have low income, and hold caregiving responsibilities” (p. 10) resulting in the denial of benefits to many students in need. In addition to eligibility challenges, many find college student eligibility to be confusing and difficult to navigate (U.S. Government Accountability Office, 2018). This issue contributes to the under-enrollment of eligible college students in SNAP. In 2024, the U.S. Government Accountability Office (2024) found that 67% of the 3.3 million students potentially eligible for SNAP under the standard student exemptions (2.2 million students) reported that their household did not receive benefits. While SNAP can support students experiencing food insecurity, many barriers prevent them from receiving it.

State and federal policymakers are responding to food insecurity on college campuses. Unfortunately, federal-level attempts to address student food insecurity have been less than successful. During the 2019–2020 legislative cycle, 12 bills focusing on college food insecurity were introduced by Congress, but none of them became law (Laska et al., 2021). Federal bills have attempted but failed to support students by making changes to the SNAP program. Two bills introduced in 2021 aimed to expand the federal SNAP program to more college students (EATS Act of 2021; Student Food Security Act of 2021). Neither progressed beyond introduction. Two bills were also introduced in 2023, one focusing on increasing eligible students’ awareness of SNAP eligibility (Opportunity to Address College Hunger Act of 2023) and the other on lengthening program eligibility for most unemployed or underemployed adults who fail to document sufficient hours of work each month (Food Research & Action Center, n.d.; Improving Access to Nutrition Act of 2023). Again, neither progressed beyond introduction.

Federal legislation has also attempted to address food insecurity at postsecondary institutions by other means. In 2022, Senator Adam Schiff and Representative Nanette Diaz Barragán (CA-44) introduced the Food for Thought Act, which aimed to support community college students and students attending minority-serving institutions by funding grants for free meal programs for low-income students (Office of Congressman Adam Schiff, 2023). In 2023, Representative Dutch Ruppersberger introduced the Opportunity to Address College Hunger Act, which wanted to require federally funded postsecondary institutions to inform students who are receiving work-study assistance that they might be eligible for participation in the Supplemental Nutrition Assistance Program (SNAP). Neither bill progressed beyond being introduced (Food for Thought Act of 2022; Opportunity to Address College Hunger Act of 2023). More recently, in 2024, Senator Elizabeth Warren (MA), Senator Chris Murphy (CT), Senator Alex Padilla (CA), and Senator Bernie Sanders (CA) introduced the Student Food Security Act, which "[expands] eligibility for the Supplemental Nutrition Assistance Program (SNAP), allowing students to use SNAP benefits at on-campus dining facilities, increasing outreach by federal and state agencies to food-insecure students, and establishing an annual grant program to aid colleges and universities in better identifying and serving students with their basic needs" (Alex Padilla, 2024). That same year, a coalition of 168 organizations led by The Hope Center at Temple University urged Congress to improve and expand SNAP access for college students in need as Congress worked to reauthorize the Farm Bill. As of this writing, the proposed SNAP changes may be included in broader negotiations since the Farm Bill is up for renewal in September 2025.

At the state-level, one study identified "fifteen unique laws, bills, or resolutions" (Laska et al., 2021, p. 262) as of November 2021 focused specifically on college student food insecurity that became law since 2017. Five bills focus on expanding enrollment in SNAP by allocating additional funds for SNAP enrollment assistance and/or expanding student eligibility. Two of

these five also support creating and expanding campus food pantries or a “stigma-free alternative” (pp. 264–265).

Focusing on California, reports by the California Legislative Analyst’s Office tell the story of rising financial investments in addressing student hunger across the three public postsecondary systems starting in 2019–2020. In the three budget years prior to that, there were no budget allocations to address the issue (California Legislative Analyst’s Office, 2016, 2017, 2018). Then, in 2019–2020, the CCC and CSU systems allocated one-time funds of $4 million and $15 million, respectively, to address food insecurity on their campuses. In contrast, the UC system allocated $15 million in ongoing funding towards this issue (California Legislative Analyst’s Office, 2019). Three years later, in 2022–2023, the CCC and CSU systems allocated $20 million and $10 million respectively in ongoing funds towards food insecurity (California Legislative Analyst’s Office, 2022). Now established as ongoing expenses, only small increases (of $1 million) in ongoing funding were made in 2023–2024 to address student food insecurity by the CSU and UC systems (California Legislative Analyst’s Office, 2023).

Postsecondary Institutions’ Responses to Food Insecurity

Whether or not they have the financial support of their state legislatures, public colleges and universities across the United States are increasingly supporting student success by providing food resources themselves. Food resources include campus food pantries, dining plan sharing programs, food recovery programs, free farmers markets, campus community gardens, and SNAP application assistance (Fetter & Gilboy, 2018; King, 2017; Landry & Gundersen, 2021; LePage, 2019; Nazmi et al., 2018; Swipe Out Hunger, 2024a).

- Campus food pantries refer to a physical location on campus where eligible students can receive free groceries. Campus food pantries vary in physical size, number of students served, types of food provided, and other design aspects (California Community College Chancellor’s Office, 2023; Goldrick-Rab et al., 2018).

- In response to SNAP's burdensome application processes and confusing eligibility, some campuses offer application assistance to their students, which is provided by campus staff or by visiting employees from local government agencies (Freudenberg et al., 2019; LePage, 2019).
- Campus community gardens are volunteer-run, low-cost sources of fresh produce. This produce is then distributed to students for free through other programs like a free farmers market or a campus food pantry (Beall, 2022).
- Dining plan sharing programs allow students who have meal plans to donate a portion of their plans (Swipe Out Hunger, 2024a). These donations provide students in need with temporary access to dining halls or campus food pantries with funds to buy groceries.
- Free farmers markets are events involving a temporary setup, commonly outdoors, to distribute fresh produce and shelf-stable food to students in public areas on campus (LePage, 2019).
- Food recovery programs prevent edible food from going to waste by distributing it to students either directly or through a partnering nonprofit organization (Food Recovery Network, 2021; LePage, 2019).
- Related to food recovery programs, some campuses have "leftover campus catering alerts" (Ruan-O'Shaughnessy et al., 2022, p. 97) or "free food alert systems" (Swipe Out Hunger, 2024a, p. 10) where students can sign up to be notified of excess food at the conclusion of an event on campus.

The prevalence of the food resources described above is unknown. A nationwide survey of a nonrepresentative sample of campuses dedicated to addressing student food insecurity conducted in 2024 found that 86% of the 355 responding campuses had food pantries, 49% provided SNAP enrollment assistance, 31% had community gardens, 27% had dining plan sharing programs, 23% had free farmers markets, 16% had food recovery programs, and 9% had free food alert systems (Swipe Out Hunger, 2024a). Currently, information on

postsecondary food resources nationwide is not being systematically collected by any public or private entity.

Beyond food-specific resources, some public postsecondary institutions are also making efforts to alleviate food insecurity by offering (a) emergency cash assistance in the form of small grants, small loans, and gift cards to grocery stores outside of the regular financial aid process; (b) free skill-building sessions focused on nutrition, cooking, and budgeting; and (c) more centralized, coordinated student services to better address students' basic needs (California Research Bureau, 2020a; Price & Umaña, as cited in Goldrick-Rab, 2021b; Rosales, 2022; U.S. Government Accountability Office, 2018). In fact, in 2021 California's Postsecondary Education Trailer Bill (AB 132) went into effect, requiring all California Community Colleges to hire basic needs coordinators and establish basic needs centers—physical campus locations where students can learn about and access basic needs resources more easily. This law brought the CCCs into alignment with the CSUs and UCs which by that time already had basic needs centers of their own (Rosales, 2022). The single point of contact model and the single centralized location at California's public colleges and universities aim to simplify the experience for students, as opposed to being referred to multiple offices and departments within the campus to get their needs met. One study of a nonrepresentative sample of 355 postsecondary institutions nationwide found that 43% of the respondent campuses that had food pantries also had basic needs hubs (Swipe Out Hunger, 2024a).

Campus Food Pantries

Although food resources come in many forms, one of the most common responses is campus food pantries (AACRAO & Hope Center for College, Community, and Justice, 2020; Fetter & Gilboy, 2018; Nazmi et al., 2018; Swipe Out Hunger, 2024b). In 2012, a nationwide association called the College and University Food Bank Alliance had only 88 members (Goldrick-Rab et al., 2018). By 2021, the association has a membership of over 800 postsecondary institutions, implying a growing interest in creating and sustaining this resource

(Swipe Out Hunger, 2021).[5] While popular, the exact number of campus food pantries in the United States is unknown. In California, all of the state's public colleges and universities have food pantries (California Community College Chancellor's Office, 2023; California State University Office of the Chancellor, n.d.; Regents of the University of California, n.d.).

Food pantries are popular among postsecondary institutions because of the resource's flexible design, affordability due to donations and volunteers, and accessibility due to proximity to classes (Goldrick-Rab et al., 2018; Henry, 2017, p. 16). Food pantries may be seen as a straightforward, immediate way to provide aid that is guaranteed to address food insecurity (John Burton Advocates for Youth, 2020), as opposed to providing additional financial aid which the student could spend on anything. Pantries have also been described as "compelling" (John Burton Advocates for Youth, 2020, p. 13) and widely supported.

Types of Campus Food Pantries

Physical space usage, hours, eligibility verification, and marketing are all aspects of food pantry design. Based on the few studies that have examined CFP design, campus food pantries are similar in some respects and dissimilar in others. According to a nationwide survey consisting of 262 unique postsecondary institutions, of which 217 had campus food pantries (Goldrick-Rab et al., 2018, pp. 7–10):

- Nearly all (92%) of the pantries had a dedicated space on campus, and 76% of the pantries with dedicated space used 300 square feet or less.
- About half (52%) were open more than 30 hours per week.
- About one-third were open two to four times a week and about one-third were open every weekday. Only 14% were open every day.
- Nearly all (88%) of the pantries limited the amount of food a student can take at one time, and nearly all (87%) allowed students to select the food they wanted.

[5] The College and University Food Bank Alliance was acquired by Swipe Out Hunger in 2021, during which it had over 800 members (Swipe Out Hunger, 2021).

- Only 5% required students to provide evidence that they were experiencing financial need to access the pantry.
- About half (49%) of the pantries had paid staff, and at two-thirds of pantries with paid staff, these staff were students.

Little is known about the types of food that campus pantries provide beyond shelf-stable items, such as dairy, meat, and fresh produce.

Concerning food pantry marketing, several studies found that campus food pantries greatly depend on referrals from peers, faculty, and/or campus staff (Esaryk et al., 2021; Goldrick-Rab et al., 2018; Hale, 2020; Idehai et al., 2024; Parks, 2021; Twill et al., 2016). Food pantries also use other affordable approaches, including having a dedicated website; sending students newsletters/emails; posting on social media; advertising on the campus's main website; and using physical advertisements like "campus publications, flyers, and on-site signage" (Goldrick-Rab et al., 2018; Hale, 2020, p. 68; Parks, 2021; Swipe Out Hunger, 2024a; Twill et al., 2016). These findings are drawn from studies on campus food pantries broadly, not their marketing practices. Some researchers have suggested including food pantry information in other aspects of campus life (e.g., course syllabi, new student orientations), although the effectiveness of these approaches have not yet been explored (Crutchfield & Maguire, 2019; Hale, 2020). In short, there is a lack of research on the current marketing strategies of campus food pantries, with only a few studies examining the impacts of interventions on college students' perceptions and behaviors (El Zein et al., 2021b). Independent of the higher education institution's marketing efforts, some students actively seek out basic needs resources like the CFP on their own (Crutchfield & Maguire, 2019).

Campus Food Pantry Users

Despite the prevalence of studies on campus food pantries, systematic reviews and meta-analyses examining who uses campus food pantries are sparse; rather, studies tend to focus on which students are more likely to be food insecure. According to a systematic review

that included eight studies, “students likely to use a college food pantry were food-insecure, who most often identified as Asian, Hispanic/Latino, Filipino or Pacific Islander; were first-generation to college; international students; sophomores and juniors; had student loans; were living off-campus; and were without stable housing” (Idehai et al., 2024). Focusing on California, a survey administered to University of California students found that the factors associated with increased CFP visits included being first-generation to attend college, Filipino/Pacific Islanders, homeless, older, and male (Esaryk et al., 2021).

Impacts of Campus Food Pantries

Despite their popularity, research on the extent that campus food pantries reduce food insecurity is limited. Preliminary research suggests that campus food pantries have little to no impact on student visitors’ food insecurity (Hernandez et al., 2021; Paola & DeBate, 2018). However, campus food pantries may increase students’ fruit and vegetable intake (Chodur et al., 2024) and may improve students’ health. For example, one study of students at the ten-campus UC system found that students who visited the CFP more often self-reported decreased depressive symptoms, improved sleep sufficiently, and improved perceived health (Martinez et al., 2022). Another study also focusing on the UC system found that students who were food insecure and who visited the CFP monthly had a higher daily intake of fruits and vegetables compared to students who were food insecure who did not visit the pantry (Chodur et al., 2024). CFP use may also correlate with students having higher GPAs (Fergus et al., 2024). Several studies note the need for more research on the effectiveness of food pantries and campus-based food resources in general (Davis et al., 2021; Landry & Gundersen, 2021; Nazmi et al., 2018; Wilder Research, 2019).

The lack of information on the impacts of campus food pantries may be tied to the lack of data collection on food pantry users by campus staff. A nationwide study of campus food pantries found that only about two-thirds of the campus food pantry employees who responded to the survey collect data on their student visitors, and only “39% are aware of any effort to

measure food insecurity on their campus" (Goldrick-Rab et al., 2018, p. 11). Another study looking at 10 campuses nationwide noted a lack of "established standards by which to assess the effectiveness of food pantries" (Hale, 2020, p. 67) despite food pantries collecting information on the number of visitors, amount of food distributed, and visitor demographics. Campus food pantry outputs are more commonly the focus of data collection—not impacts. The lack of connection between food pantry use and students' food insecurity may also be due to student resilience strategies, where receiving free groceries allows them to spend money on other necessities like rent instead (McArthur et al., 2020; Moreno-Yamashiro, 2019; Paola & DeBate, 2018). In short, food pantries are being implemented by many postsecondary institutions despite a lack of understanding of their effectiveness.

Regardless of campus food pantries' impacts on reducing food insecurity, this resource accomplishes other positive aims. Often integrated physically and/or programmatically with holistic basic needs hubs, food pantries can serve as a way to connect students to resources like case management, emergency housing, emergency financial aid, and government benefits, such as SNAP and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (Goldrick-Rab et al., 2018; Rosales, 2022). In addition, some food pantries directly provide material aid other than food, such as hygiene items, home goods, and clothes (Goldrick-Rab et al., 2018; Wood et al., 2017). Connections to non-food resources provide valuable support to students, yet these aspects would not be captured by simply measuring changes in students' levels of food insecurity.

Underutilization of Campus Food Pantries

Campus food pantries may have limited effectiveness at reducing student food insecurity due to underutilization. Numerous quantitative and qualitative studies find that campus food pantries are underutilized compared to the number of students in need (Crutchfield & Maguire, 2019; Crutchfield et al., 2020; El Zein et al., 2018, 2019; Goldrick-Rab et al., 2019c; McArthur et al., 2020). Despite its prevalence, the term "underutilization" has no agreed upon definition in

the literature; it commonly refers to instances where students who are eligible to use the campus food pantry and who would benefit from having additional food (i.e., experienced food insecurity in the last 30 days) do not use the campus food pantry. Underutilization takes two forms: (a) students experiencing food insecurity have never visited the CFP or (b) students experiencing food insecurity have visited the pantry but not often enough relative to their food needs. Why are hungry students not accessing campus food pantries, and what can be done to increase utilization? Based on a review of the literature, barriers to utilization are either cognitive or structural.

Cognitive Barriers

For the purposes of this study, "cognitive barriers" refer to situations where college students lack sufficient knowledge and/or have perceptions that prevent them from using campus food pantries.[6]

Lacking Sufficient Knowledge. Qualitative and quantitative studies overwhelmingly agree that students not knowing about food pantries on their campuses is a major barrier to utilization (Landry et al., 2024). This finding is based on surveys, focus groups, and interviews with students (Brito-Silva et al., 2022; Community College League of California, 2023; Cornette, 2022; Crutchfield & Maguire, 2019; El Zein et al., 2018, 2019, 2021b, 2022; King, 2017; Yanniello, 2018). It is also based on surveys and conversations with campus staff (AACRAO & Hope Center for College, Community, and Justice, 2020; Reppond et al., 2018). However, sometimes a basic knowledge of a CFP's existence is not enough to prompt a visit, even when a student needs it. Moreno-Yamashiro (2019) found that "the unknown process of using the pantry" (pp. 120–121) was one of several factors associated with students being less likely to visit their institution's food pantry. Similarly, two studies found that students lacked knowledge

[6] Some researchers refer to cognitive barriers as "cultural" (Fong, et al., 2016, p. 79) or "perception" barriers (King, 2017, p. 16). There is no consensus in the literature regarding what to call these barriers nor their definitions.

about food resources and believed that they were ineligible, both which deterred utilization (Crutchfield & Maguire, 2019; El Zein et al., 2018). A recent scoping review of 18 articles and admonitions to increase student awareness of basic needs resources in general further indicate agreement among scholars that lack of knowledge is a substantial barrier (Landry et al., 2024).

Perceptions Preventing Campus Food Pantry Use. Beyond a lack of knowledge about the existence and details of campus food pantries, scholars agree that another barrier to resource utilization is students' perceptions. Again, this finding is based on studies that involved student participants (Crutchfield & Maguire, 2019; Crutchfield et al., 2020; Henry, 2017; King, 2017; McArthur et al., 2020; Parks, 2021; Taniey & Leyden, 2024; Watkins, 2021; Weaver et al., 2021) as well as campus staff participants (AACRAO & Hope Center for College, Community, and Justice, 2020; Reppond et al., 2018). Based on the literature, students are deterred from using campus food pantries due to their perceptions of (a) stigma associated with food insecurity and food pantry use, (b) concepts of what the "typical" college experience is and is not, and (c) concepts of who food pantries are meant to serve. Notably, I am not implying that students have inaccurate perceptions. Stigma and stereotypes are empirical social phenomena with proven negative impacts. These perceptions exist independent of college students' awareness of, belief in, and attitudes towards them.

Of all the perception-related cognitive barriers, stigma associated with food insecurity and food pantries is the most explored by researchers using qualitative, quantitative, and mixed methods studies. Nearly all studies that I read examining the experience of food insecurity on college campuses mention the impacts of stigma in the findings. In some studies, stigma is a central aspect. For example, Watkins (2021) applied Stigma Management Theory to understand how college students navigate food insecurity. After analyzing qualitative data from students at a single campus, Watkins (2021) found examples supporting all four types of stigma-related coping strategies. Relatedly, Byrne et al. (2023) found that study respondents viewed food from a food pantry to be of lower quality than food from a grocery store—a finding which may apply to

the college context as well. In other studies, stigma emerged as a potent aspect of basic needs insecurity (Henry, 2017; Stebleton et al., 2020) and of accessing related resources like campus food pantries (Brito-Silva et al., 2022; El Zein et al., 2022; Idehai et al., 2024; King, 2017; McArthur et al., 2020; Moreno-Yamashiro, 2019; Parks, 2021; Weaver et al., 2021; Yanniello, 2018). For example, a nonrepresentative survey of faculty, staff, administrators, and student leaders at higher education institutions in 28 states revealed that, according to the respondents, stigma is the second most commonly reported barrier (60%) to the successful implementation of food insecurity initiatives—with the most common barrier being “marketing/student awareness” (75%; Hagedorn-Hatfield et al., 2023, para. 1). In short, there appears to be overwhelming agreement that stigma impacts students experiencing food insecurity and prevents them from using campus food pantries (Idehai et al., 2024; Landry et al., 2024).

While recognizing the impacts of stigma, a few studies also highlight the impacts of students’ ideas of what the typical college experience is or should be. These authors assert that notions of what is considered “normal” and “not normal” impact students’ willingness to seek out and use food resources (Crutchfield et al., 2020; Henry, 2017; Mukigi et al., 2018; Watkins, 2021). After conducting interviews and focus groups with college students, Henry (2017) found that food insecurity was perceived to be a normal college experience which did not warrant intervention. Likewise, Crutchfield et al. (2020), when examining students at public universities in California, found that students tend to treat basic needs insecurity as a typical college experience. This perspective resulted in students interpreting basic needs challenges like hunger and homelessness as deserved or as a personal failure, which deterred them from seeking aid. Compared to studies mentioning stigma, studies mentioning students’ notions of normalcy are rare and primarily qualitative. Nevertheless, these studies provide valuable insights into why students who know about campus food pantries and would benefit from them may choose not to use them.

As an extension of both stigma and perceptions of normalcy, the current literature suggests a third perception among college students that prevents food pantry use: the belief that food pantries are meant for someone other than themselves (Brito-Silva et al., 2022; Crutchfield & Maguire, 2019; El Zein et al., 2021a, 2022; Henry, 2017; McArthur et al., 2020; Weaver et al., 2021). Crutchfield and Maguire (2019) touch on this when they found that a main barrier to hungry students using basic needs resources is they do not view themselves to be in sufficient need. Similarly, two mixed methods studies focusing on one university each found that one of the top reasons why food-insecure student respondents did not use food pantries was because they believed that others needed it more (Brito-Silva et al., 2022; McArthur et al., 2020). This finding aligns with another study examining why the general population, despite experiencing food insecurity, hesitates to use food pantries (Fong et al., 2016). When students experiencing food insecurity perceive that campus food pantries are meant to serve others, they are less likely to seek out aid. Separating themselves from food pantry users may be a strategic form of stigma management concerning how they view themselves and how others view them. Unfortunately, few studies have explored the mechanisms underlying why college students believe that food pantries are not intended for them.

Limitations of the Research on Cognitive Barriers. While much is known about cognitive barriers to food pantry use, several aspects of students' knowledge and perceptions remain underexplored. First, few studies examine ways to increase students' awareness and understanding of campus food pantries. Second and similarly, few studies have explored ways to decrease stigma associated with food insecurity, decrease stigma associated with CFP use, or shift students' perspectives of what a normal college experience is supposed to entail. Thus, calls to address students' cognitive barriers tend to lack specific, evidence-based recommendations for action. Third, rigorous quantitative studies on a nationwide scale would aid in verifying the impacts of cognitive barriers on CFP use. Most studies focus on a single postsecondary institution, and several focus on a set of related postsecondary institutions within

a single state. Furthermore, most of these studies are qualitative in nature, exploring the lived experience of hungry college students through interviews, focus groups, and open-ended survey questions. Studies that survey students on a larger scale would provide more generalizable findings across postsecondary settings and reveal differences based on institution characteristics, student characteristics, pantry characteristics, and other relevant factors.

Structural Barriers

Beyond cognitive barriers, the existing literature recognizes the impacts of food pantry design on students' ability and willingness to visit. For the purposes of this study, "structural barriers" refer to aspects of a CFP's design (e.g., eligibility and enrollment, hours, food selection, food quality, food amounts, employees, and location) that make accessing the resource difficult or undesirable for students.[7]

Eligibility and Enrollment. Preliminary evidence suggests that eligibility and enrollment processes are not major barriers to food pantry use, despite some students perceiving them to be. A survey of 217 campus food pantries nationwide found that "just 5% of campus pantries require proof of financial need" (Goldrick-Rab et al., 2018, p. 1) for students to receive food. However, beyond descriptive statistics, few studies have examined this aspect of campus food pantries. More research is needed to confirm that eligibility and enrollment processes do not make students ineligible to use the pantry, do not deter them from using it for the first time, and do not deter them from returning.

Hours, Food Selection, Food Quality, and Food Amounts. Studies on CFP hours, food selection, food quality, and food amounts are similarly sparse and not conclusive. One study by Hernandez et al. (2021) examined the success of a university's outdoor, free farmers market that offered fresh produce, nonperishable foods, and meat. Researchers found that one

[7] Some researchers refer to structural barriers as "concrete" (Fong, et al., 2016, p. 79) or "operational and administrative" barriers (King, 2017, p. 16). There is a lack of consensus in the literature regarding what to call barriers associated with pantry design aspects and how to define them.

of the three top barriers to utilization according to the student participants was inconvenient hours and locations, while the types of food available promoted utilization. Although this study did not focus on food pantries specifically, it points to the impacts of hours and food options on utilization of a campus-based food resource. Two other studies focusing on one campus each found that limited pantry hours and limited food options were both primary barriers to resource use (El Zein et al., 2018; Moreno-Yamashiro, 2019). Similarly, a recent systematic review found that, according to the participants, convenient hours of operation were a common facilitator of food pantry use (Idehai et al., 2024). For context, a survey of 217 campus food pantries nationwide found that 48% were open less than 30 hours per week, and only 14% were open every day (Goldrick-Rab et al., 2018).

Compared to grocery stores, campus food pantries have less convenient hours and more limited selection, especially when they follow a “pre-packaged model” (Ruan-O’Shaughnessy et al., 2022, p. 91) where boxes or bags of food are filled in advance by someone other than the student. More desirable foods, such as refrigerated foods and fresh produce, are likely limited in availability and in the amount that each student can receive. While no studies to the best of my knowledge have been conducted to evaluate the impacts of changes in pantry hours, food options, food quality, food amounts, and/or food selection processes (i.e., client choice or pantry choice) on CFP use, studies suggest that these factors may be impactful (Dunmire, 2019; Idehai et al., 2024; Yamashiro et al., 2023).

Location. Based on the literature, the ideal location of the CFP is a topic of debate. Having a convenient location is a facilitator of food pantry use, according to one systematic review (Idehai et al., 2024). However, should campus food pantries be centrally located to promote awareness of and destigmatize food insecurity? Or should this resource have a discreet location to promote the privacy of students experiencing food insecurity? Some research indicates that students desire pantries with hidden locations to avoid stigma and stereotypes. Exploring the top barriers to utilization on a single campus, King (2017) found that

about 50% of the student respondents (who did not visit the food pantry) did not want others to know they were food insecure, and, relatedly, about 60% did not want their peers to volunteer at the pantry. Henry (2017) similarly found that student participants at one campus desired a CFP in a place that provided privacy. In contrast, other researchers call for destigmatizing food insecurity by making both the challenges and the related resources more known (Crutchfield & Maguire, 2019; Crutchfield et al., 2020; Regents of the University of California, 2020). For now, students' desires appear to be fulfilled, with a nationwide survey of campus food pantries revealing that about 75% of respondents had "private," "somewhat private," or "very private" locations (Goldrick-Rab et al., 2018, p. 10).

Aside from the debate on CFP location, there is a lack of investigation and discussion about the process of having students come to campus to receive groceries at one site or many sites—or omitting this step entirely. No studies to the best of my knowledge have evaluated the impacts of offering more than one pantry location on campus (which is undoubtedly a logistical challenge that may increase accessibility) or offering grocery delivery to off-campus locations (such as students' homes) on food pantry use, although I am aware of several campuses implementing these designs (Swipe Out Hunger, 2020; University of California, Berkeley, 2022). Based on the scholarly silence, most campus administrators and researchers seem to assume that a single location on campus equates to sufficient accessibility and convenience. Yet, preliminary research suggests that transportation is a challenge for some CFP visitors (Esaryk et al., 2021; Henry, 2017; Hernandez et al., 2021; Landry et al., 2024; Moreno-Yamashiro, 2019). Low-income students may need to travel long distances to bring their groceries home and may do so using affordable and sometimes subsidized public transportation. Coupled with limited pantry hours, students may need to carry their groceries while attending classes, which is an inconvenience and potentially stigmatizing. Again, more research is needed to explore the feasibility and impacts of (a) numerous pantry locations and (b) grocery delivery on resource use.

Employees. Who works at the food pantry, whether in a paid or volunteer capacity, and how they interact with visitors appear to influence students' food pantry experiences and willingness to return (Landry et al., 2024; Yamashiro et al., 2023). The literature is divisive on the impact of employees being fellow students. According to a survey administered to the student population at a public university, about half of the student respondents did not want to be served by their peers at the CFP (King, 2017, p. 34). This finding aligned with the fact that about 60% of these students "did not want others to know they were in need of assistance" (King, 2017, p. 34). Similarly, an ethnographic study conducted at another public university found that the majority of food insecure participants expressed the need for discretion and privacy if they were to use the pantry again in the future (Henry, 2017). In this study, student participants raised concerns about being seen or being served by their peers at the food pantry.

In contrast, findings from two other studies show that students simply want to interact with friendly, nonjudgmental employees. One case study focusing on a single CFP, which included interviews with 16 food pantry users, found that participants valued employees being "friendly and kind" (Yamashiro, 2019, p. 121) and did not care whether they were peers or not. Not feeling judged was also an important aspect to these students. Relatedly, a systemwide, mixed methods study conducted at the California State University system found that some students felt discouraged from using campus food pantries because of what the employees said or how they said it (Crutchfield & Maguire, 2018, p. 34). In summary, students seem to want to interact with welcoming, kind, helpful staff while they receive food aid at the campus food pantry—whether or not the staff are peers (Hernandez et al., 2021; Idehai et al., 2024).

Interactions of Cognitive and Structural Barriers

Throughout this literature review, I identified several types and sub-types of barriers preventing students experiencing food insecurity from using campus food pantries. How do cognitive and structural barriers relate to each other, if at all? A preliminary answer is provided by researchers examining barriers to food pantry use beyond the campus setting. In "The Cost

of Free Assistance: Why Low-Income Individuals Do Not Access Food Pantries," Fong et al. (2016) find that participants' perspectives greatly influence the impacts of food pantries' design on utilization, and vice versa. The authors conclude that reducing stigma and persuading people that the food resource is for them to use may improve visitors' experiences with how the food pantry is run, while changes to how the food pantry is run may reduce visitors' negative perceptions. For example, locating a CFP in a prominent, public area may communicate that food pantry use is nothing to hide, which in turn increases students' willingness to use it—as several researchers have suggested (Crutchfield & Maguire, 2019; Crutchfield et al., 2020). Conversely, food pantries that serve expired and undesirable food, have inconvenient hours, and are run by untrained staff or volunteers may cause visitors to feel a lack of dignity and respect (Vissing et al., 2017, as cited in Hamerman & Martins, 2024).

Advertising the pantry in a way that emphasizes students' deservingness of support (instead of their inability to meet their needs) may result in greater willingness to use the pantry and more positive experiences when they do. If cognitive and structural barriers are mutually reinforcing, then addressing either one has the potential to meaningfully increase food pantry use. The final question, then, is where it is most advantageous to start? Are cognitive barriers or structural barriers the bigger issue deterring students from fully using campus food pantries, or are they equally impactful? Based on the current literature, the impacts of students' knowledge and perceptions compared to the impacts of food pantry design have not been studied. Despite an increase over the last five years in commentaries (Davis et al., 2021; Landry & Gundersen, 2021), literature reviews (Wilder Research, 2019), and systematic reviews (Bruening et al., 2017; Nazmi et al., 2018) on food insecurity in higher education in the United States, only one scoping review has been conducted to identify barriers to CFP use (Landry et al., 2024). The scoping review listed common barriers across 18 articles that met the eligibility criteria—nearly all of the barriers which have been touched on in this literature review. However, the scoping review did not weigh whether one barrier had more negative impacts than another. Filling this

gap in the literature would help campus staff prioritize which barriers to focus on addressing to increase food pantry use.

Possible Solutions to Cognitive Barriers

In the conclusion of a study examining 10 campus food pantries across the nation, the author noted a lack of research concerning which "marketing methods are most effective at reaching students struggling with food insecurity and which methods will likely result in pantry usage" (Hale, 2020, p. 73). Based on my review of the literature, I agree. Nearly all of the studies examining food insecurity and CFP utilization make recommendations on how to address the observed barriers. However, I was only able to find one study that explored the effectiveness of an intervention to increase students' knowledge and willingness to use campus food pantries—both of which are distinct from increases in actual usage (El Zein et al., 2021b). Thus, the majority of this section draws on research in related topics, such as efforts to increase food pantry use beyond the campus setting, marketing efforts for other postsecondary resources, and information campaigns to increase enrollment in government benefits.

Notably, I found no studies empirically investigating the impacts of interventions addressing structural barriers—such as changing locations, expanding hours, or expanding food selection—on CFP use. Studies on changes to food pantries in the community more broadly could apply to campus food pantries. These studies have not been included because this dissertation study focuses on addressing students' cognitive barriers. Nevertheless, structural barriers are important, so their impacts on CFP use are accounted for in this dissertation study through the post-test student survey, the pantry information survey for campus staff, and two semi-structured interviews with campus staff.

Recommendation-based Solutions to Cognitive Barriers

Studies that focus on food insecurity and CFP use include many recommendations based on their identification of barriers. Findings that stigma and shame prevent CFP use are consistently matched by recommendations to decrease stigma, normalize food insecurity, and

normalize resource use. One researcher suggests informing students “in a way that gives the pantry user the impression that there’s enough food to go around, that using the pantry is a form of resourcefulness rather than dependence” (Fong et al., 2016, p. 88). From a different angle, another researcher recommended “limiting marketing messages that highlight the pantry as a place for only ‘financially-deprived’ students” (El Zein et al., 2021a, p. A-155). Two others called for interventions that help students understand that they are “not alone” (Henry, 2017, p. 17; Weaver et al., 2021, p. 11). In addition to messages that oppose stigma, one researcher recommended clarifying what visitors should expect to “alleviate the worry students experience before visiting the food pantry” (Moreno-Yamashiro, 2019, p. 130).

The ideal communication method for interventions that aim to increase CFP use is as speculated as the ideal message content. Several researchers suggest advertising during campus orientations (Crutchfield & Maguire, 2019; Hale, 2020). Other suggestions include organizing pantry-related events, encouraging campus staff to make pantry referrals, and partnering with other on-campus programs and resources—especially ones that could identify students in need (Crutchfield & Maguire, 2019; El Zein et al., 2021a; Esaryk et al., 2021). In addition, the power of peer relationships could facilitate CFP use. Several researchers recommend creating educator jobs for students, a role in which they publicly refute food-related stigma and stereotypes (Regents of the University of California, 2020; Watkins, 2021). This could take the form of peer-to-peer advising positions at resource hubs on campus or peer-to-peer outreach (Regents of the University of California, 2020; Ruan-O’Shaughnessy et al., 2022). Alternatively, another researcher suggested creating opportunities for students to visit the pantry in groups, such as through faculty-led class trips or service-learning opportunities integrated into courses, to reduce “fear and embarrassment, making the initial visit easier” (Watkins, 2021, p. 122). These ideas are unexplored recommendations based on researchers’ studies of campus food pantry use and underuse.

Study-based Solutions to Cognitive Barriers

I found two studies that focus specifically on the effectiveness of interventions promoting food pantry use by addressing cognitive barriers. One study examines the impacts of marketing on perceptions of food pantries among the general public, where the researchers found that photos of food reduced participants' negative perceptions by 71–84% (Byrne et al., 2023). Thus, one promising solution could be an intervention that includes photographs of actual food available at the campus's food pantry, especially name-brand food. The second study at a single campus examined the impacts of digital videos, which were developed with student input, on students' conceptual barriers. A survey of student participants who watched the videos revealed that the videos were an effective way to (a) increase their knowledge of campus food pantries, (b) reduce their perceptions of stigma regarding food pantries, and (c) increase their self-efficacy for using campus food pantries (El Zein et al., 2021b). Both studies show that it is possible to reduce students' cognitive barriers to pantry underutilization and that these changes can be empirically measured.

Nudging to Promote Resource Utilization

Expanding the search for potential solutions to cognitive barriers beyond research on campus food pantries, the behavioral science concept of nudging may help promote resource utilization. Nudges refer to "subtle adjustments to an individual's environment to steer them towards a more desirable outcome while not meaningfully altering options or costs" (Oreopoulos, 2020, p. 8). In other words, nudging encourages specific behavioral shifts by making the desirable action easier to perform. An example of a nudge is texts informing college students about an upcoming financial aid deadline or a campus resource they may be eligible for. The effectiveness of nudges on the general public's behaviors is debated. A meta-analysis of 126 studies on nudges (that did not involve in-person interactions) implemented by nonprofits and government agencies and involving the general public found that, on average, these nudges resulted in little to no increases in program enrollment (DellaVigna & Linos, 2020).

Conversely, several researchers suggest that nudges may be more effective at prompting one or two clear actions and less effective at altering individuals' perceptions (Oreopoulos, 2020; Page et al., 2020; Royer & Wharton, 2023).

The impacts of nudges have been tested in postsecondary settings with promising results. One study sent several text messages about SNAP benefits to potentially eligible students at a California Community College, with one group receiving basic information and another receiving "attuned" messaging that aimed to reduce stigma (Umaña et al., 2022, p. 1). The researchers found that nearly all of the students remembered the text messages, and those who received the attuned messages considered the texts to be empowering. However, no data was collected on whether the text recipients applied to SNAP as a result of the nudges. Another study examining the impacts of emails and postcards sent to a sample of California college students found that (1) a single email led to a small increase (2.9%) in CalFresh (California's Supplemental Nutrition Assistance Program) applications being submitted within a week of receiving the email and (2) an email combined with a postcard resulted in a slightly greater increase (4.9%) in applications (Lasky-Fink et al., 2022). These studies and several others suggest that texts, emails, letters, and/or postcards may cause students to take a specific action like using a campus resource, especially when the messaging is well-crafted.

Letters may also be an effective way to encourage students to act. A recent large-scale field experiment where researchers sent letters with different types of messaging about financial aid and estimated college costs to high school seniors in California yielded several relevant findings (Linos et al., 2024):

- A letter with simplified wording and design increased the odds of students making accounts on the California Student Aid Commission website (to then apply for state financial aid) by about 6 percentage points compared to the control letter.
- A letter with affirming messaging (that they belong in college and were expected to succeed) had slightly better results than the simplified letter.

- A simplified letter with messaging about social norms had slightly better results than the simplified letter with affirmations of belonging.
- A simplified letter with messaging about belonging and personalized information on the estimated costs of the colleges that each student was considering attending outperformed all of the other letters.

Concerning message content, another study examining the impacts of emails only and emails combined with postcards found that variations in message content may lead to minute impacts. In this experiment, researchers compared the rates of students submitting applications within a week of receiving a “simplified message,” a “de-stigmatizing message,” or an “enough benefits message” conveyed via email and/or postcard, all of which led to nearly equivalent impacts on student behaviors (Lasky-Fink et al., 2022, p. 5). Another study sent targeted, personalized emails to college students inviting them to visit the resource hub on campus, which resulted in rates of utilization increasing by more than double compared to those who did not receive an email (Goldrick-Rab et al., 2021a). The emails were crafted with barriers and facilitators to resource utilization in mind; they aimed to address perceptions of ineligibility, address concerns of resource scarcity, and encourage students to engage in help-seeking behaviors.

Based on the literature, it appears that—regardless of the communication medium—important elements of nudges are personalization, conciseness, clear direction on next steps, addressing students’ perceptions, and possibly an emphasis on inclusion and belonging (Lasky-Fink et al., 2022; Linos et al., 2024; Ruan-O’Shaughnessy et al., 2022).

Conclusion

Far too many college students in the United States experience food insecurity which negatively impacts their mental health, physical health, and academic outcomes. Colleges and universities have recognized this and responded by providing more food resources, with public postsecondary institutions often receiving financial support from their respective states. The

most common resource offered by colleges and universities is campus food pantries, which are considered to be affordable, flexible, and accessible to students. Preliminary research suggests that campus food pantries have certain design aspects in common—including minimal barriers to entry, a small, dedicated space, and low-cost marketing—but they diverge in other aspects. Preliminary research suggests that campus food pantries have little to no impact on student visitors' food insecurity, but they may improve students' overall health. Nevertheless, pantries free up students' limited funds to cover other necessary expenses and may connect students to other resources.

Numerous studies find that campus food pantries are underutilized compared to the number of students in need. Based on a review of the literature on food insecurity and food pantry use among college students in the United States, there are two types of barriers to service utilization: cognitive and structural. Cognitive barriers include students lacking knowledge that they exist. Cognitive barriers also include students' perceptions of stigma, the normal college experience, and who food pantries are meant to serve. In contrast, structural barriers refer to a CFP's design aspects that make accessing the resource difficult or undesirable for students. The impacts of the different barriers on student utilization of food pantries remain unknown.

Researchers overwhelmingly agree that cognitive barriers prevent students from fully using campus food pantries. Unfortunately, these are the only things that have extensive research and strong agreement. The current literature falls short concerning effective ways to overcome cognitive barriers to campus food pantry use. Researchers recommend that practitioners address the observed barriers in a variety of ways, yet few studies explore how exactly to accomplish this. Which interventions are the most effective, in what contexts, and why they are effective has barely been explored. Only one study to the best of my knowledge specifically focuses on the effectiveness of an intervention to increase students' knowledge and willingness to use campus food pantries (El Zein et al., 2021b).

Given this gap in the literature, I broadened my search to examine literature on interventions promoting food pantry use beyond the campus. I also examined literature on the behavioral science of nudging related to other basic needs resources on campuses and related to pantry use by the general public. Combining the findings from these studies with solutions speculatively proposed by higher education researchers, the literature suggests that effective interventions both (a) provide useful information and (b) address students' negative perceptions of stigma, the normal college student experience, and who campus food pantries are meant to serve. Whether the communication medium is a video, a text, an email, or a postcard, the preliminary research provides hope that college students in need can be sufficiently informed and encouraged to use the food resources available to them. While knowledge on barriers and solutions to CFP use remains incomplete, researchers and practitioners together must push on towards the frontier of discovering feasible, effective interventions so that students can get the help they need to meet their basic needs and reach their academic goals. By evaluating the impact of an intervention on CFP use, this study aims to do just that.

Conceptual Framework

A conceptual framework for a research study "lays out the key factors, constructs, or variables, and presumes relationships among them" (Miles & Huberman, 1994, p. 440). It is an organized presentation of the researcher's understanding of how the phenomena being studied works or naturally occurs (Grant & Osanloo, 2015, p. 16–17). Based on my assessment of the literature, I have created a conceptual framework of factors that impact CFP use.

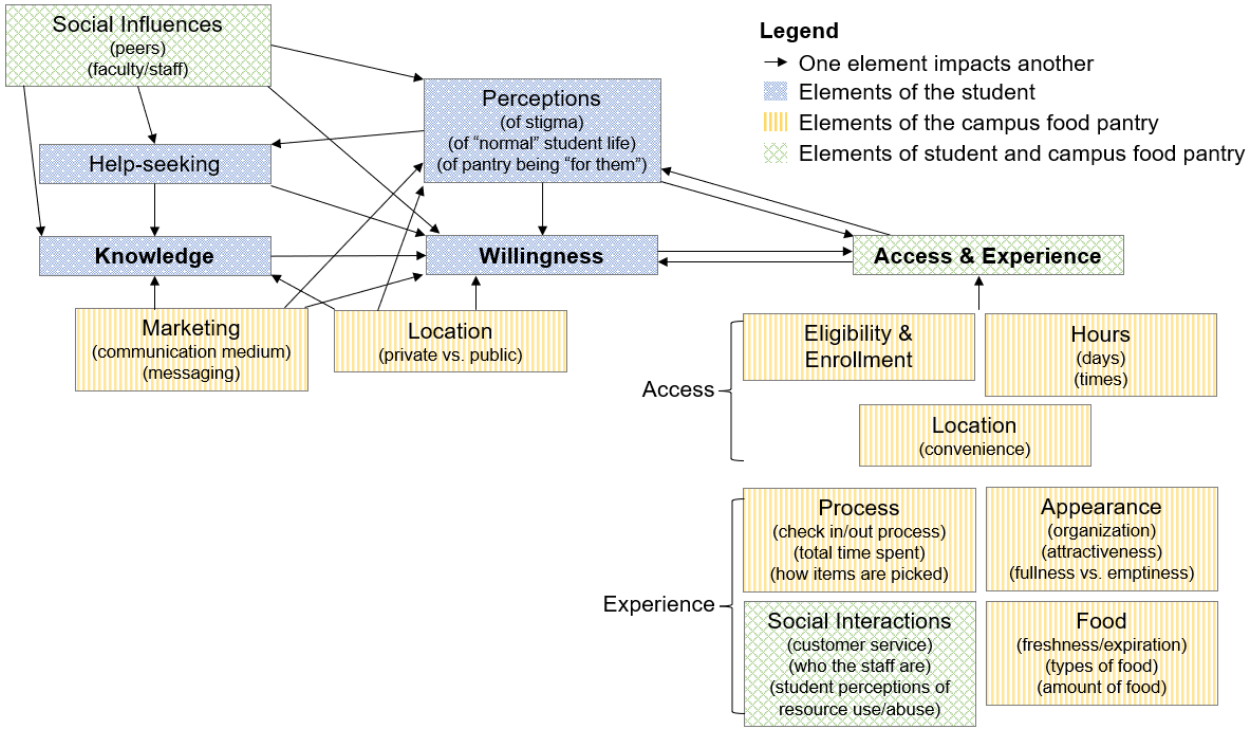
Students must first be made *knowledgeable* of the CFP's existence to access it. If they also have some understanding of how it works (e.g., eligibility, hours, types of food offered), then they are more willing to access it. Students' knowledge of the pantry depends on many factors. These factors include social interactions with peers, faculty, and campus staff; marketing efforts; and the pantry's location (i.e., whether it is in a public or discreet location). This knowledge—in combination with students' *perceptions* of stigma, normalcy, and who the

food pantry is meant to serve—affects their *willingness* to use the resource. In addition, their willingness is influenced by the pantry's location and the messaging used in pantry marketing. Students also have agency. Some actively engage in *help-seeking* as a strategy to navigate food challenges, which increases the odds of them knowing about the CFP and being willing to use it. When a student visits the CFP, their *access* is influenced by eligibility and enrollment processes, the location's convenience, and pantry hours. Lastly, each student's *experiences* with the food pantry's processes, appearance, food, and employees inform their *perceptions* and *willingness* to return in the future.

Figure 6 shows a conceptual map demonstrating my understanding of the key factors that influence CFP use based on the literature. The conceptual map shows that the actors are (a) the student (indicated by blue text boxes), (b) the CFP (indicated by yellow text boxes), and (c) a combination of the CFP and the student (indicated by green text boxes). Arrows indicate theorized relationships between factors. This visual representation guides me in locating the role of this dissertation study's intervention—namely, using research-informed marketing to increase students' knowledge, change their perceptions, and influence their willingness to use the CFP. Notably, it is not within the scope of this study to prove each factor's existence nor measure the magnitude of the factors relative to each other.

Figure 6

Conceptual Map of Campus Food Pantry Use



This conceptual map aligns with my dissertation study. The independent variable is an intervention implemented by the CFP which consists of a communication medium and intentional messaging. The dependent variables are students' knowledge, perceptions, willingness, and self-reported visits (self-reported visits are represented by the arrow between "Willingness" and "Access & Experience"). Another dependent variable is actual food pantry visitor rates as measured by pantry staff, since the ultimate goal is to influence students' behaviors. Furthermore, I theorize that the factors associated with food pantry access and experiences will act as moderating variables, influencing whether students who were willing to visit the CFP actually do so.

Theoretical Framework

A theoretical framework "consists of the selected theory (or theories) that undergirds your thinking with regards to how you understand and plan to research your topic" (Grant &

Osanloo, 2015, p. 13). It is the application of one or more “generally accepted” theories that exist in the scholarly literature which inform all aspects of the study (Grant & Osanloo, 2015, p. 16). My dissertation study is guided by a social justice framework. While there are many ways to conceptualize social justice, I conceptualize the term “in relation to forces of oppression” and in relation to “issues of distribution and fairness” which result from oppression (Dominguez-Whitehead, 2016, p. 556). Concerning both food insecurity and food pantry underutilization, a social justice framework leads me to look beyond the student and take into account the impacts of broader social phenomena.

First, I apply a social justice framework to understand the problem of food insecurity in higher education as a problem of equity and inclusion. To begin, having access to sufficient, nutritious food is a human right (United Nations, 1948; United Nations, n.d.). This is because lack of access to nutritious food or access through socially unacceptable ways can result in a wide array of physical, psychological, and social challenges, regardless of the setting. Thus, food security is necessary for health, human dignity, and meaningful participation in society (Chilton & Rose, 2009; Dominguez-Whitehead, 2016, p. 555).

Focusing on higher education, a social justice framework highlights how food insecurity intersects with students’ disadvantaged identities and statuses—making food insecurity a symptom of inequality rooted in oppression. While anyone can experience food insecurity, those most likely to experience it have identities and statuses that have historically been and are presently being ignored, marginalized, and/or discriminated against in the United States. Non-binary, homosexual, or bisexual students; low-income students; former foster youth; and students who identify as African American, Native American, Pacific Islander, or Latinx are more likely to experience food insecurity than their respective peers. These students already commonly face barriers accessing and navigating postsecondary institutions, many of which were originally designed to meet the needs of heterosexual, middle- and upper-class, white males. The negative impacts of food insecurity on students’ wellbeing and academic

achievement further calls into question the concept that higher education is a means for achieving equal opportunity for social, intellectual, and financial advancement.

A well-established precedent for addressing student food insecurity already exists in the United States in the form of free and reduced-price lunches in K–12 schools. The U.S. Department of Agriculture oversees the School Breakfast Program (established in 1966) and the National School Lunch Program (established in 1946), which served 12.2 million children and 21.1 million children, respectively, in the 2023–2024 school year (Food and Nutrition Service, n.d.; Hayes & FitzSimons, 2024; U.S. Department of Agriculture, 2017). Through these programs, low-income children receive one or two meals while at school, and numerous studies have found that these programs reduce food insecurity, support good nutrition, improve health outcomes, and increase their academic success (Food Research & Action Center, 2020). Why, then, are these same youth expected to meet their own food needs while continuing their education full-time in college as young adults—when they are often simultaneously expected to cover the costs of living independently or contribute financially to their parents? In short, food insecurity in all educational contexts is a social justice issue. Addressing food insecurity in educational settings promotes a society where resources and opportunities are more equitably distributed (Dominguez-Whitehead, 2016) and where all students can be meaningfully included in the processes of learning (Ryan, 2006).

Second, applying a social justice theoretical framework informs my understanding of CFP underutilization. I reject a deficit-based perspective which centers on students being the sole cause of food insecurity and campus food pantry underutilization, and I reject the underlying implication that simply changing these students will solve the problem (Watt et al., 2013, as cited in Karlin & Martin, 2020). Students undoubtedly play a role in resource use because they have agency. Their agency is shown by their help-seeking behaviors and their decision to use the resources they know about and are eligible for. For example, not identifying as being food insecure can be a way for students to control their own sense of self (Thomas et

al., 2020), and only visiting the pantry when they can keep their food challenges private can be a way for students to control how others view them (King, 2017). Nevertheless, a holistic examination of CFP underutilization must look beyond the student to also examine the substantial impacts of broader social influences—namely, the concepts of normalcy and stigma.

Normalcy, or what is considered to be normal in a given social context, is a socially constructed and disputed definition put forth by those in society who hold and monopolize power (Apple, 1995). Society's definitions of what is normal or normative results in ideas of what a real, authentic, traditional college student does and does not look like (Kumashero, 2000; LaBelle, 2020). The concept of normalcy connects to food pantry underutilization in two overlapping ways that prevent students from accessing food resources even when they are aware of them. First, students who deem themselves to be "non-normal" for experiencing basic needs insecurity may be less likely to seek help because they experience (or are afraid of experiencing) shame and stigma for deviating from the norm. Second, students who consider food insecurity to be a normal, acceptable part of the college experience—in alignment with the starving student narrative—may simply accept their situation and not seek to change it (Crutchfield et al., 2020; Mukigi et al., 2018). In contrast, help-seeking is a strategy that students use to navigate basic needs insecurity; it should not be hindered (Broton & Goldrick-Rab, 2018; Lee et al., 2018).

The concept of normalcy also connects to food pantry use by influencing the actions of higher education administrators and, at public institutions, lawmakers. When these decision makers consider food insecurity to be uncommon and impacting only a few students, their perspective justifies either ignoring the issue or acknowledging it and taking minimal, insufficient actions. Based on the rising number of related studies conducted by California's three public higher education systems and the steadily increasing state funding of basic needs resources over the past six years, it appears that food insecurity in this state has been acknowledged as a prevalent and pertinent issue. However, to the best of my knowledge, no research study or institutional dashboard has shown that food insecurity has been sufficiently addressed at any

campus (where “sufficiently addressed” means food insecurity rates experienced by college students are about the same or less than the rates of the general population).

In 2018, food insecurity among students attending the California Community College was an estimated 50%; five years later, the rate was an estimated 47% (Community College League of California, 2023; Crutchfield & Maguire, 2019). Similarly, in 2018, food insecurity among students attending the University of California was an estimated 47%; four years later, the rate was an estimated 43% (Regents of the University of California, 2023). For comparison, a nationally representative annual survey administered by the U.S. Department of Agriculture’s Economic Research Service found that the food insecurity rate of the American population has increased over the past five years from 11% in 2018 to 14% in 2022 (Coleman-Jensen et al., 2019; Rabbitt et al., 2023). Given the persistence of high food insecurity rates, the actions taken by California’s higher education administrators and lawmakers appear to be insufficient.

In conclusion, a social justice framework expands my perspective of food insecurity and campus food pantry underutilization, making this dissertation study more comprehensive and holistic. Food insecurity should not be viewed as a rare problem experienced by “non-normal” students, nor should it be viewed as an acceptable rite of passage in higher education. Likewise, students should feel free to visit a campus food pantry when their food needs are otherwise unmet; campus food pantries are not solely for the “neediest” students nor students who are “failing” at being independent adults. Food pantry underutilization results from cognitive and structural barriers interacting with students’ agency, all of which are affected by students’ identities and statuses, the concept of normalcy, and the concept of stigma. Graduation rates are the intersection of postsecondary institutions and students’ goals. I believe it is the responsibility of postsecondary institutions and, at public colleges and universities, lawmakers to ensure that disadvantaged students have what they need to succeed—thereby making the institutions successful. Students require access to enough healthy food to be able to focus on their studies. When healthy, free food is available, students need a way to learn about and

access it while retaining their dignity. Strategic, intentional messaging is one way to achieve this goal.

Chapter 3: Methodology

Introduction to Chapter 3

In this third chapter, I first describe an overview of the dissertation study, detailing how a combination of qualitative and quantitative methods will help answer the research questions. Next, I describe how the study site was selected and explain how the study findings are transferable to similar settings but not generalizable. Once the foundational aspects of the study are laid, I delve into the specific data collection and analysis strategies for each research question—including descriptions of the instruments involved, underlying concepts explored, analytical approaches applied, and limitations acknowledged and accounted for. Lastly, I describe how the study upholds the highest standard of research ethics and protects the privacy of participants.

Applied Framework to Answer the Research Questions

This study aims to measure (a) the effectiveness of an intervention that postsecondary institutions can implement to increase CFP use and (b) explore how the intervention led to changes in utilization, if any. To this end, the study follows a mixed methods exploratory sequential design, with the first phase focusing on the collection and analysis of qualitative data via interviews to better understand the CFP and to inform the design of the intervention (see Figure 7; Creswell & Plano Clark, 2018, p. 84). In the second phase, quantitative methods following an experimental design are used to determine the effectiveness of the intervention (Creswell & Plano Clark, 2018, p. 84). In the experiment, I will analyze pre- and post-test student survey responses from three randomly formed groups of enrolled students: the full intervention group, the partial intervention group, and the control group. I will also analyze weekly CFP visitor rates over the academic term. In the third phase, a combination of qualitative and quantitative methods will be used to evaluate threats to the validity of the findings, the success of the intervention, and the impact of structural barriers on CFP use. See Tables 1 and 2 for details on the study's mixed methods design.

A qualitative research approach leads to rich, exploratory, descriptive data that reveals an individual's perspectives. In contrast, a quantitative research approach is well suited for testing theories, identifying relationships, and determining causation. Following the paradigm of pragmatism, this study leverages both methodological approaches, with the selection of the study design and methods depending on the needs of each research question. Similarly, sampling methods, data collection instruments, key variables, and data analysis approaches vary by research question (see Tables 1 and 2).

Figure 7

Mixed Methods Exploratory Sequential Study Design

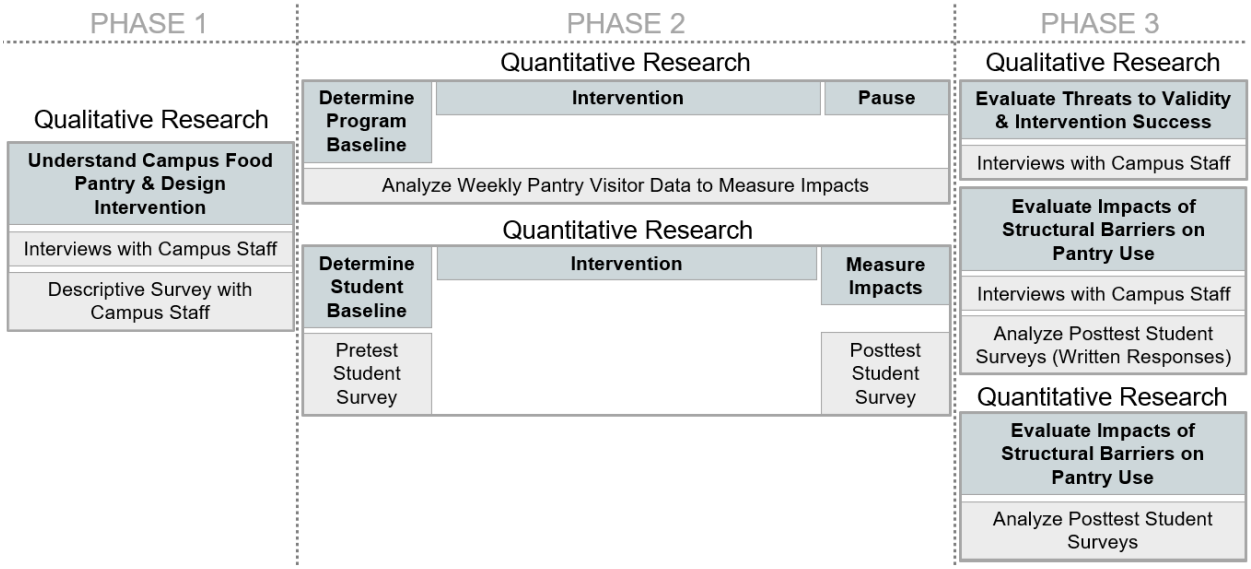


Table 1

Study Design Overview

	Goal	Question	Research Effort	Data Collection Method
Phase 1	Understand the campus and the food pantry	N/A	Analysis of publicly available data from IPEDS, campus websites, and online documents.	Secondary analysis
			Provide pantry information survey to campus staff.	Pantry information survey
			Conduct semi-structured interview with campus staff after the survey is completed (to ask follow-up questions).	Pantry information interview
	Determine which intervention (emails, texts, or postcards) is the most feasible and effective according to campus staff	I	Conduct semi-structured interview with campus staff.	Intervention design & success interview
	Prepare to explore alternative explanations to observed changes in pantry utilization	II	Analyze data on student composition of the entire campus (if campus staff provide these data).	Secondary analysis
Phase 2	Prepare to explore underlying mechanisms	III	Conduct pre-test survey with full treatment group and control group to measure students' knowledge of the food pantry, negative perceptions, willingness to use the campus food pantry, and self-reported pantry use.	Pre-test student survey
	Evaluate impact of marketing intervention on pantry utilization	II	Collect weekly program data on food pantry utilization, including number of unique visitors and total number of visitors, before, during, and after the intervention. Possibly recieve program data on weekly food pantry utilization from the prior semester.	Secondary analysis
			Conduct post-test survey of full treatment, partial treatment, and control student groups to measure changes in self-reported pantry use.	Post-test student survey
	Prepare to explore alternative explanations to observed changes in pantry utilization	II	Conduct two observations of pantry design and visitor data collection processes.	Observations
	Explore underlying mechanisms leading to observed changes in pantry utilization	III	Conduct post-test survey of full treatment, partial treatment, and control student groups to measure changes in knowledge of the food pantry, negative perceptions, and willingness to use the pantry.	Post-test student survey
Phase 3	Explore alternative explanations to observed changes in pantry utilization	II	Conduct semi-structured interview with campus staff to identify what external events may have impacted food pantry utilization aside from the intervention.	Outside factors interview
			Analyze data on student composition of the entire campus (if campus staff provide these data).	Secondary analysis
	Examine structural barriers preventing campus food pantry utilization	IV	Conduct post-test survey of full treatment, partial treatment, and control groups asking about students' perspectives on specific pantry design aspects and ideas for improving the food pantry.	Post-test survey
			Conduct interview with campus staff to learn their perspectives on specific pantry design aspects and ideas for improving the food pantry.	Pantry information interview

Table 2

Study Design Details

	Goal	Question	Research Effort	Data Collection Method
Phase 1	Understand the campus, their basic needs resources, and their food pantry specifically	N/A	Analysis of publicly available data from IPEDS, CCC Datamart, campus website, and online documents. Provide pantry information survey to campus staff. Conduct semi-structured interview with campus staff after the survey is completed (to as follow-up questions). Conduct an initial observation of pantry design and visitor data collection processes.	Secondary analysis Pantry information survey Pantry information interview First pantry observation
	Determine which intervention (emails, texts, or mail) is the most feasible and effective according to campus staff	I	Conduct semi-structured interview with campus staff.	Intervention design & success interview
	Prepare to evaluate impacts of marketing intervention on pantry utilization	II	Collect weekly program data on food pantry utilization at the start of the study. Possibly recieve program data on weekly food pantry utilization from the prior semester.	Secondary analysis
	Prepare to explore underlying mechanisms	III	Conduct student pretest survey with full treatment group and control group to measure students' knowledge of the food pantry, negative perceptions, willingness to use the campus food pantry, and self-reported pantry use.	Pretest student survey
	Prepare to explore alternative explanations to observed changes in pantry utilization	II	Analyze data on student population (if campus staff provide these data).	Secondary analysis
Phase 2	Evaluate impact of marketing intervention on pantry utilization	II	Continue to collect weekly program data on food pantry utilization, including number of unique visitors and total number of visitors, before, during, and after the intervention. Conduct posttest student survey of full treatment, partial treatment, and control groups to measure changes in self-reported pantry use.	Secondary analysis Posttest student survey
	Prepare to explore alternative explanations to observed changes in pantry utilization	II	Conduct second observation of pantry design and visitor data collection processes.	Second pantry observation
Phase 3	Explore underlying mechanisms leading to observed changes in pantry utilization	III	Conduct posttest student survey of full treatment, partial treatment, and control groups to measure changes in knowledge of the food pantry, negative perceptions, and willingness to use the pantry.	Posttest student survey
	Explore alternative explanations to observed changes in pantry utilization	II	Interviews with campus staff to identify what external events may have impacted food pantry utilization aside from the intervention.	Outside factors interview
			Analyze data on student population again (if campus staff provide these data).	Secondary analysis
Phase 4	Examine structural barriers preventing campus food pantry utilization	IV	Conduct posttest survey of full treatment, partial treatment, and control groups asking about students' perspectives on specific pantry design aspects and ideas for improving the food pantry. Conduct interviews with campus staff to learn their perspectives on specific pantry design aspects and ideas for improving the food pantry.	Posttest student survey Pantry information interview

Site Selection

This study took place at a public four-year postsecondary institution in California. Out of all 50 states, I selected California due to my prior personal and professional experiences. Initially I pursued partnering with a public two-year college due to the slightly higher prevalence of food insecurity experienced by community college students (Community College League of California, 2023; Crutchfield & Maguire, 2019). However, several potential partnerships fell through, delaying the start of the dissertation study. In part, this may be due to staffing shortages at community colleges nationwide (Weissman, 2023).

The campus had to meet four criteria to be eligible. First, it must have a functioning CFP and have no major CFP changes planned for the duration of the academic term. This requirement was an effort to avoid unaccounted for mediating, moderating, and confounding variables impacting the study. Examples of major changes include shutting down the food pantry for longer than one week while classes are in session or relocating the food pantry. Second, the campus must intend on allowing students to physically come to campus to attend classes for the duration of the academic term, so that there is CFP visitor data. Third, the campus must be willing to support the study by providing the necessary data on weekly CFP usage; administering the surveys; and selecting, developing, and implementing the intervention. Fourth, the campus must join the approval provided by the Claremont Graduate University Institutional Review Board (IRB) as a part of a multi-institutional study or provide their own separate review and approval through their IRB, allowing the study to proceed under institutional supervision. Any unplanned deviations from the first, second, and third criteria will be assessed and described in detail to determine how they may have impacted the study's outcomes.

Campuses that showed an interest and willingness to partner with me in this study were invited to discuss, edit, and sign a non-binding agreement detailing the minimum requirements to conduct the dissertation study (see Appendix A). The elements of a well-designed consent

form (e.g., voluntary participation from beginning to end, level of risk from participating, possible benefits from participating) were included in the agreement to partner document. Concerning incentives to participate, the campus received an intervention informed by the latest literature and CFP staff which may increase food pantry use (see Appendix B for the intervention). Since postcards were determined to be the best intervention, the campus also received $1,800 (from me) to cover the cost of design, materials, printing, and postage.

Transferability Over Generalizability

Although this is a case study, study findings related to Research Question 2 (which seeks to determine the intervention's impacts), Research Question 3 (which seeks to examine how the intervention led to changes in CFP use), and Research Question 4 (which seeks to understand the impacts of CFP design aspects on utilization) may apply beyond the campus where the study occurred. Taking the proximal similarity model approach to generalizability, I will describe the university, its student population, and its CFP in detail so that readers will have sufficient information to determine the level of similarity between this study's context and their own contexts (Trochim et al., 2016, pp. 84–85). Details on the university and its students will be based on its website and information provided by its institutional research department. Details on the campus food pantry will be based on a variety of data sources including a survey completed by the pantry coordinator (see Appendix C), a follow-up semi-structured interview with the pantry coordinator (see the "Interview Protocol #1 for Pantry Staff: Pantry Information" in Appendix D), my in-person observation of the pantry (see Appendix E for the observation checklist), a review of the pantry's online presence, and a review of the pantry coordinator's online photo log (where staff took one photo related to their work each day).

Research Question 1 Data Collection and Analysis

My first research question is, "What intervention do staff at a public university in California consider to be the most feasible and effective at reducing students' cognitive barriers to campus food pantry use?" For this study's purposes, the intervention refers to a specific

instance of communicating information to students consisting of (a) a communication medium and (b) intentional messaging.

Through a remote, semi-structured interview, I consulted CFP staff employed at the campus to decide which of three communication mediums—text, email, or postcard—would be the most feasible to implement given the timing of the study, budget limitations, and study site's campus policies. Once the communication medium was determined, I consulted CFP staff on the design of the intervention, including intentional messaging. The goal of the messaging was to directly address students' cognitive barriers to food pantry use by (a) increasing their knowledge of the CFP and (b) decreasing their negative perceptions. During the interview I shared drafts of the intervention and breakdowns of drafted messages that incorporate intentional messaging elements, all which were based on the interventions, frameworks, and theories of prior studies. Campus staff were then invited to provide insights on ways to improve the intervention's potential effectiveness (see "Examples of Intentional Messaging" in Appendix D). Examples of intentional messaging elements include:

- providing information about the pantry's food, hours, and eligibility to reduce unknowns;
- dispelling myths of resource scarcity;
- making the message personalized;
- framing food challenges as being common and that the students experiencing these challenges are not alone; framing the pantry food as already belonging to the student (e.g., being rightfully theirs, being included in tuition);
- framing pantry use as common, not just for "poor students" or students in dire need;
- including photos of the pantry food, especially of name brands;
- emphasizing actionable next steps; and
- emphasizing students' inclusivity and belonging

One confidential interview was conducted, and three other campus employees were invited to provide input via email (although none did). Staff had no direct incentives to participate. See Appendix B for the intervention, a postcard designed in partnership with CFP staff. The data collection instrument for Research Question 1 is a semi-structured interview protocol (see “Interview Protocol #2: Intervention Design & Success” and “Example Interventions” in Appendix D).

Research Question 2 Data Collection and Analysis

My second research question is, “To what extent does the intervention improve CFP use at this university?” To answer this question, I analyzed two different datasets to determine whether changes in pantry use were statistically and practically significant. First, I analyzed the total number of campus food pantry visitors each week during the Fall 2025 academic term before, during, and after the intervention. I also compared the Fall 2025 academic term data with data from prior academic terms. Figure 8 shows this study’s the design notation, where “O” (for “observations”) represents weekly pantry visitor data. There are three different “interventions” in the design notation because I recognize that the pre- and post-test surveys which will be distributed to a portion of sample students could—in addition to measuring students’ behaviors, knowledge, and perceptions—cause an increase in food pantry visitors. Thus, X_1 represents the pretest survey, X_2 represents the actual intervention (i.e., the postcard), and X_3 represents the post-test survey. Although only four observations per campus are listed in the design notation, this study actually uses 16 observations at a rate of one per week for the duration of the academic term.

Figure 8 *Design Notation for Research Question 2: Campus Food Pantry Visitors*

$$O \; X_1 \; O \; X_2 \; O \; X_3 \; O$$

A non-representative nationwide survey of campus food pantries found that 64% of the campus food pantry staff who responded collected visitor data (Goldrick-Rab et al., 2018). Likewise, the study site regularly collects pantry visitor data. Specifically, each pantry visitor provides their student ID number upon accessing the pantry via filling out a tablet form or paper form. This information was shared with me as weekly non-duplicated totals. Receiving only aggregate data ensures that the identities of the students visiting the pantry remain unknown to me, protecting their privacy. Program data from the CFP were analyzed via descriptive statistics to compare the beginning, middle, and end of the academic term and to compare the present academic term with prior ones. Line graphs showing the weekly total of unique visitors make it easier to identify trends over time and facilitate making comparisons with prior academic terms. Key events related to the study and the academic calendar will be accounted for in the line graphs to explore internal and external factors impacting CFP use.

Second, I measured the impacts of the intervention on campus food pantry use by examining differences in students' self-reported visits, data which was collected through the pre- and post-test student surveys. To conduct the surveys, a campus employee in the study site's institutional research department used simple random sampling to select a sample of students from the total population and then randomly divided these students into three groups (see Figure 9):

- the *full intervention group* (the group that received the pretest survey, the intervention, and then the post-test survey);
- the *partial intervention group* (the group that received the intervention and the post-test survey—not the pretest survey); and
- the *control group* (the group that received the pretest survey and the post-test survey—not the intervention).

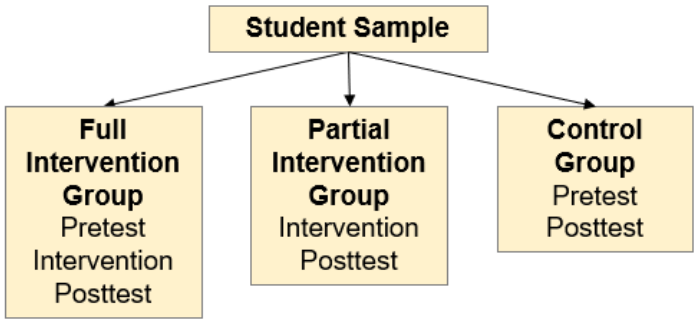
The control group of students is an important aspect of the study's design because, as Royer and Wharton (2023) concisely stated, "no-treatment control groups are ideal for testing novel

interventions in feasibility research where there is uncertainty regarding whether the intervention will work" (para. 13).

Random sampling was done via Microsoft Excel (Version 2501), which can randomly generate numbers used to determine who is and is not included in the sample. The sampling process was done by a campus employee who had access to the full list of currently enrolled students (i.e., the sampling frame). I provided the sampling instructions but did not do it myself to avoid seeing students' personal identifiable information. Next, the pretest survey was administered, followed by the intervention and, lastly, the post-test survey (see Appendix B for the intervention and Appendix F for the pretest and post-test surveys). I then used descriptive statistics and t-tests to compare the full intervention group and the control group's self-reported CFP visits, with the goal of identifying statistically significant and practically significant differences.

Figure 9

Diagram of Student Groups



Both the CFP visitor data and self-reported CFP usage were measured against benchmarks. To determine these benchmarks, I asked campus staff the following question during a semi-structured interview: "What does an intervention that is a partial success or total success look like?" Follow-up questions inquired about the importance of an increased number of visitors to the CFP and the benefits of the intervention relative to its costs to implement (in

terms of time, effort, and money). Ultimately, I aimed to determine whether the observed outcomes justify implementing the intervention again in the future. Such an evaluative judgment should not be made by me alone; rather, it should be aided by the perspectives of on-the-ground staff at the campus.

The data collection instruments that support answering Research Question 2 include the two interview protocols for CFP staff (see Appendix D), a CFP observation checklist (see Appendix E), and the pre- and post-test surveys (Appendix F). The post-test survey asks students about past visits to the CFP. An observation checklist supported my evaluation of the extent that student ID information is being collected reliably, which is the basis of the CFP visitor data. In addition, two semi-structured interviews were conducted with CFP staff. First, at the start of the study, pantry staff were asked about their definition of a successful intervention (see "Interview Protocol #2 for Pantry Staff: Intervention Design & Success" in Appendix D). To follow up, I conducted a semi-structured interview with pantry staff near the conclusion of the study to identify any external events that might have influenced the number of CFP visitors aside from the intervention (see "Interview Protocol #3 for Pantry Staff: Influencing Factors" in Appendix D).

Research Question 2 Constraints

When seeking the answer to the second research question, the selection-history threat to internal validity and the reliability of the data must be considered. Selection-history threat refers to a situation where some external event unknown to the researcher causes a change in the dependent variable (Trochim et al., 2016, p. 214). This increases the odds of drawing erroneous conclusions about the impacts of the independent variable, threatening the study's internal validity (Trochim et al., 2016, p. 214). The event may be subtle and beyond the researcher's control; an example might be increased peer-to-peer outreach led by a student club resulting in an increase in the number of food pantry visitors at a certain point in the academic term. To explore whether external events impacted CFP use and the extent of their

impacts, I conducted a short, semi-structured interview with CFP staff near the conclusion of the study to discuss any relevant outside factors that they might be aware of.

Furthermore, Research Question 2 depends on the collection and analysis of secondary data which presents potential data reliability issues. First, staff and student volunteers at the pantry may collect visitor data irregularly. To check the reliability of the visitor data, I conducted one on-site observation of the pantry. I also included a question in the post-test student survey about whether the student was asked to provide their student ID number upon entering the pantry, and I discussed the accuracy of the data with the food pantry coordinator. These different data collections allow for data triangulation, leading to a fuller and more accurate understanding of the CFP's data collection practices.

Research Question 3 Data Collection and Analysis

Regardless of the impacts of the intervention on pantry use, I explored the impacts of the intervention on underlying factors theorized to influence students' CFP use. Thus, my third research question is, "What are the underlying mechanisms between the intervention and changes in CFP use?" In seeking the answer, the pre- and post-test surveys measured changes in students' pantry knowledge, perceptions of food insecurity, perceptions of food pantry use, willingness to use the pantry, and self-reported visits. These online surveys were estimated to take no more than 10 minutes to complete according to Qualtrics, where they are housed. Qualtrics is a secure survey hosting program provided by Claremont Graduate University (Qualtrics, 2025).

What Did the Student Survey Measure?

The student survey measured seven abstract constructs. Four of these constructs are associated with cognitive barriers that students may have:

(a) knowledge of the food pantry (that it exists, who is eligible, and how it works);

(b) perceptions of the prevalence of food insecurity;

(c) perceptions of who the food pantry is meant to serve; and

(d) perceptions of normalcy and acceptability of food insecurity

Each construct was measured using a set of survey questions combined into a composite variable for analysis. In addition to the four constructs listed above, one set of questions measured (e) students' willingness to use the CFP, another set of questions measured (f) students' self-reported frequency of CFP usage, and the final set of questions measured (g) students' perceptions of pantry design. See Appendix G for a full list of survey questions organized by construct. I collected data on the seven constructs to explore the underlying processes that led to the changes, if any, in pantry use after implementing the intervention.

Each proposed composite variable will be based on three to twelve survey questions. The questions within a set should have high correlations with each other showing their convergence on the same construct (Trochim et al., 2016, p. 132). Related questions will then be combined into a single composite variable, creating a mean score for each respondent. All of the composite variables with their respective constructs were expected to have certain positive or negative correlations between them (as outlined in the "Research Questions and Hypothesis" section). However, these correlations should not be as high as the positive correlations between related questions within a single composite variable because the composite variables should discriminate between different constructs (Trochim et al., 2016, p. 133). Lastly, I analyzed the responses to the surveys, sets of other related questions, and individual questions to better understand the strengths and weaknesses of the survey designs.

The surveys also included questions on demographics (e.g., ethnicity, gender, enrollment status, employment status) and current levels of food insecurity. Student food insecurity was measured using a modified version of the 10-item U.S. Adult Food Security Survey Module created and implemented by the U.S. Department of Agriculture (Economic Research Service, 2012; Ellison et al., 2021, Figure 1). Modified versions of this survey have been previously applied to postsecondary contexts by researchers from the California State

University (Crutchfield & Maguire, 2017) and California Community College (Community College League of California, 2023; Goldrick-Rab et al., 2019b). Modifications for the purposes of this study included omitting the screening questions (which were not part of the 10 measurement questions), omitting two follow-up questions on the frequency that respondents experienced certain food challenges, and changing the time period of the questions from 12 months to the past 30 days. Skip patterns and other survey design aspects stayed the same. To interpret the responses, I calculated a raw score for food security levels and food insecurity statuses by counting the number of questions that a student responded to affirmatively (i.e., “sometimes true” or “often true”). These totals were then interpreted per the U.S. Department of Agriculture’s thresholds (see Table 3 for details).

Table 3

Measuring Levels of Food Security

Food Security Level	Food Insecurity Status	Raw Score
High	Not food insecure	0
Marginal		1–2
Low	Food insecure	3–5
Very low		6–8

Note. This table was created based on information from the U.S. Department of Agriculture’s 10-item U.S. Adult Food Security Survey Module, which is the current standard national measurement of adult food security (Economic Research Service, 2012, p. 6).

The post-test survey included nearly all of the same questions as the pretest survey; see Appendix G for a full list of survey questions, including those which repeat between the two surveys. The post-test survey also included questions about the respondent’s perceptions of certain food pantry aspects and whether they recall receiving the intervention. Notably, both surveys began with a thorough explanation of the study and an “informed consent to participate” question. Students were not asked to share their student identification numbers or any other

personal identifiable information, aside from the voluntary provision of their names and emails if they wanted to participate in the random drawing for one of five $35 Amazon e-gift cards.

Who Was Invited to Complete the Student Survey?

Random sampling of the student population was necessary because CFP staff wanted the intervention to be postcards, which was costly to implement at a large scale if the sample was the entire student population (compared to emails which cost nothing to send out).

Concerning sample size, the student population at the campus is approximately 31,000 students. Using SurveyMonkey's Sample Size Calculator with the parameters of a 95% confidence level and a 5% margin of error, I determined that the goal should be at least 380 student respondents in the full intervention group and at least 380 respondents in the partial intervention group if I wanted to be able to generalize the findings to the broader student population (2025b, www.surveymonkey.com/mp/sample-size-calculator). "Participation" in this instance means the student received the intervention and responded to one or both surveys depending on which subgroup they were in. Assuming the survey invitations would not reach all of the students via their school-assigned email addresses and assuming the surveys' response rates would be 10% (since I needed students in the full intervention group to respond to both the pretest and the post-test surveys to analyze the impacts of the intervention), the food pantry coordinator at the study site sent the intervention to 7,600 randomly selected students: 3,800 in the full intervention group and 3,800 in the partial intervention group.

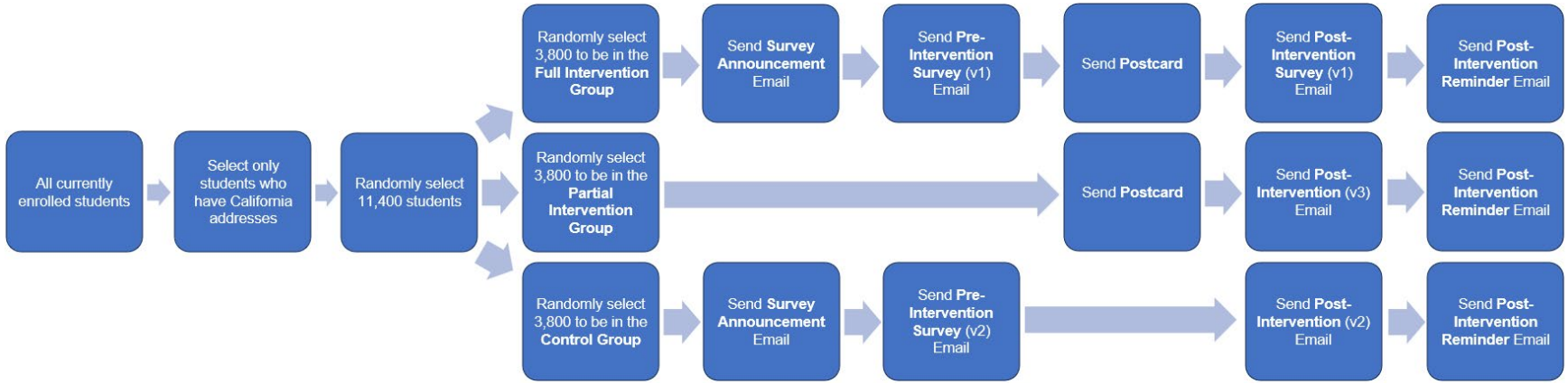
The assumption of a 10% response rate was based on a review of response rates to four online surveys of similar or greater length administered at numerous public postsecondary institutions across California. One survey had a response rate of 5% (Goldrick-Rab et al., 2019b), two surveys had response rates of 6% (California Student Aid Commission, 2023; Crutchfield & Maguire, 2018); and one survey had a response rate of 26% (Regents of the University of California, 2024). The assumption also took into account response rates to two online surveys administered to college students nationwide, one with a response rate of 6%

across 123 colleges (CCSE, 2022) and the other with a response rate of 14% across 253 colleges (Goldrick-Rab et al., 2019a). Given the prior studies and their similarities with this dissertation study, the assumption of a 10% response rate is close to the median of 6%, making it both informed and optimistic.

Additionally, a randomly selected 3,800 students made up the control group, meaning they received both the pretest and post-test surveys but not the intervention. In total, the sample invited to participate in this study was 11,400 (or 37% of the total student population) randomly selected students who were then equally and randomly divided into three groups. Figure 10 visualizes the details of the sampling process.

Figure 10

Student Sample Flow Chart



Additional notes regarding the sampling process are as follows:

- Ideally, the sample reflects the population, allowing findings to be generalizable to students across the campus. The extent that this was achieved was analyzed and described in Chapter 4.
- Students who have home addresses outside of California were not included in the sample, as it is assumed that they are attending remotely and thus do not access the CFP.
- The campus launched an “Address Awareness Campaign” from November 27, 2023, to December 8, 2023, encouraging students to update their addresses using the correct address format. As most students enroll in the fall, it is likely that the freshman had updated addresses (since they just enrolled) and the sophomores, juniors, and seniors were present for the campaign. Since the study was conducted the following year, in Fall 2024, this campaign may have increased the accuracy of the student addresses on file for current juniors and seniors (who were previously sophomores and juniors).

Survey best practices were applied to obtain higher response rates, including sending a pre-notification email, sending two reminder emails, and offering the chance to participate in a random giveaway (Sammut et al., 2021). See Appendix H for the pre-notification emails, invitation emails, and reminder emails. A CFP employee emailed survey links directly to students' campus emails. This design avoided the message from being marked as junk mail or spam from an unknown sender (which was more likely to occur if the email was sent from my graduate school email or a generic Qualtrics email). This design also prevented me knowing students’ college emails which are tied to their first and last names, protecting their privacy.

Students who consented to participate in the study by completing the pretest survey and who provided their names and email addresses could opt into a random drawing for one of five $35 Amazon e-gift cards. This setup was mirrored for the post-test survey. To protect respondents’ privacy, students submitted their emails separately from their survey responses. In

compliance with California law, no amount of participation in the study was required to enter the random drawing (Claremont Graduate University, 2025). At the start of the surveys, it was stated that anyone who learned about the study's random drawing could directly email me to enter it, regardless of their level of involvement in the study. Each name and email provided to me represented one entry in the drawing; repeating entries were removed. I completed the drawings three days after the surveys closed using Microsoft Excel's random number generation feature.

Research Question 3 Constraints

In seeking an answer to Research Question 3, I must be aware of a threat to construct validity called the "interaction of testing and treatment" (Trochim et al., 2016, p. 137), where the pretest survey accidentally acts as a separate intervention. A survey that asks students about their knowledge and perceptions regarding their campus food pantry inevitably informs them about the pantry and influence their behaviors. For example, students who are unaware of the CFP may become aware of it when they read, "Before taking this survey, which campus resources were you already aware of?" with "campus food pantry" as one of several answer options. Beyond increasing students' knowledge, the pretest survey may alter students' negative perceptions related to food insecurity and food pantry use. Unintentional impacts of the pretest were determined by administering only the post-test survey to a sample of students who received the intervention (Trochim et al., 2016, p. 138). Thus, there are two groups of students who receive the intervention: the "full intervention group" that received the pre- and post-test surveys and the "partial intervention group" that received only the post-test survey. Responses from the two samples were compared using t-tests to determine whether the pretest student survey significantly impacted students' knowledge, perceptions, and behaviors—and, if so, to what extent.

Notably, the experimental approach used to answer Research Questions 2 and 3 follows a pre-post randomized experimental design with one additional group receiving only the

intervention and the post-test. Figure 11 shows the study's design notation. "R" represents the three subgroups of students, with the groups being formed through random assignment; "O" represents the pre- and post-test student surveys; and "X" represents the intervention.

Figure 11

Experimental Design Notation for Research Question 3

R O X O
R X O
R O O

Another possible threat to the validity of the findings is that the three subgroups of students differ in ways which then affected their survey responses. This could result in differences being measured by the post-test student survey between the three subgroups on some or all of the seven composite variables, differences which should be attributed to differences between the groups rather than exposure to the intervention. To determine if underlying differences between the full intervention group and the control group are a viable explanation for the post-test changes, I conducted a comparative analysis of survey respondents' demographics and their composite variable scores.

Research Question 4 Data Collection and Analysis

I also want to understand how the pantry's design aspects, like limited hours or public location, might have impacted pantry use. Pantry design aspects that act as structural barriers could explain why an observed increase in students' willingness to use the pantry (after receiving the intervention) did not correspond with an observed increase in self-reported pantry use. Thus, my fourth research question is, "What design aspects of the food pantry at this university facilitate or hinder its use?" To seek the answer to this question, I used a combination of quantitative and qualitative data. First, I included several Likert-style questions (with four

answer options ranging from “strongly disagree” to “strongly agree”) in the post-test student survey asking students to share their perspectives on the pantry’s hours, food, employees, location, and interior.[8] These responses were analyzed using descriptive statistics and Analyses of Variance (ANOVAs) to compare the three student groups. I also looked for strong positive or negative correlations between students’ satisfaction with the overall design and their self-reported visits.

In addition, I asked the students and staff for their perspectives on how the pantry’s design aids or hinders use. Specifically, qualitative data were collected via open-ended questions on the post-test student survey and during a semi-structured interview with CFP staff. Students and staff received the same questions: (a) “What two aspects of the pantry are working well?” and (b) “What are two ways that the pantry can be improved?” The findings based on *a priori* and emergent coding of the responses provide important context when interpreting students’ quantitative survey responses as well as confirmation via data triangulation.

Ethics and the Protection of Participants

To protect participants’ rights and wellbeing, this study adhered to all Institutional Review Board (IRB) standards. Approval was sought and received from the Claremont Graduate University IRB. I had a Collaborative Institutional Training Initiative (CITI) “Social & Behavioral Research (Stage 1 - Basic Course)” certification for the duration of this study, and the postsecondary institution where the CFP was housed accepted Claremont Graduate University IRB’s approval as a part of a multi-institutional study. Notably, one aspect of participation in the study was not voluntary. Students in the “full intervention group” and the “partial intervention group” received the intervention—a message informing them about the food pantry on their

[8] Likert scales are one kind of basic univariate scale that yields a single numeric score “that is designed to reflect the construct of interest” typically of “more subjective and judgmental constructs like attitudes and beliefs” (Trochim et al., 2016, p. 167).

campus. These students did not receive advanced notice that they were selected to receive the intervention, and they were not informed that the intervention was part of a research study. Likewise, students were not given the choice to opt out of receiving the intervention.

In all other aspects, participation was voluntary. This includes partnership with a public postsecondary institution; campus staff participation in three remote, semi-structured interviews; and student participation in the pre- and post-test surveys. Voluntariness and the ability to cease participating at any time were specified in the agreement to partner signed by staff at the study site as well as in the first question of the pre- and post-test student surveys. Before beginning the interviews, I explained to potential interviewees voluntariness and their ability to cease participating at any time. All interviewees employed by the campus were expected to be 18 years of age or older. Similarly, both student surveys clarify in the beginning that students must be at least 18 years of age to participate. In addition, the demographics question on the respondent's age includes a "less than 18 years old" answer option; respondents who selected that option's responses were promptly removed from the datasets before beginning the analyses.

Furthermore, I took steps to protect the privacy of the individual participants by supporting campus staff with implementing the intervention, as opposed to requesting students' personal information to then implement the intervention myself. Specifically, I aided with the design of postcards in collaboration with campus staff who then added students' names and mailing addresses and delivered them to the U.S. Postal Service. I never saw nor collected students' names, emails, student IDs, and addresses, making the student surveys anonymous. Prioritizing the privacy of students facilitated IRB approval and the formation of a partnership between me and the study site. Inevitably, this study design had tradeoffs; it was not possible to conduct certain statistical analysis techniques, such as covariance analysis, and my findings depend on the assumption that the pretest survey respondents overlapped with the post-test survey respondents.

Concerning research ethics and participant privacy, data from the semi-structured interviews with campus staff was kept confidential. While discussing communication mediums and message content, interviewee experienced no greater than minimal risk compared to the risks normally experienced in daily life.

Regarding Research Question 2, aggregated information on who visits the CFP each week for the duration of the study was provided by campus staff. I did not see individual student IDs, protecting the privacy of students who visit the CFP. These data were already regularly collected by the CFP, making it an unobtrusive data collection resulting in the analysis of secondary data (Trochim et al., 2016, p. 65). Food pantry visitors whose pantry use data will be included in this study experienced no greater than minimal risk compared to the risks normally experienced in daily life. In addition, I analyzed CFP visiting rates of the three student groups, data which was self-reported through the pre- and post-test surveys. The identities of these respondents are unknown to me. No personal identifiable information was collected aside from respondents' emails for the random drawing (if they chose to participate in the drawing). Emails were disconnected from the survey responses; the two cannot be linked.

The employees at the study site who randomly separated the sample of students into the three subgroups, implemented the intervention, and distributed the student surveys knew which sample group each student was in. As campus employees, access to this student information is a regular part of their job, and the use of this information is limited by Family Educational Rights and Privacy Act (FERPA). However, I do not know who specifically is in which subgroup or who responded to the surveys.

The pre- and post-test student surveys were administered using Qualtrics, a secure survey software provided by Claremont Graduate University where the researcher's unique credentials are required to access survey responses (Qualtrics, 2025). In addition, any files downloaded for analysis were stored on a password-protected personal laptop. These files were

deleted from both Qualtrics and the laptop after the dissertation was defended. In short, I was the only one who had access to the survey responses which did not have any identifying information. Certain survey questions—such as questions about the respondent's personal experiences with food insecurity—might have caused the respondents to temporarily experience anxiety, stress, or discomfort. In an effort to mitigate these risks, at the beginning of the survey potential respondents received a summary of the study and associated risks of participation.

Chapter 4: Study Findings

Introduction to Chapter 4

This fourth chapter focuses on the study's findings, beginning with descriptions of the study site, student population, student sample, student participants, and the campus food pantry. Next, I describe how I administered the student survey in alignment with the data collection plan. Before analyzing the student survey responses to determine the answers to the study's hypotheses, I evaluate the design of the survey in three ways. The survey analysis begins with an examination of response rates, completion rates, answer rates, rates of meaningful responses, and completion times. The second part involves an analysis of meaningful responses, a reliability analysis, a factor analysis, and an analysis of missing data while creating the composite variables. The third part involves an analysis of correlations between key variables and inferential statistics comparing pretest groups (to be aware of existing differences between groups that may show up in the post-test data). Lastly and of no less importance, I describe the findings to each research question and their corresponding hypotheses.

Study Site and Student Population

I conducted this study during the Fall 2024 academic term at one of the 32 public universities in California that offer a variety of undergraduate and graduate programs. The university enrolled approximately 31,000 students, with undergraduates making up over 90% of the student population, and it employed approximately 1,700 faculty and 1,400 staff. The university is located in an urban city, home to approximately 500,000 residents. A little more than 90% of undergraduate applicants were admitted to the university in Fall 2024. Enrolled students had an average GPA of about 3.00. The university's four-year graduation rate for first-time freshmen was approximately 30% and six-year graduation rate for first-time freshmen was approximately 60%. About three quarters of the students were enrolled full time (i.e., had a unit load of 12 or more in the academic term), and nearly all had residency status. Concerning

demographics, about half of the students are Pell Eligible, about half identified as having an ethnicity that could be considered an underrepresented minority, and nearly one third were the first in their generation to attend college.

Student Sample and Participants

Student Sample

A little over one-third of the student population (11,400 or 37%) was randomly selected by a campus employee in the institutional research department to receive invitations to participate in the student survey portion of the study. These students were then randomly assigned to one of three groups: partial intervention, full intervention, and control. To protect students' privacy, I did not track which students within each group completed the survey. Tracking students via their school assigned emails was an option in Qualtrics as was asking students to share their emails via the survey, neither of which I employed. Consequently, the demographics of the student sample cannot be determined.

Student Participants

However, students who responded to the survey could voluntarily disclose their demographic information. A descriptive analysis of the survey responses looking at frequencies, percentages, and means allowed for comparisons between the two student groups and the student population (see Table 4; see Appendix I for detailed findings on respondent demographics). Comparisons of percentages reveal that the pretest survey respondents and post-test survey respondents share demographic similarities, with nearly all of the differences between the two groups ranging from 0–4%. Slightly higher differences are seen in the "ethnicities" question, with the post-test survey respondents having a somewhat (6%) greater proportion of students who identify as Asian. While the pretest and post-test survey respondents are similar, both groups differ from the broader campus population in the following ways: graduate survey respondents are overrepresented by the survey respondents (by 5–6%), international students are overrepresented by (7–8%), full-time enrolled students are

overrepresented (by 9–12%), Pell Grant recipients are overrepresented (by 11–13%), and female respondents are overrepresented (by 16–17%). Lastly, students who identify as White may be overrepresented (by 10–12%). However, this comparison between the student survey respondents and the campus population is difficult to make because questions that collected data on race and ethnicity were asked in different ways (see the notes in Table 4 for details).

Based on each demographic question's mean values, the student respondents from the five survey groups did not significantly differ between the student groups. Subtracting the lowest mean from the highest mean reveals small mean differences given the range of each question's answer options (see Table 5).[9] Similarly, the student respondents did not significantly differ between the pretest group (consisting of the full intervention group and control group) and the post-test group (consisting of the partial intervention group, the full intervention group, and the control group). Subtracting the lowest mean from the highest mean reveals that the greatest mean difference is 0.05, which is not a practical difference (see Table 6). Despite the similarities between the groups, I will not treat the student respondents as being a representative sample of the broader student population because the survey response rate was low, at about 5%.

[9] A practical (or meaningful) difference is different from a statistical difference. Put concisely by Riemann and Lininger (2015, para. 3), "Statistical significance reflects the influence of chance on the outcome, whereas clinical meaningfulness reflects the degree to which the differences and relationships reported in a study are relevant to … practice."

Table 4

Demographics Comparing Student Surveys and Campus Population: Counts and Percents

Question Answer option	Pretest Valid %	Post-Test Valid %	Campus Population % [a]
Q20 Degree program			
Undergraduate	86%	85%	91%
Graduate	14%	15%	9%
Q21 Enrollment			
Less than 12 units	12%	15%	24%
12 or more units	88%	85%	76%
Q22 Currently employed			
Yes	57%	61%	
No	44%	39%	
Q23 Hours worked per week			
1–9	8%	11%	
10–19	41%	40%	
20–29	29%	26%	
30–39	8%	12%	
40+	14%	12%	
Q24 Looking for work/more work			
Yes	54%	54%	
No	46%	46%	
Q27 Age range			
>18	0%	0%	4%
18–20	34%	30%	36%
21–25	36%	45%	42%
26–30	16%	12%	9%
31+	15%	14%	9%
Q28 Gender identity			
Male	23%	23%	44%
Female	72%	73%	55%
Non-binary	5%	4%	0%
Q29_1 Students with disabilities			
Not selected	74%	71%	96% [b]
Selected	26%	29%	4% [b]
Q29_2 Current/former foster youth			
Not selected	97%	95%	98%
Selected	3%	5%	2%
Q29_3 International student			
Not selected	90%	91%	98%
Selected	10%	9%	2%
Q29_4 Out-of-state student			
Not selected	99%	98%	99%
Selected	1%	2%	1%

Q29_5 Served in the military			
Not selected	96%	98%	97%
Selected	4%	2%	1%
Q29_6 DREAM / DACA student			
Not selected	94%	95%	
Selected	6%	5%	
Q29_7 Student parent			
Not selected	83%	86%	
Selected	17%	14%	
Q30 File FAFSA / CADAA			
Yes	87%	85%	
No	13%	15%	
Q31 Pell Grant recipient [a]			
Yes	60%	62%	49%
No	40%	38%	51%
Q33 Housing challenges			
Yes	18%	16%	
No	82%	84%	
Q34_1 CalFresh (SNAP) program			
Not selected	76%	75%	
Selected	24%	25%	
Q34_2 WIC program			
Not selected	95%	97%	
Selected	5%	3%	
Q34_3 Off-campus food pantry			
Not selected	93%	90%	
Selected	7%	10%	
Q34_4 Other food resource			
Not selected	97%	98%	
Selected	3%	2%	
Q16–Q19 Food Insecurity Status			
Food secure	42%	44%	
Food insecure	58%	56%	
Q25 Hispanic or Latino origin			
Yes	43%	39%	37% [c]
No	57%	61%	63% [c]
Q26 Ethnicities			
Asian only	24%	30%	22% [c]
American Indian or Alaskan Native only	1%	1%	0% [c]
Black or African American only	7%	6%	7% [c]
White only	35%	33%	23% [c]
Other only	14%	12%	42% [c]
Two or more ethnicities	19%	17%	6% [c]

Note. See Appendix I for *n* values.

[a] Data are based on analyses conducted by staff in the campus's institutional research department.

[b] The datasets compared are not fully aligned. Campus-provided data on disability has two categories: “does not have a verified disability” and “has a verified disability.” This is distinct from self-identification as being a student with a disability.

[c] The datasets compared are not fully aligned. “Hispanic or Latino origin” was a separate question in this study but is one of several answer options for the campus’s Integrated Postsecondary Education Data System survey (and is called simply “Hispanic”). To have comparable answer options, “Hispanic” is combined with “Pacific Islander” and “Unknown” to form the “Other” ethnicity category.

Table 5

Demographics of All Five Survey Groups: Differences in Means

Question Answer option (answer value)	Minimum Mean	Maximum Mean	Difference
Q20 Degree program Undergraduate (1) Graduate (2)	1.12	1.17	0.05
Q21 Enrollment Less than 12 units (1) 12 or more units (2)	1.83	1.9	0.07
Q22 Currently employed Yes (1) No (2)	1.36	1.45	0.09
Q23 Hours worked per week 1–9 (1) 10–19 (2) 20–29 (3) 30–39 (4) 40+ (5)	2.67	2.86	0.19
Q24 Looking for work/more work Yes (1) No (2)	1.43	1.52	0.09
Q27 Age range 18–20 (1) 21–25 (2) 26–30 (3) 31+ (4)	2.06	2.19	0.13
Q28 Gender identity Male (1) Female (2) Non-binary (3)	1.80	1.84	0.04
Q29_1 Students with disabilities Not selected (0) Selected (1)	0.26	0.31	0.05
Q29_2 Current/former foster youth Not selected (0) Selected (1)	0.02	0.05	0.03
Q29_3 International student Not selected (0) Selected (1)	0.06	0.11	0.05
Q29_4 Out-of-state student			

Not selected (0) Selected (1)	0.00	0.03	0.03
Q29_5 Served in the military Not selected (0) Selected (1)	0.02	0.06	0.04
Q29_6 DREAM / DACA student Not selected (0) Selected (1)	0.02	0.11	0.09
Q29_7 Student parent Not selected (0) Selected (1)	0.11	0.19	0.08
Q30 File FAFSA / CADAA Yes (1) No (2)	1.13	1.18	0.05
Q31 Pell Grant recipient Yes (1) No (2)	1.34	1.42	0.08
Q33 Housing challenges Yes (1) No (2)	1.79	1.86	0.07
Q34_1 CalFresh (SNAP) program Not selected (0) Selected (1)	0.22	0.26	0.04
Q34_2 WIC program Not selected (0) Selected (1)	0.02	0.22	0.20
Q34_3 Off-campus food pantry Not selected (0) Selected (1)	0.07	0.11	0.04
Q34_4 Other food resource Not selected (0) Selected (1)	0.01	0.03	0.02
Q34_5 None of above resources Not selected (0) Selected (1)	0.66	0.70	0.04
Q16–Q19 Food Insecurity Status Food secure (0) Food insecure (1)	0.51	0.61	0.10
Q25 Hispanic or Latino origin Yes (1) No (2)	1.55	1.64	0.09

Note. This table compares all five survey groups: pretest full intervention, pretest control, post-test partial intervention, post-test full intervention, and post-test control. See Appendix I for *n* values.

Table 6

Demographics of Both Student Surveys: Differences in Means

Question Answer option (answer value)	Minimum Mean	Maximum Mean	Difference
Q20 Class level			
Undergraduate (1) Graduate (2)	1.14	1.15	0.01
Q21 Enrollment			
Less than 12 units (1) 12 or more units (2)	1.85	1.88	0.03
Q22 Currently employed			
Yes (1) No (2)	1.39	1.44	0.05
Q23 Hours worked per week			
1–9 (1) 10–19 (2) 20–29 (3) 30–39 (4) 40+ (5)	2.73	2.78	0.05
Q24 Looking for work/more work			
Yes (1) No (2)	1.46	1.46	0.00
Q27 Age range			
18–20 (1) 21–25 (2) 26–30 (3) 31+ (4)	2.10	2.11	0.01
Q28 Gender identity			
Male (1) Female (2) Non-binary (3)	1.81	1.82	0.01
Q29_1 Students with disabilities			
Not selected (0) Selected (1)	0.26	0.29	0.03
Q29_2 Current/former foster youth			
Not selected (0) Selected (1)	0.03	0.05	0.02
Q29_3 International student			
Not selected (0) Selected (1)	0.09	0.10	0.01
Q29_4 Out-of-state student			
Not selected (0)	0.01	0.02	0.01

Selected (1)			
Q29_5 Served in the military			
Not selected (0)	0.02	0.04	0.02
Selected (1)			
Q29_6 DREAM / DACA student			
Not selected (0)	0.05	0.06	0.01
Selected (1)			
Q29_7 Student parent			
Not selected (0)	0.14	0.17	0.03
Selected (1)			
Q30 File FAFSA / CADAA			
Yes (1)	1.13	1.15	0.02
No (2)			
Q31 Pell Grant recipient			
Yes (1)	1.38	1.40	0.02
No (2)			
Q33 Housing challenges			
Yes (1)	1.82	1.84	0.02
No (2)			
Q34_1 CalFresh (SNAP) program			
Not selected (0)	0.24	0.25	0.01
Selected (1)			
Q34_2 WIC program			
Not selected (0)	0.03	0.05	0.02
Selected (1)			
Q34_3 Off-campus food pantry			
Not selected (0)	0.07	0.10	0.03
Selected (1)			
Q34_4 Other food resource			
Not selected (0)	0.02	0.03	0.01
Selected (1)			
Q34_5 None of above resources			
Not selected (0)	0.68	0.68	0.00
Selected (1)			
Q16–Q19 Food Insecurity Status			
Food secure (0)	0.56	0.58	0.02
Food insecure (1)			
Q25 Hispanic or Latino origin			
Yes (1)	1.57	1.61	0.04
No (2)			

Note. This table compares the two pretest student groups (full intervention and control) with the three post-test student groups (partial intervention, full intervention, and control). See Appendix I for *n* values.

Student Participants Experiencing Food Insecurity

Approximately 58% of pretest respondents and 56% of post-test respondents experienced food insecurity in the past 30 days, far exceeding the estimated 14% by the U.S. Department of Agriculture's Economic Research Service (Rabbitt et al., 2024) and over 10 percentage points higher than California-specific estimations (Community College League of California, 2023; Crutchfield & Maguire, 2019; Regents of the University of California, 2023). A demographic breakdown of student respondents experiencing food insecurity reveals that, in alignment with the literature, food insecurity impacts students unequally (see Appendix J). Looking at both the pre- and post-test survey respondents, students are more likely to experience food insecurity if they identified as Hispanic or Latino, selected an age range higher than 18–20 years old, identified as female, identified as disabled, identified as a current/former foster youth, or identified as a student parent. Students who indicated that they were currently experiencing housing challenges (i.e., "not having stable or reliable housing") had especially high rates of experiencing food insecurity; 81% of pretest survey respondents and 90% of post-test survey respondents who disclosed that they were experiencing housing challenges had also experienced food insecurity in the past 30 days. This is to be expected since housing challenges make food storage and cooking much more difficult and since the challenge underlying both issues is financial struggles.

Campus Food Pantry Description

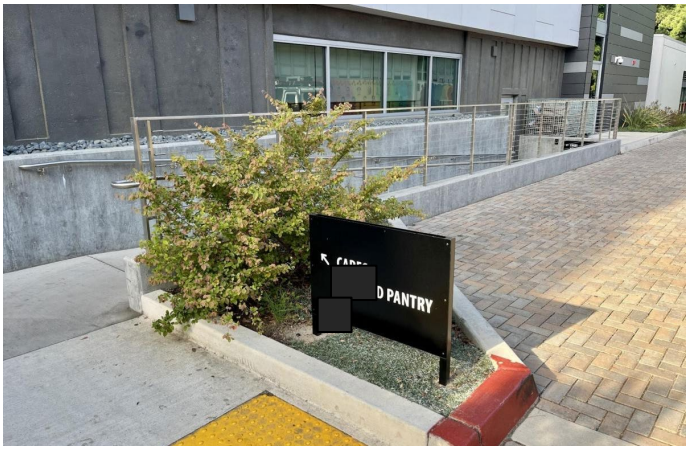
The following description of the campus food pantry is based on a survey completed by the pantry coordinator, a follow-up semi-structured interview with the pantry coordinator, my observation of the pantry (including its online presence), and a review of the pantry coordinator's online photo log (where staff took one photo related to their work each day).

Pantry Location

The pantry has one designated space on campus where it permanently exists, taking up approximately 300–400 sq ft. In addition, the pantry has two overflow spaces in the same building where a surplus of food can be stored. Pantry staff indicated from the available answer options that they "agree" with statements about the pantry being (a) accessible to persons with disabilities, (b) easily reached via public transportation, (c) located close to a student parking lot, (d) private/hidden so that students can visit with a sense of privacy, and yet (e) also public/unhidden so that students can easily discover and access the pantry. The pantry entrance at the end of a hallway is accessible from the outside, and the exterior door leading to the hallway has a ramp with a slight slope in addition to a staircase (see Figure 12). A simplified map is provided on the CFP website that shows two parking lots on campus where students can park for free for up to 30 minutes which, according to Google Maps, are both less than a 5-minute walk from the pantry. According to CFP staff, the pantry was originally operating out of a storage closet. When the main student union was expanded and renovated several years later, the CFP "moved to a more publicly accessible space on the 1st floor." The pantry is not located close to a basic needs hub, as the campus does not have one.

Figure 12

Photo of Pantry Exterior Access with Ramp



Note. The image was slightly modified to hide the name of the campus food pantry.

Pantry Hours

The pantry was open to students every weekday during the Fall 2024 academic term for about 15 hours each week, with staff working up to 40 hours each week. Some weekdays the pantry was open for 1 hour, while other weekdays it was open for 4 hours. According to pantry staff, the exact days and times were determined based on an analysis of qualitative data ("feedback collected from students" combined with "volunteer input on how stressful or feasible prep shifts before opening are") and quantitative data ("student staff availability based on classes/other jobs etc." combined with "the master registrar's publicly available course offerings policy that explains when … classes need to be scheduled"). Thus, the pantry's exact hours change from one academic term to the next to accommodate student and volunteer needs. Several prominent places displayed the pantry's hours, including a sign on the door in the hallway, a poster on the wall in the pantry, and a banner in the center of the pantry's website.

Pantry Eligibility, Enrollment, and Visiting Process

According to pantry staff, "all currently enrolled [campus name] students are eligible to use the Food Pantry." [10] Factors like income status, citizenship status, and full-time or part-time enrollment status do not change student eligibility. The pantry facilitates the food pickup process by accepting drop-ins, tabling to give away food in public spaces, and fulfilling food locker orders. To use the pantry, students "must complete a registration form at their first visit each school year and bring their physical [student ID card] to swipe at each visit."[11] The pantry registration form can be completed online in advance or via a digital tablet in person. I completed the registration form both online and via the digital tablet, and it was quick and straightforward. From there, students can pick up food on any weekday no more than once a week, a limit which includes attending popup events and placing food locker orders. Campus

[10] Graduate students who are no longer enrolled yet making progress on their capstone projects are allowed to visit the pantry since they are still making progress towards their degrees.

[11] An exception to the student ID card requirement is offered once per student per academic year.

food pantry staff said that, in general, a visitor stays at the pantry for 1–5 minutes. Mirroring the grocery shopping experience, visitors select the food themselves using a branded plastic grocery basket, and paper grocery bags are provided upon exiting—although bringing reusable bags is encouraged. Additionally, students can rent a small grocery cart on wheels to transport their groceries to their vehicles.

Drop-ins during the pantry's open hours are the most common, according to the pantry staff. Appointments to visit the food pantry are also available, but appointments are the least common way that students pick up food. According to pantry staff, the appointment option can be helpful because it allows students to (a) plan their visit with assurance that the pantry will not be unexpectedly closed and (b) confidentially share what they need in advance.

Concerning tabling, pantry staff set up tables or "pop-ups" in the grassy area near the library 5–6 times per academic term. Pre-filled grocery bags are then distributed to students for several hours or until supplies run out. Described as "grab-and-go," student recipients are only asked to swipe their student ID card if the pantry provided the food; if an external food pantry provided the food, students may be asked to fill out a sign-in sheet instead. While pop-ups offer less student choice concerning what food they receive, they may offer more convenient access to food and increase students' awareness of the pantry.

The pantry's food locker is located outside of the food pantry in the student union building (see Figure 13). To use it, students fill out an online form where select shelf-stable foods. CFP staff then fulfill the order and store it in the food locker for pickup, an option which is available even when the pantry is closed so long as the student union building is open. Orders must be placed at least 24 hours before the scheduled pickup time and picked up within 48 hours of receiving the notification that their order is ready. To pick up the food, students input their confirmation code into a touchscreen that is built into the food locker, and then their designated locker door unlocks and opens.

Figure 13

Photo of Pantry Food Locker

Note. The image was slightly modified to hide the name of the campus food pantry.

Pantry Food and Interior Design

According to CFP staff, the pantry “always” offers shelf-stable foods and fresh produce and “sometimes” offers bread.[12] The shelf-stable food arrives “sometimes fresh, sometimes expired,” and “sometimes” these foods have recognizable name brands. In contrast, the breads and fresh produce arrive “always fresh, never expired” and “always” have recognizable name brands. Staff also noted that some food may be expired yet still safe to eat because the pantry uses the standard food guide from a local food bank. According to CFP staff, the pantry “can definitely” accommodate a vegetarian or vegan diet, “might be able to accommodate” a lactose intolerant diet, and “probably cannot accommodate” a gluten intolerant or kosher diet. In addition to food, the pantry offers “referrals to off-campus resources,” “personal hygiene

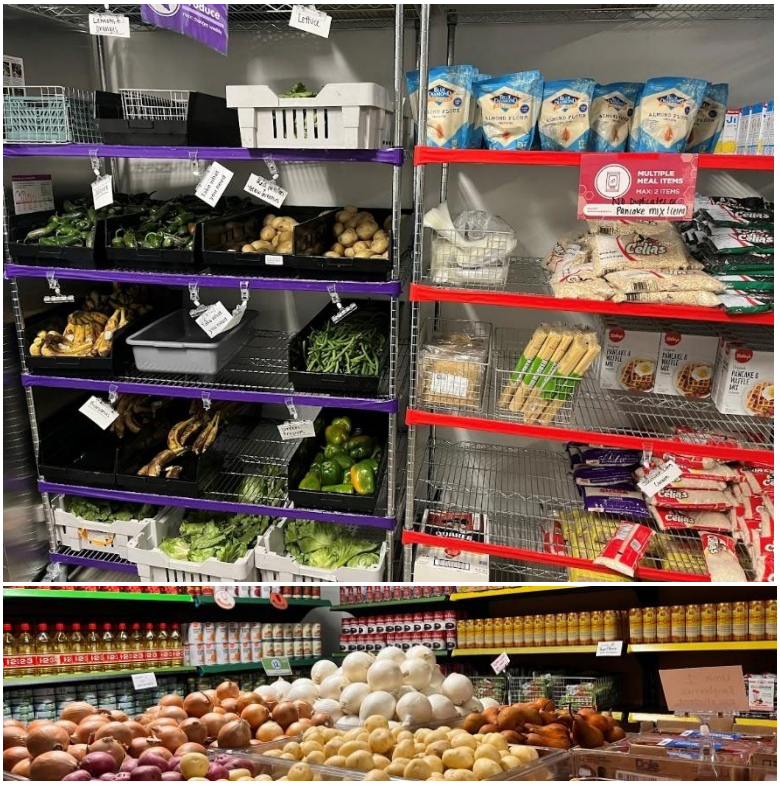
[12] Quotations in this section indicate the exact answer options that the food pantry coordinator selected on the pantry information survey.

products," and "other supplies/home goods." All students have access to the same amounts of food on a first-come, first-serve basis. The amounts of each food they can select may be limited to ensure that more students have access to a variety of desirable foods, such as one carton of eggs and no more than two "multiple meal items" like pasta, pancake mix, and flour.

Concerning the interior design, staff said that the pantry is "always" well organized, nicely decorated, and well stocked (e.g., full of food with few bare shelves). Furthermore, "some of the steps—registration, check-in, volunteer/cooking class/pop up sign-up—are set up in the hallway and lobby space before the actual Food Pantry storefront to give students adequate space to shop and bag their items inside." I agree with the assessment of the pantry staff. When I visited, the pantry was decorated to celebrate the most recent holiday, well organized with minimal clutter, and full of food (see Figure 14). The industrial shelving lining the walls had signage conveying what was available and how many items in that category could be selected. The interior pantry space felt clean and well-lit, the walking path was unobstructed, and the walls had relevant posters (such as the pantry's hours and general nutrition information).

Figure 14

Photos of Pantry Shelves with Signage



Pantry Budget and Staffing

The campus food pantry is a part of the campus's associated student department. In the 2024–2025 academic year, the campus food pantry's budget was approximately $350,000. Key funding sources include ongoing basic needs funds provided by the state and monetary donations from the community. Pantry food comes from a variety of sources in the following percentages: local food banks at no cost (40%), local food banks at some cost (35%), community donations (10%), purchases at grocery stores at full price (8%), business donations (5%), and donations from on-campus eateries/convenience stores (2%). Pantry staff also buy spices and eggs from grocery stores at full price.

The pantry is staffed through a combination of paid and unpaid students, paid campus employees, and unpaid community members. In general, about 20 students, 10 community

members, and two campus employees work at the pantry in a single academic term. According to pantry staff, two campus employees dedicate “more than half of their time” to managing the pantry. Four paid student assistants work about 20 hours per week each, while unpaid student assistants complete service-oriented internships. Additionally, the pantry has completed several partnerships with graduate students—me included—to conduct field studies.

Pantry Outreach Efforts

The pantry budget does not cover outreach efforts, which are funded in other ways. According to the staff, students usually hear about the pantry (in order of most common to least common) via word-of-mouth from other students, direct emails from pantry staff, pantry staff tabling at campus events, advertisements, the pantry website, and, lastly, referrals by other staff and professors. From another angle, pantry staff try to get the word out to students via outreach to other staff and professors to promote referrals, tabling campus events, hosting pantry-specific events, distributing fliers on campus, putting up posters and digital signage on campus, emailing students, maintaining a strong social media presence, placing prominent pantry ads and links on the main campus website, including pantry information in course syllabi, and providing information about the pantry during new student orientations. According to pantry staff, none of the outreach efforts target specific student demographics, such as low-income or first-generation students. They also said that some staff provide links to the pantry in their email signatures and that the pantry distributes flyers on campus. As a result of their marketing efforts, staff believe that the pantry has “a strong brand identity” that their employed students have “really taken to heart.” In the perspective of the pantry staff, students view the CFP as one of several main services offered by the associated student department.

Notably, the social media presence of the pantry did not seem strong to me. Reviewing the pantry’s Instagram reveals a social media presence for the associated student organization but not specifically for the pantry. Likewise, reviewing the pantry’s Facebook page reveals that the most recent post was written in Spring 2020. I also question the prominence of the pantry

ads and links on the main campus website. Navigating the campus website homepage, I did not find any mention of the pantry. Barring a direct search in the search bar, it took four clicks to find information on the campus food pantry (the fifth click which takes me to the pantry's website). Otherwise, the pantry's main website was well-designed, informative, and easy to navigate.

Pantry Data Collection

In the Spring 2024 academic term, 1,792 non-duplicated students were served. In the Fall 2024 academic term, approximately 2,099 non-duplicated students were served. The data on weekly pantry visitors was collected by pantry staff during regular pantry operations. To evaluate the accuracy of the data, I experienced the student check-in process during the in-person pantry observation and found it to be easy and efficient. I also asked pantry staff about the accuracy of the data during the pantry information interview, during which the pantry coordinator described it as "highly accurate." For example, according to pantry staff, even when students visit the pantry without having their physical student ID card on hand to swipe in, they provide their student ID number so that their visit is recorded. Their student ID is also tracked when students fill out a form for the food locker and pick up food at the pantry's popup events (so long as the pantry supplies the food). Additionally, I included a question on the student surveys that asked if the student respondent was prompted to provide their student ID when they visited the pantry. Across all five surveys, 95% of student respondents said that they were prompted to provide their student ID when they visited the pantry. Taking these three findings into account, it is safe to assume that the pantry visitor data is highly accurate.

Student Survey Administration and Analysis

Student Survey Administration

The surveys were distributed via email from the food pantry coordinator's work email to the students' school-provided email addresses. Students had 22 days to complete each survey. For the pretest student survey, a notification email was sent five days before the survey was distributed. Fourteen days after the survey was distributed, a reminder email was sent. For the post-test student survey, no notification email was sent. Instead, two reminder emails were sent, one on the tenth day and one on the eighteenth day. See Table 7 for details on the study's email interactions with students, and see Table 8 for the related timeline.

Table 7

Email Interactions with Students

	Pretest		Post-test		
Email	Full Intervention Group	Control Group	Partial Intervention Group	Full Intervention Group	Control Group
Sample Size	3,800	3,800	3,800	3,800	3,800
Pre-Notification [a]	3,795	3,797	N/A	N/A	N/A
Invitation [a]	3,795	3,797	3,793	3,795	3,797
First Reminder [a]	3,795	3,797	3,793	3,795	3,797
Second Reminder [a]	N/A	N/A	3,793	3,795	3,797

[a] Emails that did not successfully arrive in students' inboxes were not counted.

Table 8

Timeline for Email Interactions with Students

Week	Date	Event
1	8/25	Instruction begins
5	9/26	Announcement that the pretest student survey is coming soon sent via email
6	10/2	Pretest student survey sent via email
8	10/16	First (and only) reminder to complete pretest student survey sent via email, postcards printed and delivered to USPS
9	10/20	Postcards begin arriving to students
14	11/25	Post-test student survey sent via email
14	11/27 to 11/28	Campus closed due to Thanksgiving holiday
15	12/4	First reminder to complete post-test survey sent via email
16	12/8	Start of finals week
16	12/12	Second reminder to complete post-test survey sent via email

Student Survey Design Analysis

Before analyzing the survey responses to determine the answers to the research questions, it was necessary to determine if the design of the pre- and post-test student surveys resulted in sufficiently high-quality data. For example, if the survey design resulted in high dropout rates, high rates of missing responses, and/or low-quality responses (such as “Not Sure”) which were excluded from the analyses, then the resulting data would be a less accurate reflection of the sample students’ sentiments and behaviors—and, consequently, of the student population’s sentiments and behaviors. There were five surveys to examine in total: the pretest survey for the full intervention group, pretest survey for the control group, post-test survey for the partial intervention group, post-test survey for the full intervention groups, and post-test survey for the control group. To simplify the survey design analysis, in some instances I grouped the five surveys into two sets, pretest surveys and post-test surveys, since they share the same questions.

I completed the initial analysis of survey design—including response rates, completion rates, answer rates, meaningful response rates, and completion times—in Microsoft Excel. In summary, all five surveys appear to be well-designed and there were no significant differences between one survey's performance and another's. Key takeaways (which are organized in Table 9) include:

- The average response rate across the five student surveys was 5.3%.[13]
- There was some variation in the number of respondents and, subsequently, the response rates despite the five sample sizes being the same. The post-test partial intervention group had double or almost double the respondents compared to all the other student groups. An analysis of means reveals that the demographics of the student groups were similar.
- Survey completion rates had a range of 75–88%.[14]
- Most of the respondents made it past the screening questions which asked if they consented to participate in the study by completing the survey and if they had visited the campus during that academic term.
- Of the respondents that made it past the screening questions, questions were rarely skipped. Average answer rates[15] per question had a range of 90–94%.

See Appendix K for data visualizations and detailed tables related to the survey flows, answer counts, and answer rates.

Respondents saw a maximum of 57 questions on the pretest survey and 64 questions on the post-test survey. Looking only at respondents who passed the screening question (Q1) and answered at least four questions, the average time it took for the respondent to complete

[13] According to SurveyMonkey, "a response rate refers to the number of people who completed your survey divided by the number of people who make up the total sample group" (2025a).

[14] According to SurveyMonkey, "a completion rate refers to the number of surveys filled out and submitted divided by the number of surveys started by respondents" (2025a).

[15] I define the "answer rate" as the number of individuals who saw the survey question divided by the number of individuals who provided an answer to the question (including non-meaningful answers).

the survey ranges widely: 9–18 minutes for the pretest survey and 14.5–28.5 minutes for the post-test survey (see Table 10). This wide range is due to the surveys having different proportions of low and high outliers. In this case, the median better reflects the experience of the general respondent experience. The median minutes to completion are about five minutes for the pretest survey and about six minutes for the post-test survey. Both medians are below the estimated times that were conveyed in the student emails (based on Qualtrics estimations) of 8 and 10 minutes, respectively. The one-minute difference between the pretest surveys and the post-test surveys is understandable; the post-test surveys had seven more questions than the pretest surveys (57 compared to 64), and two of the seven were write-in questions.

The final data files consisted of 383 rows of data for the pretest student survey and 628 rows of data for the post-test student survey, for a grand total of 1,011. I removed the following respondents from the data before proceeding with the analyses: one respondent who indicated (on Q27) that they were under the age of 18, two respondents who submitted their responses after the survey deadline, and 49 respondents who either did not consent to participate or were ineligible due to having never visited the campus (both whom were forwarded to the end of the survey). No respondents were removed from the datasets due to them answering very few questions, although respondents who answered four or less questions were excluded from the analysis of survey completion times (see Table 10).

Table 9

General Student Survey Statistic

	Pretest Student Survey		Post-Test Student Survey		
	Full Intervention Group	Control Group	Partial Intervention Group	Full Intervention Group	Control Group
Sample size	3,800	3,800	3,800	3,800	3,800
Survey Respondents	181	202	311	154	163
Response Rate	5%	5%	8%	4%	4%
Completion Rate	81%	83%	78%	75%	88%
Removed Responses: Younger than 18	1	0	0	0	0
Removed Responses: Submitted After Deadline	1	1	0	0	0
Removed Responses: Didn't pass Q0 and Q1	6	10	18	11	4
Total Removed Responses	8	11	18	11	4
Remaining Responses for Statistical Analyses	173	191	293	143	159
Average Answer Rate [a]	92%	94%	90%	92%	92%

[a] Calculations omitted Q0, Q1, and Q29 which by default had 100% answer rates. Including these questions would artificially inflate the answer rate.

Table 10

Survey Completion Times

	Pretest Student Survey		Post-Test Student Survey		
	Full Intervention Group	Control Group	Partial Intervention Group	Full Intervention Group	Control Group
Maximum Potential Questions	57	57	64	64	64
Average Minutes to Survey Completion [a]	8.9	17.9	28.4	18.3	14.5
Median Minutes to Survey Completion [a]	5.0	5.4	5.8	6.0	5.7
Min. Minutes to Survey Completion [a]	1.1	1.5	1.0	0.2	0.8
Max. Minutes to Survey Completion [a]	384.8	971.2	1,738.2	987.9	310.2

[a] Calculated based on respondents who passed Q1 and who answered more than four questions.

Student Survey Meaningful Response Analysis

Respondents were hesitant to provide meaningful responses to several questions, likely for different reasons. I suspect respondents were hesitant to say whether food resources like CalFresh enrollment assistance, emergency meals, and free farmers markets were available on their campus (Q2_1, Q2_3, and Q2_4) because they did not know the correct answer—which in most cases was “no.” Subsequently, these questions had high rates of respondents selecting “Not Sure” (ranging from 27–66% of all the answers provided). High rates of “Not Applicable” responses were also found for the post-test’s 12 questions on food pantry design aspects (Q9a_1 through Q9c_4), ranging from 14–51%. This is likely because the display logic could be improved from “all respondents who know of there being a food pantry on campus” (Q2) to “all respondents who visited the food pantry at least once in the current semester” (Q6). Respondents seemed unsure about whether they lost weight due to a lack of food (Q18a_4), which makes sense if they did not have a scale on hand. Lastly, respondents chose “Prefer not to answer” at noticeably higher rates when asked which student groups they identified with (e.g., student with disabilities, student parent, international student) which was likely due to it being a burdensome question to answer; it was a “check all that apply” question with eight separate sub-questions.

Considering which respondents had an opportunity to answer which questions, several questions consistently had high rates of missing data (20% or higher). The two write-in questions (Q35 and Q36) in the post-test student survey had the highest number of missing responses, with rates ranging from 23–59%. This is to be expected since these questions did not have a preset “Prefer not to answer” option; providing an answer requires more of the respondent’s effort and time compared to “select one” or “select all that apply.” Self-disclosing one’s ethnicity (Q26) and age group (Q27) also had high rates of missing responses, with rates of 16–23% and 13–21%, respectively. These high rates of missing data are logical because this information may be viewed as sensitive and potentially self-identifying. Lastly, whether the

respondent was a Pell Grant recipient (Q31)—information which can be used as a proxy for low-income status—had high rates of missing responses ranging from 14–20% (and also high rates of non-meaningful answers). This is likely due to students not knowing the answer, which may be buried in their financial aid packages.

After completing the meaningful responses analysis of the student survey data, I determined that sufficient meaningful responses were provided by the respondents to proceed with further analyses (see Appendix L for detailed tables analyzing meaningful and missing survey responses). These findings also inform a list of recommended improvements to the pre- and post-test surveys' future iterations (see Appendix M).

Student Survey Reliability Analysis

Next, I completed a reliability analysis and factor analysis in SPSS (Version 29.0.1.1). First, I used Cronbach's alpha to analyze the reliability of key constructs within the student surveys. Cronbach's alpha is a common measure of internal consistency for survey instruments when the surveys have "multiple Likert questions in a survey/questionnaire that form a scale" to "determine if the scale is reliable" (Lund Research Ltd, 2018, para. 1).[16] The higher the alpha, "the more the [survey] items have shared covariance and probably measure the same underlying concept" (Goforth, 2015, para. 3)—so long as the number of questions (i.e., survey items) being analyzed is not so high that it falsely inflates the alpha (Tavakol & Dennick, 2011). The three constructs analyzed for the pretest survey were "knowledge of the pantry," "willingness to use the pantry," and "stigma/perceptions." The same constructs were examined in the post-test survey with the addition of "perceptions of pantry design." To perform the analyses correctly, several questions were reverse coded (Q11_2, Q12_1, and Q12_3).

[16] There are three conditions that in theory must be met to use Cronbach's alpha as a reliability coefficient: the data is normally distributed, tau-equivalency is assumed, and errors are uncorrelated (Triano-Hermosilla & Alvarado, 2016). However, these conditions are not usually met in practice (DATAtab Team, 2025). Statistical analyses in SPSS revealed that the student survey data were not normally distributed (see Appendix O), yet an analysis using Cronbach's alpha still proved to be insightful.

Key findings for both the pretest and post-test include the following:

- The overall alpha for all 14 items in the pretest survey could be considered acceptable (.778), and the overall alpha for all 26 items in the post-test survey could be considered excellent (.917).
- The alphas for “knowledge of the pantry,” which has five survey items, could be considered good (.899) for the pretest student survey and excellent (0.915) for the post-test survey.
- The alphas for “willingness to use pantry,” which has only three survey items, could be considered acceptable (.772) for the pretest student survey and good (.818) for the post-test survey.
- Despite having six survey items, the alphas for “stigma/perceptions” were unacceptably low for both the pre- and post-test surveys, with scores of .407 and.392, respectively.
- Removing “Willingness: Encourage friend to go” (Q13_1) led to a slight increase in the Cronbach’s alphas for the “stigma/perceptions” construct and a slight decrease in the score for all the constructs combined. Since both the benefits and costs of omitting this question from further analysis are small, I decided to keep it.
- Removing “Hunger sometimes normal” (Q12_1_Reverse), “Pantry only for neediest students” (Q11_2_Reverse) or “Almost always enough food” (Q12_3_Reverse) would slightly increase the overall alpha for both sets of surveys.
- None of the constructs’ alphas exceeded 0.95. High alphas could indicate that the survey questions within a single construct are so consistently answered in the same way that one or more of the questions may be redundant (Frost, n.d.).

In short, the reliability analysis using Cronbach’s alpha revealed that (a) no survey items need to be removed from their respective constructs; (b) the survey items that make up “stigma/perceptions” fail to capture a single, distinct concept; and (c) the collections of survey items listed under “knowledge of pantry,” “willingness to use pantry,” and “perceptions of pantry

design" successfully reflect three distinct concepts (see Appendix P for tables and notes from the reliability analysis; see Appendix Q for correlations between survey items).

Student Survey Factor Analysis

I then explored what those concepts might be and whether they were aligned with the constructs that I intended to measure by performing a confirmatory factor analysis using principal component analysis in SPSS. While a reliability analysis using Cronbach's alpha explores the correlation and covariance between survey items, a factor analysis determines the extent to which the expected constructs are naturally emergent or evident in the survey items (Trochim et al., 2016, p. 159). A factor analysis of the post-test survey responses focusing on rotated factor matrices revealed that removing "Perceptions: Normal to visit pantry" (Q11_1) and "Perceptions: Pantry only for neediest students" (Q11_2) leads to six factors:

- Knowledge of the pantry (Q3_1, Q3_2, Q3_3, Q3_4, Q3_5)
- Willingness to use the pantry (Q13_1, Q13_2, Q13_3)
- Prevalence of food insecurity (Q12_3, Q11_3)
- Normalcy and acceptability of food insecurity (Q12_1, Q12_2)
- Pantry structural aspects: food (Q9c_1, Q9c_2, Q9c_3, Q9c_4)

  Pantry structural aspects: staff (Q9b_3, Q9b_4), location (Q9a_1, Q9a_2), interior (Q9a_2, Q9b_1), and hours (Q9a_3 Q9a_4)

The eigenvalue of the strongest component is 9.20, and the cumulative percentage of variance explained by these six factors is 71.06%.

These six groupings of the survey items are close to my intended groupings (as specified in Appendix G; see Appendix R for tables and notes from the factor analysis). The first difference is the full omission of two survey items that I had hoped would measure the perceptions of who the campus food pantry is meant to serve. The second difference is that "pantry structural aspects" ended up being two distinct constructs instead of one. One construct

focused on pantry food while the other encompassed the remaining aspects: staff, location, interior design, and hours.

Conducting a similar factor analysis using the pretest survey responses, where Q11_1 and Q11_2 were omitted, yielded similar factors. In this case, the eigenvalue of the strongest component is 4.225, and the cumulative percentage of variance explained by these four factors is 68.95%. The one exception was that “never okay starving student” (Q12_2) loaded with “willingness to use the pantry” instead of with Q12_1, where I expected it to belong. This may be due to the pretest survey respondents being low (n = 364); for comparison, there were 595 post-test survey respondents. Lower sample sizes can result in less accurate factor loadings, especially when the survey items have low communality and when there are few items per factor—both of which are true in this instance (de Winter et al, 2019).

Given the findings from the factor analysis, I completed another round of reliability analysis omitting Q11_1 and Q11_2, grouping Q11_3 with Q12_3 (“normalcy and acceptability of food insecurity”), and grouping Q12_1 with Q12_2 (“prevalence of food insecurity”). These changes resulted in the Cronbach’s alpha for the “stigma/perceptions” construct slightly reducing for both groups of pretest and post-test surveys. Looking at the overall alpha for each survey in its entirety, removing Q11_1 and Q11_2 caused the alpha to be slightly lower for the pretest student survey and slightly higher for the post-test student survey. Nevertheless, in all instances the plain language acceptance level for internal consistency stayed the same as before the questions were removed (see Appendix R for details). “Normalcy and acceptability of food insecurity” for both sets of student surveys had a slightly lower alpha than the original “stigma/perceptions” construct, while “prevalence of food insecurity” had a higher alpha than the original construct. The alphas for the recreated constructs remained under the 0.500 minimum threshold, which in plain language can be considered poor and unacceptable, suggesting that these pairs of survey items still are not measuring the same underlying concepts. Lastly,

splitting “pantry structural aspects” into two distinct constructs results in high alphas that far exceed the 0.500 minimum threshold of acceptability.

Given these results, I decided to only conduct a descriptive analysis on the two questions that did not load onto any factor (Q11_1 and Q11_2). These two questions were omitted from the composite score analysis and the regression analysis.

Student Survey Composite Score Creation and Missing Data

To prepare for further statistical analyses, I used the six factors that emerged from the analysis of the post-test student survey responses (which mostly aligned with my theorized constructs before conducting the surveys) to create six composite variables. Each composite variable was created by adding the related survey items together and then dividing that by the total number of survey items added, creating an average score. Totals were not created for a respondent if any survey item data within a composite variable was missing (since “blanks” from missing data are different from zeros). This approach reduces the number of respondents that are included in the analyses, which SPSS refers to as “listwise deletion” (Langkamp et al., 2010).

A common solution to increase the amount of survey data used in composite score creation and analysis is mean substitution, replacing missing values with either (a) the average response to that survey item across all respondents or (b) the average response based on the respondent’s answers to other related survey items within the construct. The former approach has been critiqued because it “artificially reduces the variance of the variable” (Osborne, 2013, p. 118), especially when percentages of missing data exceed 10%. Missing data exceeds 10% for one survey item in the pretest full intervention group and eight survey items in the post-test partial intervention group. Alternatively, the latter approach has less of a biasing effect on the data so long as the construct is unidimensional and the items within the construct have high correlations—requirements which are met by most of my study’s constructs (Osborne, 2013). I then checked if mean substitution using a respondent’s other answers to related questions

would significantly increase the amount of analyzable data. Analyses within each construct across all five surveys revealed that, in nearly all of the instances of missing data, responses are missing because the respondent either did not have a chance to respond (i.e., they did not see the question) or they chose to skip all of the questions within a construct (see Appendix S for details). Said another way, when respondents answered one question within a construct, the odds were high that they would answer all of the other questions within that construct. Consequently, mean substitution done correctly would salvage a total of seven responses across all five survey groups. Based on these findings, I decided that using mean substitution to increase the amount of analyzable data would not be sufficiently beneficial.

All the composite variables with their respective constructs were expected to have certain positive or negative correlations between them (as outlined in the "Research Questions and Hypothesis" section). However, these correlations should not be as high as the positive correlations between related questions within a single composite variable because the composite variables should discriminate between different constructs (Trochim et al., 2016, p. 133). Does this hold true for this study's composite variables? Further analysis of the pretest survey responses reveals that (a) statistically significant, moderate to strong, positive correlations exist between the five variables that make up the "knowledge of the pantry composite score"; (b) statistically significant, weak to strong, positive correlations exist between the three variables that make up the "willingness to use the pantry composite score"; (c) a statistically significant, weak, positive correlation exists between the two variables that make up the "prevalence of food insecurity composite score"; and (d) a non-statistically significant correlation exist between the two variables that make up the "normalcy and acceptability of food insecurity composite score" (see Appendix T for detailed correlation matrices).[17] Turning to correlations between the pretest composite variables, two statistically significant correlations

[17] Statistically significant correlations described here have a .01 significance level (2-tailed).

exist. “Knowledge of pantry composite score” and the “willingness to use the pantry composite score” have a weak positive correlation, while “normalcy and acceptability of food insecurity” and “willingness to use the pantry” have a very weak positive correlation (see Table 11).[18] An analysis of post-test survey responses yields similar correlation results both between the variables making up a single composite score and between the composite scores (see Table 12). In conclusion, an analysis of correlations reveals that the “knowledge of the pantry composite score” and the “willingness to use the pantry composite score” clearly discriminate between different constructs while the “prevalence of food insecurity composite score” and the “normalcy and acceptability of food insecurity composite score” do not appear to discriminate between different constructs.

[18] Statistically significant correlations described here have a .01 significance level (2-tailed).

Table 11

Correlations of Pretest Composite Variables

		Knowledge of pantry composite score	Willingness to use pantry composite score	Prevalence of food insecurity composite score	Normalcy and acceptability of food insecurity composite score
Knowledge of pantry composite score	Pearson Correlation	—			
	Sig. (2-tailed)				
	N				
Willingness to use pantry composite score	Pearson Correlation	.381**	—		
	Sig. (2-tailed)	<.001			
	N	262			
Prevalence of food insecurity composite score	Pearson Correlation	−.085	.092	—	
	Sig. (2-tailed)	.173	.147		
	N	256	248		
Normalcy and acceptability of food insecurity composite score	Pearson Correlation	.021	.162**	.085	—
	Sig. (2-tailed)	.722	.007	.167	
	N	282	271	266	

** Correlation is significant at the .01 level (2-tailed).

Table 12

Correlations of Post-Test Composite Variables

		Knowledge of pantry composite score	Willingness to use pantry composite score	Prevalence of food insecurity composite score	Normalcy and acceptability of hunger composite score	Pantry structural aspects: Food	Pantry structural aspects: Employees, location, interior, hours
Knowledge of pantry composite score	Pearson Correlation	—					
	Sig. (2-tailed)						
	N						
Willingness to use pantry composite score	Pearson Correlation	.271**					
	Sig. (2-tailed)	<.001	—				
	N	444					
Prevalence of food insecurity composite score	Pearson Correlation	.004	.189**				
	Sig. (2-tailed)	.931	<.001	—			
	N	400	410				
Normalcy and acceptability of food insecurity composite score	Pearson Correlation	.034	.094*	.076			
	Sig. (2-tailed)	.473	.044	.117	—		
	N	453	462	422			
Pantry structural aspects: Food	Pearson Correlation	.302**	.393**	.022	.089		
	Sig. (2-tailed)	<.001	<.001	.739	.153	—	
	N	274	258	234	260		
Pantry structural aspects: Employees, location, interior, hours	Pearson Correlation	.611**	.438**	.146*	.103	.647**	
	Sig. (2-tailed)	<.001	<.001	.028	.104	<.001	—
	N	272	256	228	253	255	

** Correlation is significant at the .01 level (2-tailed). * Correlation is significant at the .05 level (2-tailed).

Student Survey Statistical Analysis: Group Comparisons

Next, I conducted inferential statistical analyses—specifically, t-tests and ANOVAs—to understand to what extent the student groups' responses differed on the six key constructs: "knowledge of the pantry," "willingness to use the pantry," "prevalence of food insecurity," "normalcy and acceptability of food insecurity," "pantry structural aspects: food," and "pantry structural aspects: staff, location, interior, and hours." If I find statistically significant differences in responses between the pretest student groups (i.e., full intervention group and control group), then these differences should be kept in mind when analyzing differences among the three post-test student groups (i.e., partial intervention group, full intervention group, and control group). Failure to identify existing differences between the student groups before the intervention's implementation could lead to an inaccurate interpretation of the results. For example, the presence of statistically significant differences between the post-test control group and post-test full intervention group could be explained by differences present between the groups before the intervention was implemented (and, thus, I should not assume that the intervention caused the differences). Thankfully, t-tests of the pretest full intervention and pretest control groups reveal that there were no significant differences between the two student groups (see Table 13).

Table 13

t-tests Comparing Key Survey Items between Pretest Full Intervention and Control Groups

Question	Full Intervention			Control			Significance (2-tailed p)	Mean Difference	Standard Error	Question Content
	n	M	SD	n	M	SD				
3_1	147	3.26	0.937	166	3.30	0.974	.736	−0.037	0.108	Knowledge: Pantry located
3_2	147	2.82	0.881	166	2.89	0.969	.554	−0.062	0.105	Knowledge: Pantry open
3_3	147	2.95	0.863	166	3.05	0.968	.326	−0.102	0.103	Knowledge: Pantry eligible
3_4	147	2.67	0.848	166	2.70	0.923	.740	−0.034	0.101	Knowledge: Pantry food options
3_5	147	2.65	0.882	166	2.70	1.005	.584	−0.059	0.107	Knowledge: Pantry food amount
N/A	146	2.87	0.722	166	2.93	0.834	.534	−0.055	0.088	Knowledge of pantry composite
11_1	137	3.21	0.701	155	3.21	0.712	.988	−0.001	0.083	Perceptions: Normal to visit pantry
11_2	145	2.92	0.774	168	2.95	0.780	.748	−0.028	0.088	Perceptions: Pantry only for neediest students
11_3	142	3.46	0.603	169	3.46	0.597	.976	0.002	0.068	Perceptions: Often experience food issues
12_1	149	2.23	0.910	167	2.40	0.878	.112	−0.160	0.101	Perceptions: Hunger sometimes normal
12_2	152	3.67	0.638	176	3.62	0.699	.488	0.052	0.074	Perceptions: Never okay starving student
12_3	140	2.98	0.734	152	3.07	0.648	.282	−0.087	0.081	Perceptions: Almost always enough food
N/A	131	3.21	0.529	147	3.29	0.507	.202	−0.080	0.062	Prevalence of food insecurity composite score
N/A	146	2.95	0.544	165	3.01	0.611	. 360	−0.060	0.066	Normalcy and acceptability of food insecurity composite score
13_1	150	3.77	0.420	174	3.73	0.795	.398	0.043	0.051	Willingness: Encourage friend to go
13_2	144	3.35	0.762	168	3.34	0.741	.862	0.015	0.085	Willingness: Go when low on groceries
13_3	138	3.25	0.878	165	3.22	0.851	.824	0.022	0.100	Willingness: Go when haven't eaten all day
N/A	133	3.48	0.563	154	3.48	0.568	.958	0.004	0.670	Willingness to use pantry composite score

Note. A 2-tailed t-test with a significance level of 0.05 was used.

Research Question 1 Findings

My first research question is, “What intervention do staff at a public university in California consider to be the most feasible and effective at reducing students’ cognitive barriers to campus food pantry use?” For the purposes of this study, the intervention refers to a specific instance of communicating information to students which consists of (a) a communication medium and (b) intentional messaging.

Concerning the communication medium, the remote, semi-structured interview with pantry staff revealed their preference for postcards over texts and emails. Texts were determined to be not feasible after email communications with staff in other departments on campus; at this university, texts are solely for emergency announcements from the campus to the students. Emails were not preferred because pantry staff had concerns that students may not regularly use their school-assigned email addresses. Postcards were preferred for two reasons. First, the campus recently completed a campaign that encouraged students to ensure that their addresses on file were correct. Second, pantry staff had read about a study conducted by the California Policy Lab where a combination of postcards and emails to students led to increased enrollment rates in CalFresh (Lasky-Fink et al., 2022). The option of mirroring the study by sending students emails and postcards was also briefly discussed. Ultimately, we decided that only postcards would be the best approach so that we could evaluate the impacts of a single intervention. Furthermore, the complexities and risks of conducting a two-factor experimental design in a situation where staff from another department on campus would have to oversee the sampling process were not attractive.

Next, we briefly discussed intentional messaging. Pantry staff asked me to reach out to several other staff on campus who might be interested in co-creating the design and content of the postcards. After waiting several weeks for responses and receiving none, I proceeded to design the intervention in an online graphic design platform called Canva. I used the California Policy Lab’s postcard design (Lasky-Fink et al., 2022) and text based on my summary of the

existing literature as starting points and then refined the draft based on pantry staff input. After that, the design was further refined by the study site's communications department so that it met the campus's branding requirements (see Appendix B for the final draft of the postcard).

The design was provided to the campus's printing office to be printed in color on 4.25-inch by 5.50-inch sheets and mailed to the students (i.e., the partial intervention group and full intervention group). In total, 7,600 postcards were mailed: 3,800 sent to the partial intervention group and 3,800 sent to the full intervention group. Of these, 7,470 postcards (or 98%) were received. The failed delivery of 130 postcards can be attributed to three causes: (a) students who are incarcerated, (b) students participating in dual enrollment programs (i.e., high schoolers concurrently enrolled in college courses), and (c) incorrect student addresses.

Research Question 2 Findings

My second research question is, "To what extent does the intervention improve CFP use at this university?" This research question was broken down into two hypotheses. First, I hypothesized that the intervention would result in a significant increase in student food pantry visitors, as measured by the number of food pantry visitors (H_1). Second, I hypothesized that the intervention would result in the intervention group self-reporting using the CFP at a higher rate compared to the control group (H_2). Correspondingly, I analyzed two separate datasets to determine if the alternative or null hypotheses were true—with the broader goal of finding statistically and practically significant changes in food pantry use.

Exploring the first hypothesis, I analyzed visitor data which was provided by the campus. Specifically, I looked at the total number of pantry visits each week during the Fall 2025 academic term before, during, and after the intervention as well as the total number of pantry visits across the past several academic terms. An understanding of how CFP use differs compared to the prior academic term, when no intervention was implemented, provides crucial context for interpreting the impacts of the intervention. So long as the pantry did not change

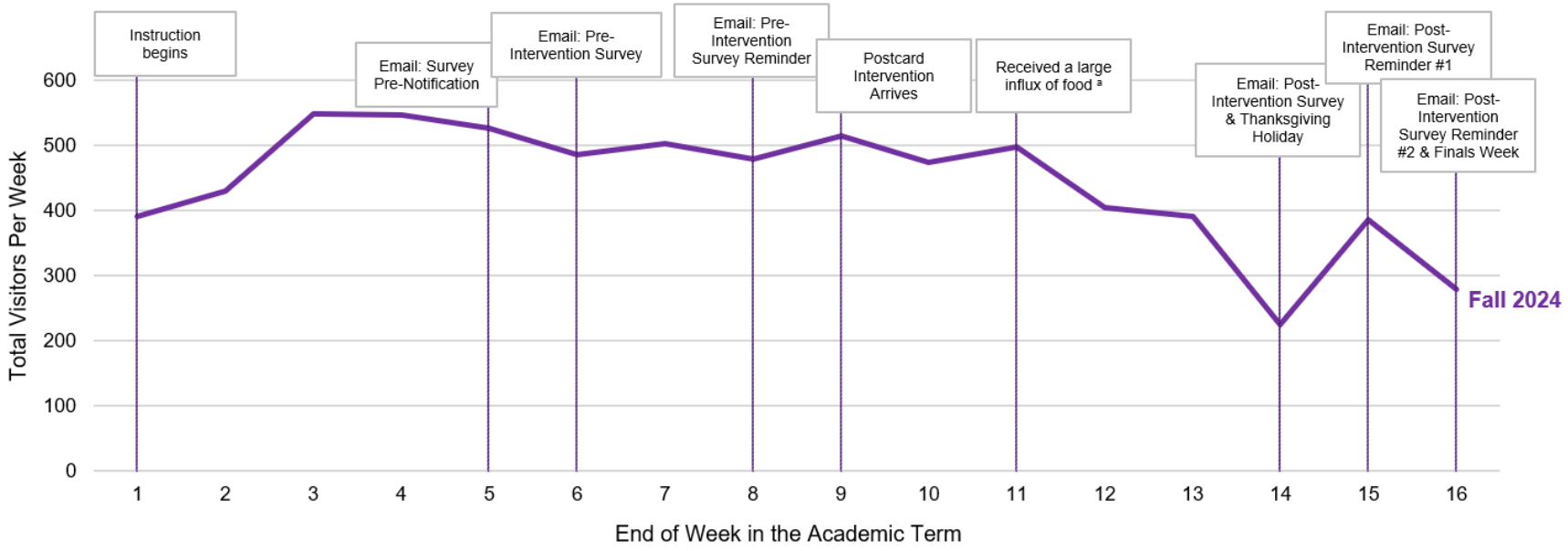
dramatically from the prior academic term, the data from the prior academic term can act as a baseline which the current academic term's visitor numbers can be compared against.[19]

Weekly pantry visits in Fall 2024 do not noticeably increase following the survey pre-notification email, the pretest survey email, the pretest survey reminder email, the first post-test survey reminder email, nor the postcard arriving to students in the mail (see Figure 15). There is a noticeable increase in pantry visits the week following the post-test survey email—which is also the week after a two-day Thanksgiving break from academic instruction. Comparing Fall 2024's total weekly visits with the previous Spring 2014 academic term, the total visitors in Weeks 1–4, 6–11, and 16 are about the same, implying that this may be a consistent pattern in the students' behaviors (see Figure 16). However, there is a substantial decline in visits during the week of Thanksgiving break during Fall 2024. This is understandable; students may travel during the holidays and thus would not be around to visit the campus food pantry. Comparing Fall 2024 to the past two fall academic terms reveals that a dip in pantry visits around Thanksgiving is common, as is visits being restored to or exceeding earlier levels on the week after Thanksgiving break. Decreases in the number of visits during finals week are also common across the academic terms examined.

[19] Discussion with the campus food pantry coordinator confirmed that the pantry has not changed significantly over the past three years aside from the pantry layout and increased capacity.

Figure 15

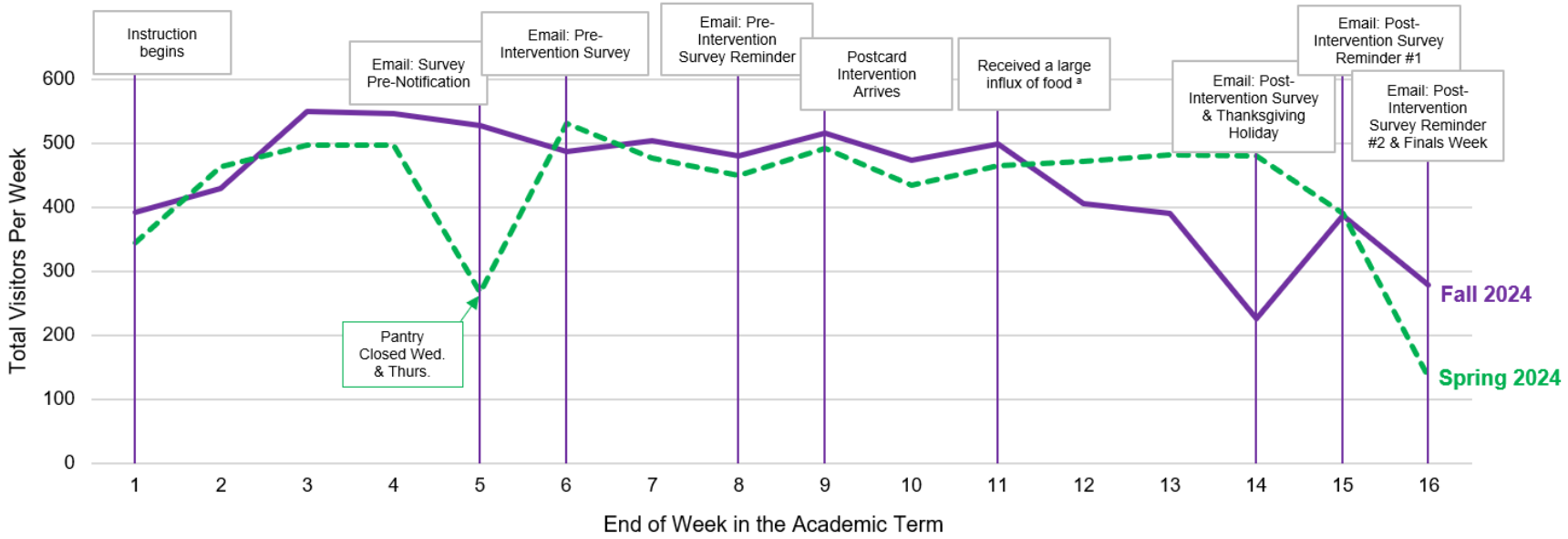
Fall 2024 Total Pantry Visits per Week



[a] When discussing the findings with campus staff, the pantry coordinator attributed the small increase in visitors during Week 11 to a recent influx in high value food (e.g., eggs) and seasonal foods (e.g., sweet potatoes, stuffing) in preparation for Thanksgiving.

Figure 16

Spring 2024 and Fall 2024 Total Pantry Visits per Week

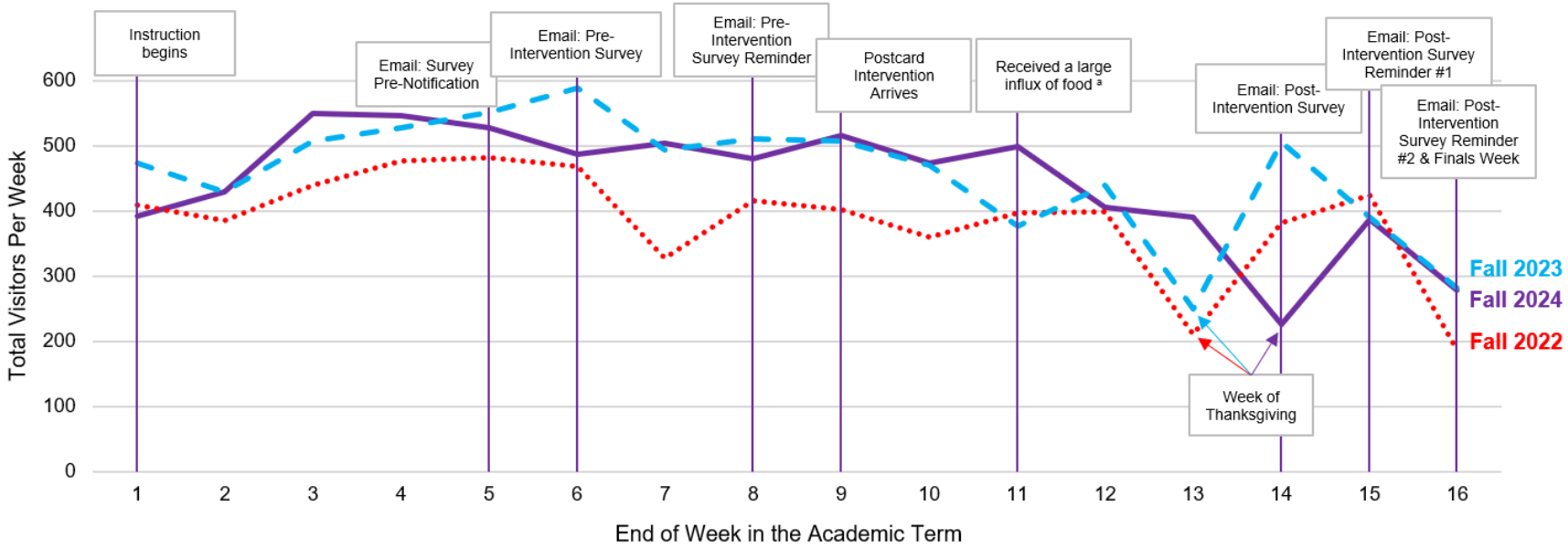


Note. The week of Spring Break was omitted.

[a] When discussing the findings with campus staff, the pantry coordinator attributed the small increase in visitors during Week 11 to a recent influx in high value food (e.g., eggs) and seasonal foods (e.g., sweet potatoes, stuffing) in preparation for Thanksgiving.

Figure 17

Fall 2022, 2023, and 2024 Total Pantry Visits per Week



[a] When discussing the findings with campus staff, the pantry coordinator attributed the small increase in visitors during Week 11 to a recent influx in high value food (e.g., eggs) and seasonal foods (e.g., sweet potatoes, stuffing) in preparation for Thanksgiving.

Descriptive statistics further support the conclusion that in Fall 2024 neither the multiple email communications nor the postcard arriving in the mail appear to be correlated with a noticeable increase in food pantry visits (see Table 14 and Appendix U for raw values). The total visits in Fall 2024 are slightly less than Fall 2022, by 211 visits, and slightly more than Fall 2023, by 217 visits. This conflicts with my expectation that at a minimum the postcard and at a maximum the postcard combined with six emails related to the study could make the sampled students more aware of and willing to visit the CFP. It is possible that too few of the students relative to the total student population received the emails (approximately 3,800 students or 12% of the population) and the postcards (approximately 7,600 students or 25% of the population) to make a noticeable difference in weekly pantry visit rates—with 51–61% of the students in each sample group having experienced food insecurity in the past 30 days. Nevertheless, these findings imply that implementing the intervention at this university had no impact on students' use of the pantry when looking at weekly food pantry visitors; said another way, the null hypothesis appears to be true.

Table 14

Pantry Visits by Academic Term

Academic Term	Total	Mean	Median
Fall 2022	6,163	385	400
Spring 2023	5,365	335	318
Fall 2023	7,300	456	483
Spring 2024	6,872	430	468
Fall 2024	7,089	443	477

Note. Spring Breaks between Week 8 and Week 9 during the Spring academic terms were omitted.

Exploring the second hypothesis, I measured the impacts of the intervention on campus food pantry use by examining differences in students' self-reported visits based on the data collected by the pre- and post-test surveys. Question 6 asks students how many times they visited the pantry that semester and then provides the following answer options: "I haven't visited the pantry this semester" (assigned a value of 1 for statistical analysis), "1–3 times" (2), "4–6 times" (3), "7–9 times" (4), "10–12 times" (5), and "more than 12 times" (6). Looking at Table 15, a t-test reveals that there is no statistically significant difference between the self-reported visits of the pretest full intervention group and the pretest control group. Based on this finding, I do not need to be concerned that differences in the frequency of pantry visits among the student groups prior to the intervention being implemented will muddy differences that may exist after the intervention was implemented.

Table 15

t-tests Comparing Question 6 between Pretest Full Intervention and Control Groups

	Full Intervention			Control			Significance (2-tailed p)	Mean Difference	Standard Error	Question Content
Question	n	M	SD	n	M	SD				
N/A	73	2.12	1.027	80	2.13	0.877	.992	−0.002	0.154	Pantry visits this semester

Note. A 2-tailed t-test with a significance level of .05 was used. Minimum possible value is 1 and maximum possible value is 6.

Next, a Levene's test examining the post-test partial intervention, full intervention, and control groups reveals that the assumption of homogeneity of variances is violated (with a p-value of less than .001). A one-way ANOVA shows that there is at least one statistically significant difference in self-reported pantry visits between two of the three groups (with a p-value of .019). However, a Games-Howell test—which is a post-hoc test used when the variances between groups are significantly different—reveals that there are no statistically significant differences between pairs of the three groups (at the .05 level; see Table 16).[20] Said another way, respondents in the three student groups self-reported visiting the pantry at approximately the same frequency despite some receiving a postcard and others not.

Table 16

Games-Howell Post-Hoc Test Comparing Question 6 between Post-Test Partial Intervention, Full Intervention, and Control Groups

Student Group		Mean Difference	Std. Error	Significance
Partial Treatment Group	Full Treatment Group	−0.579	0.244	0.052
	Control Group	−0.086	0.175	0.876
Full Treatment Group	Partial Treatment Group	0.579	0.244	0.052
	Control Group	0.493	0.265	0.155
Control Group	Partial Treatment Group	0.086	0.175	0.876
	Full Treatment Group	−0.493	0.265	0.155

Note. A 1-tailed t-test with a significance level of .05 was used. Minimum possible value is 1 and maximum possible value is 6.

Lastly, I conducted t-tests to determine to what extent the intervention may have increased the frequency of pantry visitors within each student group (as opposed to across

[20] Notably, the comparison Question 6's responses between the partial treatment group and the full treatment group almost achieved significance, at 0.052. A larger dataset (resulting from a larger sample size and/or increased response rates) might have led to the difference being statistically significant.

student groups). Is there evidence that receiving a postcard in the mail led to an increase in the full intervention group's self-reported visits? Likewise, is there evidence that the pre- and post-test surveys (and no postcard) led to an increase in the control group's self-reported visits?[21] In both instances, the p values from the t-tests are significant (see Tables 17 and 18). Post-test student respondents in the full intervention group self-reported visiting the campus food pantry at a more frequent rate than pretest student respondents in the full intervention group, with means of 2.12 (SD = 1.03) and 3.00 (SD = 1.60), respectively. This difference is significant at the .001 level. Similarly, post-test student respondents to the control group self-reported visiting the campus food pantry at a slightly more frequent rate than their pretest counterparts. This difference is significant at the .05 level. Said another way, the full intervention groups' mean difference is −0.877 (SD = 0.253) and the control groups' mean difference is −0.382 (SD = 0.174). To aid the interpretation of these numbers, a mean difference of one is equivalent to a single step up the answer option's ordinal scale from visiting the pantry "1–3 times" to visiting the pantry "4–6 times" that academic term.

It is possible that receiving a postcard in the mail led to an increase in the full intervention group's self-reported pantry visits. However, these findings should be interpreted cautiously for two reasons. First, there is the possibility that the increase in the self-reported visits can be attributed to students simply having more time over the duration of the academic term to visit the pantry, meaning that a statistically and practically significant increase should be expected to naturally occur from both student groups. Second, keeping in mind the "interaction of testing and treatment" (Trochim et al., 2016, p. 137), there is the possibility that the larger increase in the self-reported frequency of pantry visits in the full intervention group can be attributed to receiving a postcard in the mail, the pre- and post-test surveys, their related email communications, or some combination thereof. In short, that the full intervention group has over

[21] Notably, I cannot conduct this same analysis for the partial intervention group because this group was not invited to complete the pre-intervention student survey.

double the mean difference compared to the control group is promising but not sufficient evidence alone for me to conclude that the intervention of receiving a postcard in the mail increased the frequency of pantry visits.

Table 17

t-tests Comparing Question 6 between Pretest and Post-Test Full Intervention Groups

	Pretest			Post-test			Significance	Mean	Standard	Question Content
Question	n	M	SD	n	M	SD	(1-tailed p)	Difference	Error	
N/A	73	2.12	1.03	57	3.00	1.60	<.001	−0.877	0.253	Pantry visits this semester

Note. A 1-tailed t-test with a significance level of 0.05 was used. Minimum possible value is 1 and maximum possible value is 6.

Table 18

t-tests Comparing Question 6 between Pretest and Post-Test Control Groups

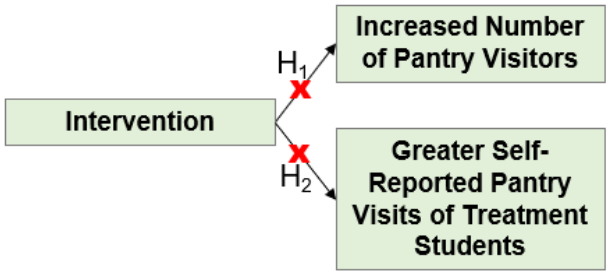
	Pretest			Post-test			Significance	Mean	Standard	Question Content
Question	n	M	SD	n	M	SD	(1-tailed p)	Difference	Error	
N/A	80	2.13	0.88	75	2.51	1.25	.015	−0.382	0.174	Pantry visits this semester

Note. A 1-tailed t-test with a significance level of .05 was used. Minimum possible value is 1 and maximum possible value is 6.

Both the analyses of the pantry visitor data and the self-reported frequency of pantry visits point to an anti-climactic conclusion: the intervention did not improve CFP use at this university. If the intervention (possibly combined with the pre- and post-test surveys and related email communications) had improved CFP use, there would have been a noticeable increase in pantry visitors in the week or weeks following students receiving the postcard. Similarly, if the intervention improved CFP use, then there would have been statistically and practically significant differences in the frequency of respondents' pantry visits between the full intervention group's responses (which received a postcard) and the post-test control group's responses (which did not). Instead, there were no significant differences in the frequency of respondents' pantry visits between the three post-test student groups. While the mean self-reported frequency of pantry use did increase for the full treatment and control groups over time, these small changes have alternative explanations beyond the impacts of the intervention. For both my first and second hypothesis, the null hypotheses appear to be true (see Figure 18).

Figure 18

Updated Hypotheses Associated with Research Question II



Research Question 3 Findings

My third research question is, "What are the underlying mechanisms between the intervention and changes in CFP use?" While there were no changes in CFP use, quantitative analysis can explore the five hypotheses associated with Research Question 3. Inferential statistical analysis reveals that there were no statistically significant differences (at the .05 level)

between the full intervention group's pretest and post-test composite variable scores (see Table 19). In contrast, there was a statistically significant (at the .05 level) decrease in the control group's average perceived prevalence of food insecurity composite score (see Table 20). However, the mean decrease was small at 0.115, from 3.29 (SD = 0.507) to 3.17 (SD = 0.487). Similarly, the control group's perceptions of normalcy and acceptability of food insecurity composite score had a small statistically significant (at the .05 level) decrease of 0.122, from 3.01 (SD = 0.511) to 2.89 (SD = 0.592). Both mean differences are too minor to be of practical significance, and none of these findings support my hypotheses.

Table 19

t-tests Comparing the Full Intervention Group's Pretest and Post-Test Composite Variables

Composite Variable	Pretest			Post-test			Significance (1-tailed p)	Mean Difference	Standard Error
	n	M	SD	n	M	SD			
Knowledge of pantry	146	2.87	0.722	127	2.92	0.855	.318	−0.046	0.097
Willingness to use pantry	133	3.49	0.563	121	3.55	0.516	.181	−0.062	0.068
Prevalence of food insecurity	131	3.21	0.529	104	3.17	0.548	.320	0.033	0.071
Normalcy and acceptability of food insecurity	146	2.95	0.544	127	2.92	0.548	.318	0.031	0.066

Note. A 1-tailed t-test with a significance level of 0.05 was used. Minimum possible value is 1 and maximum possible value is 4.

Table 20

t-tests Comparing the Control Group's Pretest and Post-Test Composite Variables

Composite Variable	Pretest			Post-test			Significance (1-tailed p)	Mean Difference	Standard Error
	n	M	SD	n	M	SD			
Knowledge of pantry	166	2.93	0.834	143	2.95	0.794	.406	−0.022	0.093
Willingness to use pantry	154	3.48	0.568	129	3.45	0.610	.306	0.036	0.070
Prevalence of food insecurity	147	3.29	0.507	123	3.17	0.487	.030	0.115	0.061
Normalcy and acceptability of food insecurity	165	3.01	0.611	133	2.89	0.592	.042	0.122	0.070

Note. A 1-tailed t-test with a significance level of 0.05 was used. Minimum possible value is 1 and maximum possible value is 4.

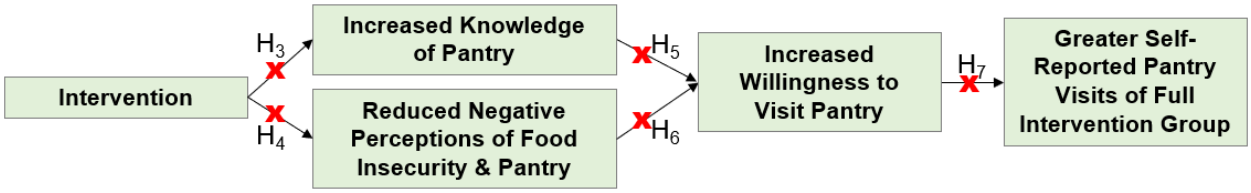
How much is the intervention associated with increases in students' *knowledge* of the CFP (H_3)? The intervention is not associated with statistically significant increases in students' knowledge of the pantry.

To what extent is the intervention associated with decreases in students' *negative perceptions* (e.g., cognitive barriers) of the CFP and food insecurity (H_4)? Concerning food insecurity, students' negative perceptions did not change when comparing the "normalcy and acceptability of food insecurity" pretest and post-test composite scores; this is true of both the full intervention group and the control group. Concerning perceptions of who the food pantry is meant to serve, the statistical analysis could not be completed due to variable limitations; the two survey questions (Q11_1 and Q11_2) that attempted to measure this phenomenon were removed from the analysis after a factor analysis revealed that they failed to capture a single concept. In short, the intervention is not associated with a decrease in students' negative perceptions of food insecurity, and the intervention's association with a decrease in students' perceptions of who the campus food pantry is meant to serve is unknown.

To what extent are increases in students' *knowledge* (H_5) and decreases in their *negative perceptions* (H_6) associated with greater *willingness* to use the CFP? Since no increase in willingness to use the CFP was observed and no decrease in negative perceptions was observed, the fifth hypothesis question becomes irrelevant. The same is true of the seventh research question which asks, "To what extent are increases in students' willingness to use the CFP associated with greater *self-reported visits*?" Neither increases in students' willingness to use the CFP nor increases in self-reported visits were observed. For a visual representation of the answers to Hypotheses 3 through 7, see Figure 19.

Figure 19

Updated Hypotheses Associated with Research Question III



Research Question 4 Findings

My fourth research question is, "What design aspects of the food pantry at this university facilitate or hinder its use?" To seek the answer to this question, I analyzed a combination of quantitative and qualitative data and then triangulated the findings.

Quantitative Responses to the Post-Test Student Survey

Concerning quantitative data, I included several Likert-like questions in the post-test student survey which invited respondents to share their perspectives on the pantry's hours, food, employees, location, and interior. Specifically, survey questions about pantry design (the Q9 series) invite students to indicate their level of agreement with each statement by selecting one the following answer options: "Strongly Disagree" (assigned a value of 1 for statistical analysis), "Disagree" (2), "Agree" (3), and "Strongly Agree" (4). I then analyzed the responses using descriptive and inferential statistics.

If the pantry's design was a structural barrier for respondents, respondents would likely have poor views of one or more of the pantry's design aspects. Descriptive statistical analysis of the survey data reveals that respondents have generally favorable opinions about the CFP's design aspects, with the lowest mean value for an individual survey item being 2.85 ("Pantry hours work for me") and the highest mean value being 3.44 ("Pantry employees helpful" and "Pantry employees welcoming"; see Table 21). Correspondingly, the two composite scores—one focusing on food and the other combining staff, location, interior, and hours—fall within this range as well. Additionally, four of the questions on the post-test student survey align with

questions on the pantry information survey for staff. How do the student respondents' mean answers compare to the responses of the pantry coordinator? With the pantry coordinator selecting "Agree" (assigned a value of 3 for statistical analysis) to all four questions and student respondents' mean responses ranging from 3.06–3.38, they appear to be in agreement.

Table 21

Descriptive Statistics of the Pantry's Design

Pantry Information Survey for Staff			Post-Test Student Survey			
Question	Response	Question Content	Question	n	Mean	Question Content
N/A	N/A	N/A	Q9a_1	426	3.31	Pantry easy to get to
Q11_4	3.00	Private/hidden so that students can visit with a sense of privacy.	Q9a_2	406	3.25	Pantry private location
N/A	N/A	N/A	Q9a_3	421	3.20	Pantry hours are clear
N/A	N/A	N/A	Q9a_4	390	2.85	Pantry hours work for me
Q16_1	3.00	The pantry is well organized.	Q9b_1	312	3.38	Pantry well organized
Q16_2	3.00	The pantry is nicely decorated.	Q9b_2	304	3.14	Pantry nicely decorated
N/A	N/A	N/A	Q9b_3	316	3.44	Pantry employees helpful
N/A	N/A	N/A	Q9b_4	319	3.44	Pantry employees welcoming
Q16_3	3.00	The pantry is well stocked (e.g., full of food with few bare shelves).	Q9c_1	300	3.06	Pantry full (not empty)
N/A	N/A	N/A	Q9c_2	313	3.12	Pantry food fresh (not expired)
N/A	N/A	N/A	Q9c_3	315	2.92	Pantry food options I like
N/A	N/A	N/A	Q9c_4	290	3.01	Pantry food amount good
N/A	N/A	N/A	N/A	275	3.30	Pantry structural aspects: food composite score
N/A	N/A	N/A	N/A	277	3.04	Pantry structural aspects: staff, location, interior, and hours composite score

Note. The total number of responses (n) to the pantry information survey for staff is 1, as it was completed by only the pantry coordinator.

I also looked for high correlations between students' satisfaction with the overall design (using the two associated composite scores) and two variables: (a) the willingness to visit the pantry composite score and (b) the self-reported frequency of pantry visits question (Q6). High positive correlations between the pantry's design aspects and willingness to visit the pantry may imply that the design aspects are facilitators of pantry use, since greater willingness is expected to lead to greater usage. Table 22 shows the presence of statistically significant (at the 0.001 level, two-tailed) moderate, positive correlations between the composite score of respondents' willingness to use the pantry and both composite scores of the pantry's design aspects. There are also statistically significant, weak to moderate, positive correlations between respondents' willingness to use the pantry composite score and the individual questions focused on the pantry's design aspects. In contrast, there are three statistically significant, very weak, positive correlations between respondents' self-reported pantry visits (Q6) and their views on the pantry's hours being clear (Q9a_3), the pantry being nicely decorated (Q9b_2), and satisfaction with the amount of food received each visit (Q9c_4). With the correlation coefficients ranging from .126 to .153, these three variables have a very slight tendency to move in the same direction as the variable measuring respondents' frequency of pantry visits.

Table 22

Correlations between Pantry Structural Aspects, Willingness Composite Score, and Frequency of Pantry Visits This Semester (1-tailed)

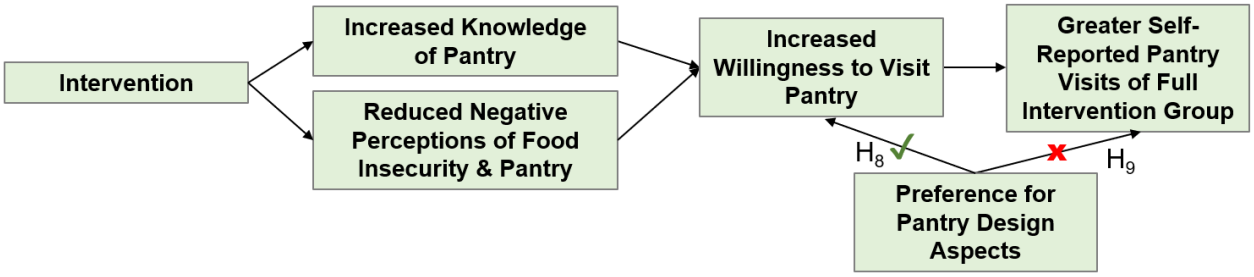
	Willingness to use the pantry composite score			Frequency of pantry visits this semester (Q6)		
Variable/Question	n	Correlation	Sig. (1-tailed)	n	Correlation	Sig. (1-tailed)
Pantry structural aspects: food composite score	258	.393	<.001	236	.043	.254
Pantry structural aspects: staff, location, interior, and hours composite score	256	.438	<.001	229	.087	.095
Q9a_1	380	.317	<.001	259	.104	.048
Q9a_2	366	.263	<.001	253	.013	.420
Q9a_3	375	.379	<.001	255	.153	.007
Q9a_4	352	.250	<.001	252	.059	.178
Q9b_1	285	.448	<.001	252	.060	.173
Q9b_2	278	.359	<.001	246	.126	.024
Q9b_3	290	.430	<.001	255	.103	.051
Q9b_4	291	.399	<.001	255	.114	.035
Q9c_1	280	.325	<.001	245	−.036	.289
Q9c_2	291	.244	<.001	249	−.020	.376
Q9c_3	288	.317	<.001	247	.093	.074
Q9c_4	267	.358	<.001	245	.148	.012

Note. A 1-tailed t-test with a significance level of 0.05 was used. This table only examines post-test student survey responses, as these questions were not asked on the pretest student survey.

One hypothesis (H_8) associated with Research Question 4 is that food pantry design aspects will have a positive relationship with students' willingness to visit the pantry. This was found to be true to a moderate extent. The other hypothesis (H_9) associated with Research Question 4 is that food pantry design aspects will have a positive relationship with students' self-reported visits. The lack of statistically significant correlations between the two variables points to the null hypothesis (H_0) being true; the findings suggest that student sentiments towards the pantry's design aspects do not have a statistically significant relationship with their self-reported visits (see Figure 20). Positive sentiment towards the pantry's design aspects may somewhat facilitate students' willingness to use the pantry and so it may have indirect impacts. However, it does not appear to directly influence student respondents' use of the pantry throughout the academic term.

Figure 20

Updated Hypotheses Associated with Research Question IV



Qualitative Responses to the Post-Test Student Survey

In addition, I asked the students and pantry staff for their perspectives on the pantry's design aspects. Qualitative data were collected through open-ended questions on the post-test student survey and during a semi-structured interview with CFP staff. Students and staff received similar questions: "What are two ways that the pantry is doing a good job?" (Q35 on the student survey) and "What are two ways that the pantry can be improved?" (Q36 on the student survey). Student respondents provided 108 responses (with answer rates ranging from 41–44%) to the first write-in question, 100 of which were meaningful, and 106 responses (with answer rates ranging from 41–77%) to the second write-in question, 96 of which were meaningful.[22] Most people who answered one write-in question answered both of them; only 8 of the 111 respondents who answered any write-in questions answered only one question.

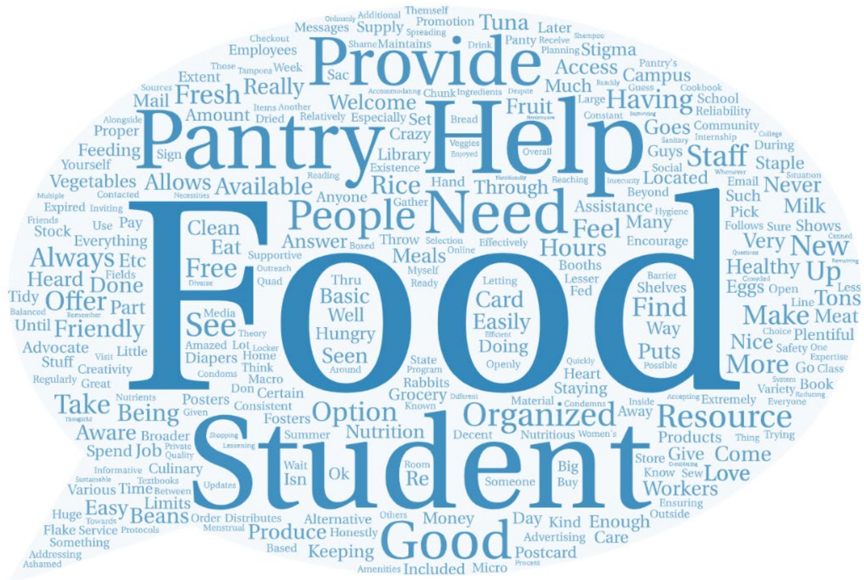
For a cursory analysis, I created word clouds in WordArt.com using all the students' responses. I included meaningful words, omitted traditional stop words, omitted numbers, and applied automated stemming (see Figure 21 and Figure 22).[23] At the cost of removing the context of the surrounding sentence, word clouds bring to the fore the most frequent nouns, verbs, and adjectives. Unsurprisingly, "food," "pantry," and "student" are highly frequent words for both questions. Question 35's other frequent words focus on the pantry's function, such as "help" (appearing 22 times), "provide" (appearing 16 times), and "need" (appearing 14 times). Additionally, one frequent word focuses on respondents' positive sentiments towards the pantry: "good" (appearing 15 times). Meanwhile, Question 35's other frequent words point to areas of opportunity for improvement: "more" (appearing 60 times), "options" (appearing 20 times), and "hours" (appearing 19 times).

[22] Non-meaningful responses include "Not sure," "I don't know," and "N/A."

[23] Stemming in word processing—including the generation of word-based visualizations—refers to the process of reducing a word to its base form, such as changing "providing," "provides," and "provided" to all be "provide" (Murel and Kavlakoglu, 2023).

Figure 21

Word Cloud of Student Responses to "Two Ways the Pantry is Doing a Good Job" (Q35)



Note. This image was created on WordArt.com (Valoa, 2025).

Figure 22

Word Cloud of Student Responses to "Two Ways that the Pantry Can Be Improved" (Q36)

Note. This image was created on WordArt.com (Valoa, 2025).

I then analyzed the responses using both *a priori* and emergent coding (Prochaska, 2013). *A priori* codes were based on the literature review, pantry information survey for staff, and student surveys; examples include “variety,” “location,” “hours,” “interior,” “staff,” “amounts,” “fresh (not expired),” “process,” and “outreach/communications.” Examples of codes that emerged from the responses themselves include “performing more than the pantry’s primary function,” the pantry being “available to all,” and “reputation.” The coding process was iterative and included related concepts being grouped together into broader overarching codes, with the initial codes becoming sub-codes at a maximum of three code levels. Once the excerpts were coded, I counted the number of times a code or sub-code was mentioned and, separately, the number of respondents who mentioned it (see Appendix W for the full list of codes and subcodes with excerpts). In some cases, the total number of mentions exceeded the number of respondents. For example, a respondent shared their desire for more meat and milk, resulting in their excerpt falling under both the “dairy” and “protein” sub-codes—both sub-codes which fall under the broader “food options/variety/availability” code.

Focusing on the aspects that the pantry is doing well (Q35), respondents wrote the most about the food. They expressed positive sentiments towards the “options/variety/availability” (32 mentions total) in general (16 respondents)—especially the produce options (12 respondents). They also liked the amount of food that was in stock and that they could take home (13 mentions total) as well as the quality of the food (12 mentions total). Regarding food quality, eight respondents described the food as “nutritious/healthy” while four described it as “fresh/not expired.” The second most common topic was the staff, who respondents described as “nice/friendly/kind” (15 respondents), “helpful” (12 respondents), and “welcoming” (8 respondents). The third most common topic was about how well the pantry performed its primary function (24 respondents) of, for example, “feeding people that need it” and “always keeping students fed.” The fourth most common topic was the pantry’s outreach and communication efforts (18 respondents). These efforts were described in general terms by nine

respondents, as emails by four respondents, and as postcards by four respondents. Other pantry design aspects mentioned include its location (11 respondents)—which respondents described as “accessible” (8 respondents), “findable” (1 respondent), and yet “private” (1 respondent)—and the pantry’s processes (7 respondents)—such as the pantry’s compliance with “safety protocols” and “efficient” sign-up processes. Furthermore, respondents mentioned their appreciation that the pantry performs more than its primary function (6 respondents) such as by providing diapers, condoms, and hygiene products. The pantry’s hours (5 respondents) and food lockers (4 respondents) were also described in a positive light.

Turning to the aspects that the pantry could improve, respondents similarly wrote the most about the food. They expressed negative sentiments about the food “options/variety/availability” (64 mentions total) in general (17 respondents)—especially about produce (13 respondents), protein (8 respondents), dairy (7 respondents), and ready-made meals (5 respondents). Food quality was also mentioned (13 mentions total), with nine respondents writing about food needing to be “fresher/not expired,” three writing about food needing to be more “nutritious/healthy,” and six mentioning the amount of food in stock being low. The second most common topic was respondents’ desires for the pantry to do more outreach and communication efforts in general (12 respondents), with specific suggestions like increased social media presence (5 respondents), in-person events (4 respondents), and emails (3 respondents). The communication’s content could include the food currently available (4 respondents), the pantry’s food pickup processes (2 respondents), the pantry’s hours (2 respondents), and eligibility requirements (1 respondent). Thirdly, 20 respondents mentioned changes to the pantry’s hours. This includes extending the hours (9 respondents) and shifting them (4 respondents). Respondents also wrote about how the interior of the pantry is too small (6), how the food pickup process could be improved (5), and how the food lockers could be improved (5).

Qualitative Responses to the Pantry Information Interview with Staff

As part of the pantry information interview with staff, I asked what two aspects of the pantry were working well. In response, staff described six things: (a) internal institutional recognition, (b) embeddedness in other parts of the campus, (c) centralized food distribution, (d) alumni support, (e) the pantry's current location, and (f) ongoing basic needs funds provided by the state.[24] Conversely, when asked what two aspects of the pantry could be improved, staff described challenges related to long-term planning and resilience—such as what to do if state funding for basic needs suddenly ended or if a natural disaster struck, leading to an increase in student needs yet a reduction in food supply. They also described how the full-time staff and student staff both "have a lot to manage," making them only able to accommodate additional work that was "in the scope that [is] already related to the things we're good at." However, opportunities and challenges beyond their scope of knowledge were difficult to address. Lastly, staff also mentioned that the pantry would benefit from additional space.

Triangulation of the Qualitative and Quantitative Findings

Returning to the research question, what design aspects of the food pantry at this university facilitate or hinder its use? Descriptive statistical analysis of the quantitative data reveals that both respondents and pantry staff have generally favorable opinions about the CFP's design aspects. Mixed sentiments and nuances are revealed in the student respondents' written answers. For example, the pantry's primary aspect that is going well and simultaneously not going well is its food: (a) some respondents find the food to be sufficiently varied and available while others do not and (b) some respondents find the food to be fresh and healthy while others do not. As another example, respondents have differing perspectives about the

[24] According to the food pantry coordinator, "internal institutional recognition" specifically refers to "brand recognition as an associate student program, brand recognition as a program of the elected student association, a long-standing reputation as a trustworthy resource amongst other campus resource centers, and having a functional balance between full-time leadership/staff and student support/involvement."

pantry's outreach and communication efforts, with some finding it to be effective and others noting it could be improved in terms of different communication mediums, expanded efforts, and including the right information. Characteristics of the pantry's staff, location, and processes appear to be positive aspects. Conversely, both the word cloud analysis and coding analysis reveal that the pantry's hours appear to be hindering access (despite the hours receiving generally favorable scores on the student surveys, with a mean score of 2.85). Lastly, the pantry's small interior and food pickup process—which are related—may somewhat detract from visitors' experiences.

Combining the findings from the quantitative and qualitative data provides context and allows for data triangulation. The perspectives of pantry staff and students aligned in three ways. First, pantry staff and six student respondents agreed that the pantry would benefit from having a larger space. According to student respondents, expanding the space would improve the pantry shopping experience by shortening lines and reducing wait times to shop. Second, pantry staff and 11 student respondents agreed that the pantry's current location works well (although two student respondents disagreed). Third, pantry staff's views that internal institutional recognition and embeddedness in other parts of the campus contributed to the functioning of the pantry aligns with the 14 student respondents who said the pantry did a good job at reaching out to students through various methods such as posters, postcards, flyers, and other advertisements around the campus.

Chapter 5: Discussion of the Findings

This chapter begins with question-by-question reflections on how the study findings interact with the literature, including ways that the study could be improved. Next, I reflect on how the theoretical framework influenced the study and guides the interpretation of the findings. I then describe additional ways that the study could be improved in light of the limitations faced, and I conclude with implications for future inquiry. Overall, this novel research contributes few additional insights into the literature. Nevertheless, it provides valuable takeaways on what not to do and which alternative approaches to increasing campus food pantry use may lead to better outcomes in the future.

This dissertation study is a case study with an experimental design folded into it; it is a detailed, multi-faceted exploration of a complex phenomenon (i.e., the impacts of an intervention on individuals' attitudes, perceptions, and behaviors) in a single, purposefully selected, real-life setting (i.e., a public four-year postsecondary institution in California). Consequently, the study's findings are transferable to similar settings but not generalizable. The intervention's impacts, how the intervention led to changes in pantry use, and how design aspects impact pantry use may apply beyond the campus where the study occurred. In alignment with the proximal similarity model approach to generalizability, I provided detailed descriptions of the university, student population, and campus food pantry in Chapter 4 so that readers will have sufficient information to determine the level of similarity between this study's context and their own contexts (Trochim et al., 2016, pp. 84–85).

Discussion of Research Question 1's Findings and Implications

My first research question is, "What intervention do staff at a public university in California consider to be the most feasible and effective at reducing students' cognitive barriers to campus food pantry use?" This question exists in the context of a mixed methods exploratory sequential study to inform the creation of an intervention at the specific study site that is feasible and that has a high likelihood of being effective. Thus, the completion of this study fulfills the

purpose of the first research question. Although findings on the ideal communication medium and intentional messaging at the study site are not intended to be generalizable, they may be transferable to other similar contexts. In addition, the study's methodology—such as the semi-structured interview protocol, example interventions, and examples of intentional messaging—can easily be applied in other postsecondary settings to achieve similar ends.

Discussion of Research Question 2's Findings and Implications

My second research question is, "To what extent does the intervention improve CFP use at this university?" This study found that the intervention of a single postcard mailed to a random sample of currently enrolled students at a public four-year postsecondary institution did not result in a noticeable increase in campus food pantry use, as measured by weekly pantry visitor data and self-reported pantry visits. Pantry visitor trends in Fall 2024 mirrored patterns from earlier academic terms when no postcards were mailed. Likewise, when examining the post-test student survey responses, no statistically significant differences in self-reported pantry visits were found between the partial intervention, full intervention, and control groups.

These findings reinforce the conclusions of a recent metanalysis that, on average, nudges that did not involve in-person interactions result in little to no increases in program enrollment (DellaVigna & Linos, 2020). The findings also suggest that an intervention consisting of only postcards is not a sufficiently powerful nudge to change college students' behaviors. Over half of the respondents to the post-test student surveys who received a postcard experienced food insecurity in the past 30 days, at a total of 205 student respondents.[25] Assuming the food insecurity rates of the survey respondents are reflective of the student sample, postcards were sent to approximately 4,180 students who experienced food insecurity in the past 30 days.[26] Nevertheless, campus food pantry use did not discernibly increase in the

[25] See Appendix I for food insecurity totals and rates by student group.

[26] The estimate is calculated from a food insecurity rate of 59% applied to 3,800 students in the partial intervention group plus a food insecurity rate of 51% applied to 3,800 students in the full intervention group.

weeks following the postcards arriving to students' addresses. This finding suggests that future distributions of solely postcards in an attempt to influence college students to visit the campus food pantry will be similarly ineffective.

To the best of my knowledge, the existing literature has not tested the effectiveness of only postcards at increasing the utilization of free resources on college campuses, food pantry or otherwise, making this study the first of its kind in the United States. Combining the literature with logical extrapolation, I postulate why postcards were not successful and offer potential alternatives. Like postcards, one study suggests that sending letters may be an effective way to nudge college students (Linos et al., 2024). Since admissions packets and financial aid award letters are commonly mailed to students, letters may be more successful than postcards due to students considering letters to be an official, legitimate form of communication from the campus. Still, physical mail has several potential logistical issues, which in the context of an empirical study become intervention fidelity issues—such as student addresses being outdated, someone other than the intended recipient receiving the message, and the message being mistaken for junk mail before being opened. The performance of the United States Post Office could also lead to logistical issues, such as the mail getting lost in transit and delayed delivery (National Association of State Election Directors & National Association of Secretaries of State, 2024),

Given the ubiquitousness of cellphones and assuming that mass text messaging is permitted at the campus, texts may be more effective than postcards since texts likely avoid the first three logistical issues.[27] Umaña et al. (2022) found that text messages informing potentially eligible students at a single campus about SNAP benefits were considered memorable and empowering. While it is not known if the student recipients changed their behaviors as a result of the text, it was a given that the texts were in fact received.

[27] The Pew Research Center found that, in 2024, 99% of Americans ages 18–29 had a cellphone.

Another cost-effective digital option is email. According to two studies, emails may be an effective way to reach and influence students (Goldrick-Rab et al., 2021a; Lasky-Fink et al., 2022). Still, while emails avoid some of the logistical barriers of physical mail, they share the risk with letters of being deemed spam before the message is opened. Further comparing this study with Lasky-Fink et al.'s college-focused study, it is possible that emails combined with postcards result in higher campus food pantry use in part due to increased odds of reaching students across two communication mediums and in part due to two nudges being more influential than one (2022). In short, other communication mediums and combinations of communication mediums may lead to better outcomes compared to only sending college students postcards.

Discussion of Research Question 3's Findings and Implications

My third research question is, "What are the underlying mechanisms between the intervention and changes in CFP use?" Looking at the pre- and post-test composite scores of the full intervention group and control group, this study found that the intervention is not associated with a statistically significant increase in students' "knowledge of the pantry." Similarly, comparisons of students' "willingness to use the pantry" and "perceptions of normalcy and acceptability of food insecurity" reveal there were no statistically significant differences across time and between student groups. Concerning students' perceptions of who the food pantry is meant to serve, the statistical analysis could not be completed due to variable limitations. Lastly, the control group's mean responses on "prevalence of food insecurity" and "normalcy and acceptability of food insecurity" slightly decreased from the pretest to the post-test—although the mean differences are so small (0.115 and 0.112 on a scale of 1 to 4) that they are not of practical significance.

In short, this dissertation study yielded limited insights into the underlying mechanism between the intervention and changes in campus food pantry. The clearest finding is that a single postcard implemented in the specific setting of a public four-year university in California failed to change students' knowledge, willingness, and perceptions related to campus food

pantry use and food insecurity. Nonetheless, Research Question 3 with its four associated hypotheses make this study's approach innovative and unique. To the best of my knowledge, the existing literature has not tested the effectiveness of postcards alone at changing college students' knowledge of the pantry, perceptions of food insecurity, perceptions of the pantry, willingness to use the pantry, or self-reported resource utilization.

Notably, the pre- and post-test student surveys may be subject to nonresponse bias, where students with food insecurity were more likely to respond due to increased interest and engagement in the topic; conversely, students who were food secure were less likely to respond. Approximately 58% of pretest respondents and 56% of post-test respondents experienced food insecurity in the past 30 days, compared to an estimated rate of 47% at the California Community College and 42% at the California State University (Community College League of California, 2023; Crutchfield & Maguire, 2019). Assuming the study site's actual food insecurity rate is 45%, survey respondents with food insecurity were overrepresented by 11–13 percentage points. Nonresponse bias may have positively skewed the survey responses, reducing the data variation in the dependent variables (i.e., students' knowledge, perceptions, willingness, and self-reported visits). Consequently, nonresponse bias can obscure meaningful differences and statistical significance.

Although the literature is saturated with ideas on how to encourage college students to use campus food pantries, I found only one study that measured the effectiveness of an intervention by measuring shifts in students' knowledge and perceptions. El Zein et al. (2021b) examined the impacts of digital videos that were developed with student input on students' conceptual barriers on a single campus. In this study, survey responses of students who watched the videos revealed that the intervention increased students' knowledge and willingness to use the pantry. Comparatively, this dissertation study found the intervention of a single postcard was not at all effective at increasing students' knowledge of the campus food pantry nor at increasing their willingness to visit it. Notably, the two studies differ in several

ways. First, students opted to watch the videos, an intervention which requires greater time investment. In contrast, students in this dissertation study did not have a choice in receiving a postcard. Self-selection may have increased students' sensitivity to the video-based intervention. Second, the videos were developed based on student input—specifically, "after conducting 40 semi-structured interviews with undergraduate and graduate students"—which the authors propose "could lead to a more positive evaluation of campus food pantries and may encourage their use by students in need" (El Zein et al., 2021b, para. 1). Thus, the content of a future postcard-based intervention could be co-created with students to increase the odds of it being well received.

Discussion of Research Question 4's Findings and Implications

My fourth research question is, "What design aspects of the food pantry at this university facilitate or hinder its use?" Although this question was primarily posed to inform the interpretation of findings related to other research questions, it can also be approached independently. After analyses of quantitative and qualitative student survey responses, quantitative staff survey responses, and excerpts from the pantry information interview with staff, this study found that both respondents and pantry staff have generally favorable opinions about the pantry's design aspects. However, mixed sentiments are revealed in the student respondents' written answers regarding the variety of the food, the freshness and healthiness of the food, and the pantry's outreach and communication efforts. The written answers also reveal that several students view the pantry's staff and location in a positive light and that several students are hindered by the pantry's hours. Lastly, pantry design aspects (represented by two composite variables) were found to have a statistically significant, moderate, positive relationship with students' willingness to visit the pantry. Conversely, pantry design aspects were not found to have statistically significant relationships with students' self-reported frequency of pantry visits in the current academic term.

The existing literature contains an abundance of studies that mention pantry design aspects possibly hindering food pantry use in higher education contexts, but the findings are far from conclusive. Unfortunately, this dissertation study does not offer additional insights and reflects the inconclusiveness of others' findings. Preliminary evidence suggests that eligibility and enrollment processes are not major barriers to food pantry use, despite some students perceiving them to be. In this dissertation study, perspectives on pantry eligibility and enrollment are not collected by the student surveys, and only a couple of students describe them as issues in the written responses. Studies that mention pantry hours, food selection, food quality, food amounts, and pantry processes as possible barriers to utilization are sparse and mixed. Likewise, this dissertation study had mixed findings regarding these design aspects; for example, the pantry's food appears to be a key facilitator and a key barrier. Two studies suggest that students desire to interact with welcoming, kind, helpful staff while they receive food aid from pantries—whether or not the staff are peers (Hernandez et al., 2021; Idehai et al., 2024). This dissertation study found that students have generally favorable views of the pantry staff, but who made up the pantry staff was not a topic among the written responses. Lastly, both the literature review and this dissertation study found little on the impacts of regular pantry outreach and communication efforts.

Application of the Theoretical Framework

This dissertation study is guided by a social justice framework which acknowledges the importance of student agency and, at the same time, accounts for other factors that impact campus food pantry use beyond the student. Students experience food insecurity unequally. Those the most likely to experience food insecurity have identities and statuses that are commonly ignored, marginalized, and/or discriminated against in the United States. A demographic breakdown of student respondents experiencing food insecurity reflects these unequal impacts and makes addressing food insecurity an equity and inclusion issue. Applying a social justice theoretical framework also requires taking into account the impacts of normalcy

and stigma. Both phenomena inform the perceptions of students, higher education administrators, and policymakers' concerning (a) whether food insecurity is normal and acceptable, (b) whether food pantry use is normal and acceptable, and (c) who the food pantry is meant to serve—influencing whether and how they respond to food insecurity.

Applying the social justice theoretical framework led me to develop a more holistic and comprehensive conceptual map which influenced the development of my research questions and hypotheses. The framework was the impetus for analyzing the demographics of students experiencing food insecurity, and it informed the creation of six survey questions which aimed to capture students' perceptions related to food insecurity and campus food pantry use (two of which were omitted from the analysis due to variable limitations). Lastly, the framework provided the moral underpinnings of the study. It is upon the social justice theoretical framework that I assert student access to sufficient amounts of healthy food is necessary for health, human dignity, and equitable access to opportunities.

Future Study Improvements and Limitations

Future studies should test the effectiveness of interventions with different communication mediums, especially low-cost options like texts and emails. According to several of the student survey respondents, the message should include information on currently available food, pantry processes, eligibility requirements, and hours. Researchers and practitioners should also consider implementing students' other suggestions for improving pantry visibility, such as greater social media engagement and more in-person pantry events. Both effective and ineffective interventions based on a single study conducted at a postsecondary institution is only the beginning of empirical exploration; this dissertation study and future related studies should be repeated in various postsecondary institutions to develop an understanding of which interventions work best in which specific contexts. Likewise, similar studies can be conducted focusing on other stigmatized services offered by the campus, such as basic needs centers or emergency housing resources.

This dissertation study could be improved by (a) making changes to the student sampling, (b) making changes to the postcard's design, (c) making changes to the administration of the student surveys, (d) refining the student surveys, (e) refining the student survey questions that attempted to measure perceptions of food pantry use and food insecurity, (f) expanding how the intervention's impacts are measured, and (g) making the student surveys confidential instead of anonymous to track student participation. Each improvement corresponds to a limitation in the dissertation study.

Concerning student sampling, it is possible that the intervention would have been more successful at increasing campus food pantry use if it targeted students who were food insecure and, thus, students who were more likely to visit the food pantry if they knew about it (or knew more about it). In addition, students experiencing food insecurity may be more sensitive to the intervention's impacts on their perceptions of food insecurity and campus food pantry use. Exclusively reaching out to students who were food insecure was a consideration discussed with pantry staff but ultimately decided against since students' food security status can change at any given moment. Instead, it was preferred that all students have increased knowledge, have reduced cognitive barriers, have increased willingness to visit the campus food pantry as needed, and share their perspectives on the pantry's design aspects. However, this inclusive approach may have diluted the impacts of the intervention on weekly pantry visitor rates during a single academic term.

Implementing an alternative sampling approach would likely require adding an initial step to the study. If the sampling frame of "all students at the campus who are currently experiencing or who recently experienced food insecurity" does not exist, it would have to be created via a brief preliminary survey.[28] Alternatively, the study could shift its focus from "all students" to

[28] Another potential source of a sampling frame consisting of student who currently experiencing food insecurity comes from the National College Health Association (NCHA) Survey, according to the food pantry coordinator. However, this data is only collected from the study site every two years and has low completion rates.

“students currently signed up to use the campus food pantry” (since this group has likely experienced food insecurity in the last 30 days), with the emphasis on increasing pantry use among this smaller group. At the study site, this would have been a study involving just 3,000 students. In addition, future studies of this nature should omit students who are incarcerated and students participating in dual enrollment programs (who are commonly minors) when creating the student samples. As this study was intended for the participation of non-incarcerated adults, this sampling approach will avoid inviting students who are ineligible or unable to participate in the study.

The design of the intervention could be improved. The postcard may have been oversimplified, resulting in it not containing enough intentional messaging elements to be impactful. Intentional messaging elements identified in the literature review include providing information about the pantry’s food, hours, and eligibility to reduce unknowns; dispelling myths of resource scarcity; making the message personalized; framing food challenges as being common and that the students experiencing these challenges are not alone; framing the pantry food as already belonging to the student (e.g., being rightfully theirs, being included in tuition); framing pantry use as common, not just for “poor students” or students in dire need; including photos of the pantry food, especially of name brands; emphasizing actionable next steps; and emphasizing students’ inclusivity and belonging. The final postcard design contained only four of the eight elements: pantry information; personalized messaging; a photo of the pantry food; and clear, actionable next steps (see Appendix X for details). The absence of other elements, especially in the written content, may explain why the intervention did not change students’ perceptions of food insecurity and willingness to use the pantry. Said another way, the intervention may have been too weak to be effective. Additionally, in future iterations of the study, interventions designed in collaboration with pantry visitors, student volunteers, and/or other students may be more effective.

Another issue impacting this dissertation study is low response rates to the student surveys. The actual response rates across the five survey groups, at an average of 5%, fell short of my expectations of 10%. Consequently, the findings are not generalizable to the broader student population, and statistical power when conducting the analyses was weaker. For example, the comparison of Question 6's responses between the partial treatment group and the full treatment group almost achieved significance, at 0.052. A larger dataset would have increased my ability to detect smaller effects, potentially leading to the difference being statistically significant.

Line graphs of pre- and post-test student survey responses by day over the duration of the survey being open reveal that students were responsive to email reminders to complete the survey (see "Student Survey Daily Response Tracking" in Appendix N). In future iterations of this study, sending two or three email reminders per survey instead of one or two may increase the response rates. It may also be more effective to omit sending a pre-survey announcement email which did not appear to improve survey response rates. Alternatively, it is possible students did not regularly check their university-assigned emails. I only know how many emails successfully arrived in students' inboxes but not how many were opened. If emails alone are not an effective way to reach students, studies inspired by this one may be more successful with administering a mixed-mode survey such as by combining mail and emails.

The pretest and post-test student surveys could be improved by fixing minor errors, clarifying questions and answer options, and omitting unnecessary questions (see Appendix M for details). For example, students may prepare food in the common areas in their dorms or in their bedroom rentals. In alignment with the diverse array of experiences preparing food, the question stem for Q14 could be changed from "Which kitchen appliances do you prefer to use?" to "Which of the following things do you use when making food?" so that the answer options listed are not tied to the concept of having access to a kitchen. As another example, several questions in the pretest and post-test student surveys were ultimately not tied to answering this

study's research questions nor insightful for campus staff. Such questions should be omitted from the survey, reducing the survey length. Making these minor changes may improve the respondent experience, increasing answer rates for individual questions and completion rates for each survey and resulting in more usable survey data.

The student survey questions intended to measure perceptions of food pantry use could also be refined. A factor analysis revealed that the two survey items I intended to measure the perceptions of who the campus food pantry is meant to serve—"Perceptions: Normal to visit pantry" (Q11_1) and "Perceptions: Pantry only for neediest students" (Q11_2)—did not capture a single, coherent concept. Upon further reflection, I can see why. Is it desirable for students to consider CPF use as "normal" in a destigmatizing sense (as opposed to food pantry use being abnormal and strange)? Or is it desirable for students to consider CFP use as "non-normal" in the sense that students should not be experiencing food insecurity and thus not need food aid (even if they are currently in need)? Given that both affirming and disaffirming answers to Q11_1 could be interpreted either way, it is not surprising that the students' responses did not align with Q11_2. In the end, I dropped both variables from the analysis and did not adequately measure the underlying concept. Future iterations of this study should attempt to measure students' perceptions of CFP use, perhaps developing the questions in collaboration with a focus group of college students and then pilot testing them with a small sample. Another way to develop better, more effective questions is by examining the existing literature on CFP use specifically and pantry use broadly to then copy question stems that prior studies have vetted.

Furthermore, the study's measures could be expanded to increase the likelihood of detecting the impacts of the intervention. Taking a step back, the postcards directly nudge students to scan the QR code and complete the online form to utilize the food pantry's services (see Appendix B for the intervention). In contrast, the invitation to visit the pantry is passively implied in "Hope to see you soon!" According to the literature, nudges to perform smaller, simpler tasks are more likely to be effective compared to performing a complex series of tasks

(Oreopoulos, 2020; Page et al., 2020; Royer & Wharton, 2023). Following suit, two studies on nudges to increase the utilization of free resources in postsecondary settings focus on prompting students to apply for the resources, where the measure of success is completed applications (Lasky-Fink et al., 2022; Linos et al., 2024). It is possible that the postcard led to increased student enrollment in the campus food pantry or increased campus food pantry website traffic which I did not include in the analysis. Future iterations of this dissertation study could include additional hypotheses for influencing students' behaviors and, correspondingly, expand the datasets analyzed if those hypotheses proved to be true.

Another limitation of this dissertation study was the anonymity of the student surveys. While this approach prioritized students' privacy, facilitated IRB approval, and facilitated the formation of a partnership between me and the study site, it had tradeoffs. Comparing students' responses to the pre-test survey with responses to the post-test survey assumes that the two groups of students are the same or greatly overlap. However, this assumption cannot be tested because the surveys did not collect personally identifiable information. Consequently, even if the self-reported demographics of each group are approximately the same, it is possible that the students who completed the pre-test survey were not the students who completed the post-test survey. Substantial differences between the two groups could obscure the identification of changes in students' perceptions and self-reported behaviors (a false negative or Type II error) as much as they could cause measurable changes (a false positive or Type I error). Researchers and practitioners conducting similar future studies should consider the feasibility of collecting personally identifiable information in compliance with the Family Educational Rights and Privacy Act. Confidential student surveys make it possible to determine to what extent the pre-test respondents are the same as the post-test respondents and allow for the use of other statistical analyses (such as covariance analysis).

Lastly, I intended on completing a second in-person observation of the campus food pantry but could not due to logistical and scheduling challenges. The purpose of the second in-

person observation was to confirm that the pantry's design aspects had not changed significantly since the start of the academic term, as significant changes could be the cause of changes in pantry use apart from the intervention. In lieu of a second in-person observation, I discussed the pantry's current design and functioning with the pantry coordinator and confirmed secondhand that the pantry was the same as it was initially described at the start of the academic term. In future iterations of this study, I recommend completing at least two in-person observations, one at the start of the academic term and one near the end of the academic term.

Implications for Future Inquiry

Far too many college students in the United States experience food insecurity, which negatively impacts their health and academic outcomes. Resulting from numerous complex factors, food insecurity will remain a steadfast challenge unless federal policymakers prioritize expanding financial aid and SNAP eligibility. On the contrary, the reduction of SNAP funding and stricter eligibility requirements, the shift in Medicaid funding from the federal government to states, and the reduced access to unsubsidized loans for graduate students all create a perfect storm for higher rates of food insecurity, especially students attending public postsecondary institutions (DiPierro & Burke, 2025; Kelly & Hoff, 2025; Moskin, 2025). Many state policymakers and campus administrators in California and beyond have recognized student food insecurity as a humanitarian and equity issue. In response, colleges and universities have provided a variety of food resources—the most common resource being food pantries. However, studies repeatedly found that students who would benefit from visiting food pantries do not do so due to a lack of knowledge, negative perceptions related to food insecurity and campus food pantry use, and pantry design aspects that make visiting the pantry difficult or undesirable. The current literature falls short concerning effective, empirically tested ways to address these barriers with the broader goal of increasing campus food pantry use. This dissertation study found that postcards alone will likely not be effective, ruling out one of many potential intervention designs. Unfortunately, the knowledge of solutions remains incomplete. Further studies conducted at

individual institutions and nationwide are needed to discover and then verify which interventions are both feasible and effective in postsecondary settings broadly. More research is also needed to develop an understanding of why these interventions were so effective, informing the creation of even more effective interventions in the future. Only then can campuses help students help themselves to basic needs resources like campus food pantries—supporting students' academic success and fulfilling the purpose of public higher education.

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Appendix A

Agreement to Partner on the Food Pantry Use Study

I. PURPOSE

This agreement is to clarify and confirm a partnership between Kianna Valoa, a doctoral student at Claremont Graduate University, and the [FOOD PANTRY NAME] at [CAMPUS NAME] with the main point of contact at the [FOOD PANTRY NAME] as [STAFF NAME (POSITION)], for the purposes of conducting a study on barriers to campus food pantry use and the impacts of one marketing/outreach intervention (hereby referred to as the "Intervention") that attempts to reduce barriers. This agreement begins [START DATE] and ends [END DATE] unless both Kianna Valoa and [FOOD PANTRY NAME] (CAMPUS NAME) agree to extend it further. This agreement is not legally binding and entirely voluntary. Either Kianna Valoa or the [FOOD PANTRY NAME (CAMPUS NAME)] may choose to exit the partnership at any time. Exiting the partnership will end all of their responsibilities and end or forfeit any remaining benefits from participating.

II. INSTITUTIONAL REVIEW BOARD APPROVAL & PROTECTION OF PARTICIPANTS

A. To ensure the protection of participants' rights and wellbeing, this study will adhere to all Institutional Review Board standards. Kianna Valoa will seek approval from the Claremont Graduate University Institutional Review Board. Kianna Valoa is trained in "Social & Behavioral Research (Stage 1 - Basic Course)" through the Collaborative Institutional Training Initiative and currently holds the associated certification, which will stay valid for the duration of this study. In addition, Kianna Valoa will seek the approval of [CAMPUS NAME]'s IRB prior to beginning this study.

B. All data provided by [CAMPUS NAME] will only be used for this specific research project.

C. All non-aggregated data provided to Kianna Valoa by [STAFF NAME] (such as through interviews) will be confidential, meaning Kianna Valoa will know who provided specific information, but Kianna Valoa will take steps to protect that identity from being discovered by others.

D. All aggregated data provided to Kianna Valoa by [STAFF NAME] (such as the total number of campus pantry visitors and statistics on currently enrolled students) will not include any personal identifying information. Thus, there are no privacy issues involving these data.

E. All data provided to Kianna Valoa by students (such as through the pre- and post-test student surveys) will be anonymous, meaning that no one (not even Kianna Valoa) will know who provided which specific survey responses. Additionally, the study is designed in such a way that Kianna Valoa will *never* see students' personal identifying information (including their names, contact information, and student ID numbers).

III. STUDY DESIGN

The study will involve one public university, called the Partner University. [CAMPUS NAME] has been invited by Kianna Valoa to be the Partner Campus. The Partner University will provide Kianna Valoa with the following information:

A. CAMPUS PANTRY VISITOR DATA (CURRENT SEMESTER): Campus pantry visitors each week for the duration of the semester. This is the total number of visitors (counting repeating visitors multiple times) and, if possible, the total number of unique visitors (not counting repeating visitors multiple times). These totals will be aggregated by [STAFF NAME], and they will not include students' personal identifying information. These data will be provided to Kianna Valoa on a monthly basis.

B. INTERVENTION DESIGN & SUCCESS INTERVIEW: [STAFF NAME] will participate in a one-hour interview with Kianna Valoa to discuss the intervention's design and what a successful intervention looks like. If multiple campus employees are familiar with the pantry, the interview can be conducted numerous times. This interview can be conducted over the phone or via Zoom. This interview will be completed no later than [DATE].

C. CAMPUS PANTRY VISITOR DATA (PREVIOUS SEMESTER): If possible, data on the total number of pantry visitors and total number of unique pantry visitors each week from the previous semester and the prior year. These totals will be aggregated by [STAFF NAME], and the totals will not include students' personal identifying information. Ideally, these data will be provided no later than [DATE].

D. STATISTICS ON CURRENTLY ENROLLED STUDENTS: If possible, aggregated descriptive statistics on all currently enrolled students by various demographics. Ideally, this information will be provided twice: by [DATE], and [DATE].

E. PANTRY INFORMATION SURVEY: [STAFF NAME] will complete an online Qualtrics survey about the pantry. Questions focus on the pantry's hours, location, process, food, visitors, data, and funding/donation sources. The survey will take about 15 minutes to complete. If multiple campus employees are familiar with the pantry, the survey can be completed numerous times. This survey will be completed no later than [DATE].

F. PANTRY INFORMATION INTERVIEW: At least one campus employee who is familiar with the pantry will participate in a one-hour interview with Kianna Valoa to discuss the details of the pantry. If multiple campus employees are familiar with the pantry, the interview can be conducted numerous times. This interview can be conducted over the phone or via Zoom. This interview will be completed no later than [DATE].

G. MARKETING/OUTREACH INTERVENTION: [STAFF NAME] will send out the Intervention (a text, email, or postcard) to certain students on [DATE]. [STAFF NAME] will also distribute Kianna Valoa's two online Qualtrics surveys. The pretest survey will be distributed on [DATE] (a few weeks before the intervention), and the post-test survey will be distributed on [DATE] (a few weeks after the intervention). The surveys do not collect nor ask students to provide any personal identifying information. In addition, this employee will send out one pretest survey announcement email ([DATE]) and one post-test survey reminder email ([DATE]) to certain students;
    a. One-third of the sample of students will receive the intervention and an invitation to complete both surveys.

   b. One-third of the sample of students will receive the intervention and an invitation to complete only the post-test survey.
   c. One-third of the sample of students will be invited to complete both surveys but will not receive the intervention.

H. OUTSIDE FACTORS INTERVIEW: At least one campus employee who is familiar with the pantry will participate in a 30-minute interview with Kianna Valoa to discuss any outside factors that may have influenced the number of pantry visitors. This interview can be conducted over the phone or via Zoom. This interview will be completed no later than [DATE].

I. PANTRY OBSERVATIONS: If possible, Kianna Valoa will conduct up to two observations of the campus pantry, with each observation lasting at least 30 minutes. Kianna Valoa is willing to volunteer during that time if volunteers are a regular aspect of running the pantry. During the observation time, Kianna Valoa may step away occasionally to take notes when no visitors are present. The first observation would occur no later than [DATE], and the second observation would occur no later than [DATE].

IV. BENEFITS FROM PARTNERING

The Partner University will not receive additional benefits for providing Kianna Valoa with the necessary data. However, the Campus's participation will likely increase staff knowledge about barriers preventing pantry use, students' food challenges, and the effectiveness of the Intervention to increase the number of pantry visitors—all which could be considered indirect benefits.

A. CAMPUS EMPLOYEES: [STAFF NAME], who will directly provide Kianna Valoa with the necessary data (such as through completing surveys and/or participating in interviews), will not receive additional benefits for doing so.

B. STUDENT RANDOM DRAWING: Students who complete the pre- and post-test student surveys will be invited to participate in a random giveaway. One day after each student survey concludes, a random drawing will be held to distribute 5 $35.00 Amazon e-gift cards (for a total of 10 gift cards by the conclusion of the study). Students do not have to complete the student survey to enter the random giveaway. Both surveys near the top will indicate how to enter the random drawing without completing the survey. Thus, the random giveaways will be made available to all students. Students who want to participate in the random giveaways must voluntarily provide their full names and campus email addresses; however, their personal identifying information will not be connected in any way to their responses to the pre- and post-test surveys.

C. INTERVENTION BUDGET: If postcards are determined by campus employees to be the most feasible and/or effective communication medium, then Kianna Valoa is willing to provide up to $1,800.00 towards the cost of printing and mailing the marketing/outreach intervention to the targeted students. [FOOD PANTRY NAME (CAMPUS NAME)] is willing to provide up to $1,500 towards the cost of printing and mailing the marketing/outreach intervention as well.

VI. SIGNATURES

Claremont Graduate University
150 East 10th Street
Claremont, CA 91711
909.621.8000

Kianna Valoa
Cell: 818.579.5027
kianna.valoa@cgu.edu

Acknowledged and Agreed: _____ Date: _____

Claremont Graduate University
150 East 10th Street
Claremont, CA 91711
909.621.8000

Dr. Gwen Garrison
Dissertation Committee Chair/Faculty Advisor
Clinical Professor of Education
Director of Educational Evaluation and Data Analysis
Office: 909.607.4282
[CAMPUS-AFFILIATED EMAIL 2]

Acknowledged and Agreed: _____ Date: _____

[CAMPUS NAME]
[CAMPUS ADDRESS]

[STAFF NAME]
[STAFF POSITION]
[CAMPUS DEPARTMENT]
Work: [PHONE NUMBER]
[EMAIL]

Acknowledged and Agreed: _____ Date: _____

[CAMPUS NAME]
[CAMPUS ADDRESS]

[STAFF NAME]
[STAFF POSITION]
[CAMPUS DEPARTMENT]
Work: [PHONE NUMBER]
[EMAIL]

Acknowledged and Agreed: _____ Date: _____

Appendix B

Postcard Intervention

Hey [NAME],

We know that money is tight right now.

The [ABC] Food Pantry can help.

As a **[CAMPUS]** student, you're eligible to pick up a free bag of groceries every week.

We're located on the 1st floor of the Union, next to **[DEPARTMENT]**.

New to the ABC Food Pantry?
Register here.

Been here before?
Hope to see you soon!

[QR CODE]

[CAMPUS NAME]
[DEPARTMENT]
[PANTRY ADDRESS LINE 1]
[PANTRY ADDRESS LINE 2]

Appendix C

Pantry Information Survey for Staff

Pantry Information Survey for Staff: Survey Structure

Standard: Introduction & Consent (2 Questions)

Branch: New Branch
If
If By selecting "I agree," you confirm that you understand the information above, your questions abo... I do not agree. Is Selected

EndSurvey: Advanced

Standard: Hours (5 Questions)
Standard: Location (7 Questions)
Standard: Appearance (4 Questions)
Standard: Process (11 Questions)
Standard: Food (8 Questions)
Standard: Other Resources/Services (6 Questions)
Standard: Pantry Visitors (9 Questions)
Standard: Organization & Employees (9 Questions)
Block: Funding & Donation Sources (8 Questions)
Standard: Marketing & Outreach (6 Questions)
Standard: Outcomes (12 Questions)

Pantry Information Survey for Staff: Survey Questions

Start of Block: Introduction & Consent

Q1
Pantry Information Survey

You are invited to be a part of a research study because of the role you play in supporting [CAMPUS NAME]'s [PANTRY NAME]! While volunteering will not benefit you personally, you will be helping us understand how to improve the pantry to better serve students.

If you choose to participate, you'll answer a confidential survey that will take about 10 minutes. Volunteering for this study involves no more risk than what a typical person experiences on a regular day. Questions ask about the pantry's hours, location, process, food, visitors, staff, food sources, marketing/outreach efforts, and outcomes. You may choose to skip any question and leave the survey at any time. Your decision to participate or not will have no impact on your current or future connection with anyone at [CAMPUS NAME]. Your individual privacy will be protected in all publications, media, and other communications resulting from this study. I may use the data for future research or share it with other researchers, but I will not reveal your identity with it. In order to protect the confidentiality of your responses, I will not mention the name of your campus, the name of the campus food pantry, your exact title, nor your name.

Other Details

- To be eligible to participate in this study, you must be currently employed at [CAMPUS NAME], and be at least 18 years old.
- This study is led by Kianna Valoa, a doctoral student at Claremont Graduate University (CGU), in partnership with [CAMPUS NAME]. Please contact Kianna at [CAMPUS-AFFILIATED EMAIL 1] if you have any questions.
- The CGU Institutional Review Board certified this project as exempt (IRB #4326). If you have any ethical concerns about this project or about your rights as a human subject in research, you may contact them at (909) 607-9406 or irb@cgu.edu.

Q2 By selecting "I agree," you confirm that you understand the information above, your questions about this study have been answered, and you voluntarily choose to participate in it.

- ○ I agree.
- ○ I do not agree.

End of Block: Introduction & Consent

Start of Block: Hours

Q3 **Pantry Hours**

Q4 How many hours per week is the pantry open this semester?

- ○ 1-10 hours
- ○ 11-20 hours
- ○ 21-30 hours
- ○ 31-40 hours
- ○ 41-50 hours
- ○ 51 or more hours
- ○ It varies widely
- ○ Not sure

Q5 How often is the pantry open this semester?

- ○ Less than once a month
- ○ Once a month
- ○ 1-3 times per month
- ○ Once a week
- ○ 2-4 times per week
- ○ Every weekday
- ○ Every day
- ○ It varies widely
- ○ Not sure

Q6 Is there anything else you would like to share about the pantry's hours?

- ○ Yes
- ○ No

Display this question:

If Is there anything else you would like to share about the pantry's hours? = Yes

Q7 Please use the space below to share more about the pantry's hours.

_____

_____

_____

_____

_____

End of Block: Hours

Start of Block: Location

Q8 **Pantry Location**

Q9 Does the pantry have a designated space on campus (where it permanently exists)?

- ○ Yes, we have one location.
- ○ Yes, we have multiple locations.
- ○ No, we only have temporary space.
- ○ Not sure

Display this question:

If Does the pantry have a designated space on campus (where it permanently exists)? = Yes, we have one location.

Or Does the pantry have a designated space on campus (where it permanently exists)? = Yes, we have multiple locations.

Q10 About how many total square feet does the pantry take up?

_____

Page Break

Display this question:

If Does the pantry have a designated space on campus (where it permanently exists)? = Yes, we have one location.

Or Does the pantry have a designated space on campus (where it permanently exists)? = Yes, we have multiple locations.

Q11 Please indicate your level of agreement with the following statements.

The location of the campus pantry is...

	Strongly Disagree	Disagree	Agree	Strongly Agree	Not sure
Accessible to persons with disabilities.	○	○	○	○	○
Easily reached via public transportation.	○	○	○	○	○
Close to a student parking lot.	○	○	○	○	○
Private/hidden so that students can visit with a sense of privacy.	○	○	○	○	○
Public/unhidden so that students can easily discover and access the pantry.	○	○	○	○	○

Page Break

Q12 Does the pantry have an overflow space (where a surplus of donations can be stored)?

- ○ Yes
- ○ No
- ○ Not sure

Q13 Is there anything else you would like to share about the pantry's location?

- ○ Yes
- ○ No

Display this question:

If Is there anything else you would like to share about the pantry's location? = Yes

Q14 Please use the space below to share more about the pantry's location(s).

_____

_____

_____

_____

_____

End of Block: Location

Start of Block: Appearance

Q15 **Pantry Appearance**

Q16 Please indicate how often, in your perspective, the following statements describe the pantry.

	Rarely	Sometimes	Always	Not sure
The pantry is well organized.	○	○	○	○
The pantry is nicely decorated.	○	○	○	○
The pantry is well stocked (e.g., full of food with few bare shelves).	○	○	○	○

Q17 Is there anything else you would like to share about the pantry's appearance?

○ Yes

○ No

Display this question:

If Is there anything else you would like to share about the pantry's appearance? = Yes

Q18 Please use the space below to share more about the pantry's appearance.

_____

_____

_____

_____

_____

End of Block: Appearance

Start of Block: Process

Q19 **Pantry Process**

Q20 In general, how long does a visitor stay at the pantry?

- ○ Less than 1 minute
- ○ 1-5
- ○ 6-10
- ○ 11-15
- ○ More than 15 minutes
- ○ Not sure

Q21 How do pantry visitors select their food? (Select all that apply)

- ☐ The food is pre-bagged/pre-boxed.
- ☐ Visitors select the food themselves.
- ☐ Other _____
- ☐ Not sure

Display this question:

If How do pantry visitors select their food? (Select all that apply) = The food is pre-bagged/pre-boxed.

Q22 Concerning the pre-bagged/pre-boxed food, are there a variety of options that pantry visitors can pick from?

- ○ Yes
- ○ No
- ○ Not sure

Display this question:

If Concerning the pre-bagged/pre-boxed food, are there a variety of options that pantry visitors can... = Yes

Q23 What are the options?

_____

Page Break

Display this question:

If How do pantry visitors select their food? (Select all that apply) = Visitors select the food themselves.

Q24 How can pantry visitors communicate their food selection? (Select all that apply)

- ☐ By coming in person
- ☐ By sending an email
- ☐ By filling out an online form
- ☐ By calling
- ☐ By texting
- ☐ Other _____
- ☐ Not sure

Display this question:

If How do pantry visitors select their food? (Select all that apply) = Visitors select the food themselves.

And How can pantry visitors communicate their food selection? (Select all that apply)
q://QID24/SelectedChoicesCount Is Greater Than 1

Carry Forward Selected Choices - Entered Text from "How can pantry visitors communicate their food selection? (Select all that apply)"

Q25 Please order the ways that visitors communicate their food selection, with the top being the most common and the bottom being the least common. (Click & drag)

_____ By coming in person
_____ By sending an email
_____ By filling out an online form
_____ By calling
_____ By texting
_____ Other
_____ Not sure

Page Break

Q26 How does the pantry facilitate the food pickup process? (Select all that apply)

- ☐ Drop-ins (no appointment needed)
- ☐ Appointments (a scheduled time for the visitor to come by)
- ☐ Distributions (tabling to give away food in public spaces)
- ☐ Other _____
- ☐ Not sure

Display this question:

If How does the pantry facilitate the food pickup process? (Select all that apply) q://QID25/SelectedChoicesCount Is Greater Than 1

Carry Forward Selected Choices - Entered Text from "How does the pantry facilitate the food pickup process? (Select all that apply)"

Q27 Please order the ways that food is picked up, with the top being the most common and the bottom being the least common. (Click & drag)

_____ Drop-ins (no appointment needed)
_____ Appointments (a scheduled time for the visitor to come by)
_____ Distributions (tabling to give away food in public spaces)
_____ Other
_____ Not sure

Page Break

Q28 Is there anything else you would like to share about the pantry's processes?

- ○ Yes
- ○ No

Display this question:

If Is there anything else you would like to share about the pantry's processes? = Yes

Q29 Please use the space below to share more about the pantry's processes.

_____

_____

_____

_____

_____

End of Block: Process

Start of Block: Food

Q30 **Pantry Food**

Q31 Generally, what kinds of food are available at the pantry? (Select all that apply)

- ☐ Shelf-stable foods
- ☐ Breads
- ☐ Fresh produce
- ☐ Dairy/dairy substitutes (refrigerated)
- ☐ Meats (refrigerated or frozen)
- ☐ Premade meals (that need to be heated)
- ☐ Ready-to-eat meals (that do not need to be heated)
- ☐ Other _____
- ☐ Not sure

Display this question:

If Generally, what kinds of food are available at the pantry? (Select all that apply) != Not sure

Carry Forward Selected Choices - Entered Text from "Generally, what kinds of food are available at the pantry? (Select all that apply)"

Q32 In general, how often is this food available at the pantry?

	Rarely	Sometimes	Always	Not sure
Shelf-stable foods	○	○	○	○
Breads	○	○	○	○
Fresh produce	○	○	○	○
Dairy/dairy substitutes (refrigerated)	○	○	○	○
Meats (refrigerated or frozen)	○	○	○	○
Premade meals (that need to be heated)	○	○	○	○
Ready-to-eat meals (that do not need to be heated)	○	○	○	○
Other	○	○	○	○
Not sure	○	○	○	○

Page Break

Display this question:

If Generally, what kinds of food are available at the pantry? (Select all that apply) != Not sure

Carry Forward Selected Choices - Entered Text from "Generally, what kinds of food are available at the pantry? (Select all that apply)"

Q33 In general, what is the freshness of the food when it arrives at the pantry?

	Rarely fresh, often expired	Sometimes fresh, sometimes expired	Always fresh, never expired	Not sure
Shelf-stable foods	○	○	○	○
Breads	○	○	○	○
Fresh produce	○	○	○	○
Dairy/dairy substitutes (refrigerated)	○	○	○	○
Meats (refrigerated or frozen)	○	○	○	○
Premade meals (that need to be heated)	○	○	○	○
Ready-to-eat meals (that do not need to be heated)	○	○	○	○
Other	○	○	○	○
Not sure	○	○	○	○

Page Break

Display this question:

If Generally, what kinds of food are available at the pantry? (Select all that apply) != Not sure

Carry Forward Selected Choices - Entered Text from "Generally, what kinds of food are available at the pantry? (Select all that apply)"

Q34 In your perspective, how often is the food a recognizable name brand?

	Rarely	Sometimes	Always	Not sure
Shelf-stable foods	○	○	○	○
Breads	○	○	○	○
Fresh produce	○	○	○	○
Dairy/dairy substitutes (refrigerated)	○	○	○	○
Meats (refrigerated or frozen)	○	○	○	○
Premade meals (that need to be heated)	○	○	○	○
Ready-to-eat meals (that do not need to be heated)	○	○	○	○
Other	○	○	○	○
Not sure	○	○	○	○

Page Break

Q35 Which of the following dietary restrictions can be accommodated by the pantry?

	Probably cannot accommodate	Might be able to accommodate	Can definitely accommodate	Not sure
Vegetarian	○	○	○	○
Vegan	○	○	○	○
Lactose intolerant	○	○	○	○
Gluten intolerant	○	○	○	○
Kosher	○	○	○	○

Page Break

Q36 Is there anything else you would like to share about the selection and quality of the food that the pantry offers?

○ Yes

○ No

Display this question:

If Is there anything else you would like to share about the selection and quality of the food that t... = Yes

Q37 Please use the space below to share more about the pantry's food selection and food quality.

_____

_____

_____

_____

End of Block: Food

Start of Block: Other Resources/Services

Q38 **Other Resources & Services**

Q39 Is the campus pantry located in or close to a basic needs hub, where students can get a variety of supports (such as emergency grants and housing help)?

- Yes
- No
- Not sure

Q40 Does the pantry offer other resources/services besides directly providing food?

- Yes
- No
- Not sure

Page Break

Display this question:

If Does the pantry offer other resources/services besides directly providing food? = Yes

Q41 What other resources/services does the pantry provide? (Select all that apply)

- ☐ Referrals to off-campus resources
- ☐ CalFresh (SNAP) application support
- ☐ Basic needs case management/counseling
- ☐ Personal hygiene products
- ☐ Other supplies/home goods
- ☐ Clothing
- ☐ Other _____
- ☐ Not sure

Display this question:

If Does the pantry offer other resources/services besides directly providing food? = Yes

Q42 Is there anything else you would like to share about the other resources/services that the pantry offers?

- ○ Yes
- ○ No

Display this question:

If Is there anything else you would like to share about the other resources/services that the pantry... = Yes

Q43 Please use the space below to share more about the pantry's other resources/services.

_____

_____

_____

_____

_____

End of Block: Other Resources/Services

Start of Block: Pantry Visitors

Q44 **Pantry Visitors**

Q45 Do students have to be currently enrolled to use the campus pantry?

- Yes
- No
- Not sure

Q46 Are any of the following taken into account when determining a student's eligibility to use the pantry? (Select all that apply)

- [ ] Full-time or part-time enrollment
- [ ] Proof of financial need
- [ ] Total household size
- [ ] Number of children
- [ ] Other _____
- [ ] None of the above
- [ ] Not sure

Q47 Are any of the following taken into account when determining how much food a student can pick up from the pantry? (Select all that apply)

- [ ] Full-time or part-time enrollment
- [ ] Level of financial need
- [ ] Total household size
- [ ] Number of children
- [ ] Other _____
- [ ] None of the above
- [ ] Not sure

Page Break

Q48 Besides students, who is potentially eligible to use the pantry? (Select all that apply)

- [ ] Faculty
- [ ] Campus staff
- [ ] Off-campus community
- [ ] Students' family members
- [ ] Other _____
- [ ] None of the above
- [ ] Not sure

Page Break

Q49 In your perspective, which kitchen appliances do low-income students like to use or want to use? (Select all that apply)

- ☐ Refrigerator
- ☐ Stovetop or electric skillet
- ☐ Oven or toaster oven
- ☐ Microwave
- ☐ Electric kettle
- ☐ Other _____
- ☐ None of the above
- ☐ Not sure

Display this question:

If In your perspective, which kitchen appliances do low-income students like to use or want to use? (Select all that apply) q://QID104/SelectedChoicesCount Is Greater Than 0

And In your perspective, which kitchen appliances do low-income students like to use or want to use?... != None of the above

And In your perspective, which kitchen appliances do low-income students like to use or want to use?... != Not sure

Carry Forward Selected Choices - Entered Text from "In your perspective, which kitchen appliances do low-income students like to use or want to use? (Select all that apply)"

Q50 In your perspective, how often can low-income students access these kitchen appliances?

	Rarely	Sometimes	Always	Not sure
Refrigerator	○	○	○	○
Stovetop or electric skillet	○	○	○	○
Oven or toaster oven	○	○	○	○
Microwave	○	○	○	○
Electric kettle	○	○	○	○
Other	○	○	○	○
None of the above	○	○	○	○
Not sure	○	○	○	○

Page Break

Q51 Is there anything else you would like to share about the pantry's visitors?

○ Yes

○ No

Display this question:

If Is there anything else you would like to share about the pantry's visitors? = Yes

Q52 Please use the space below to share more about the pantry's visitors.

_____

_____

_____

_____

_____

End of Block: Pantry Visitors

Start of Block: Organization & Employees

Q53 **Organization & Employees**

Q54 What office/position oversees the pantry?

_____

Q55 Which of the following groups staff the pantry through both volunteer and paid work? (Select all that apply)

- ☐ Students
- ☐ Campus staff
- ☐ Nonprofit staff
- ☐ Community members
- ☐ Other _____

Page Break

Display this question:

If Which of the following groups staff the pantry through both volunteer and paid work? (Select all... = Students

Or Which of the following groups staff the pantry through both volunteer and paid work? (Select all... = Campus staff

Or Which of the following groups staff the pantry through both volunteer and paid work? (Select all... = Nonprofit staff

Or Which of the following groups staff the pantry through both volunteer and paid work? (Select all... = Other

Carry Forward Selected Choices - Entered Text from "Which of the following groups staff the pantry through both volunteer and paid work? (Select all that apply)"

Q56 Which of the following are paid by the campus to staff the pantry?

	Paid	Unpaid	Mix of both	Not sure
Students	○	○	○	○
Campus staff	○	○	○	○
Nonprofit staff	○	○	○	○
Community members	○	○	○	○
Other	○	○	○	○

Display this question:

If Which of the following groups staff the pantry through both volunteer and paid work? (Select all... = Students

Or Which of the following groups staff the pantry through both volunteer and paid work? (Select all... = Campus staff

Or Which of the following groups staff the pantry through both volunteer and paid work? (Select all... = Nonprofit staff

Or Which of the following groups staff the pantry through both volunteer and paid work? (Select all... = Other

Carry Forward Selected Choices - Entered Text from "Which of the following groups staff the pantry through both volunteer and paid work? (Select all that apply)"

Q57 In general, how many total people (paid and unpaid) staff the pantry in a single semester?

_____ Students
_____ Campus staff
_____ Nonprofit staff
_____ Community members
_____ Other

Page Break

Display this question:

If Which of the following groups staff the pantry through both volunteer and paid work? (Select all... = Campus staff

Q58 How much of the campus employee's time is dedicated to the campus pantry?

- ○ More than half of their time
- ○ 26-50% of their time
- ○ Less than 25% of their time
- ○ Not sure

Q59 Can pantry visitors receive food when no pantry employees are present?

- ○ Yes
- ○ No
- ○ Not sure

Q60 Is there anything else you would like to share about the pantry's employees?

- ○ Yes
- ○ No

Display this question:

If Is there anything else you would like to share about the pantry's employees? = Yes

Q61 Please use the space below to share more about the pantry's employees.

_____

_____

_____

_____

_____

End of Block: Organization & Employees

Start of Block: Funding & Donation Sources

Q62 **Funding & Donation Sources**

Q63 Are you familiar with the campus pantry's budget for this year?

- Yes
- No
- Not sure

Display this question:

If Are you familiar with the campus pantry's budget for this year? = Yes

Q64 What is the campus pantry's budget for this year?

_____

Display this question:

If Are you familiar with the campus pantry's budget for this year? = Yes

Q65 Does the campus pantry spend a portion of its budget on marketing/outreach efforts?

- Yes
- No, but pantry marketing/outreach efforts are funded in other ways
- No, no funds are directly spent on marketing/outreach for the pantry
- Not sure

Page Break

Q66 Where does the pantry food come from? (Select all that apply)

- [ ] Community donations
- [ ] Local food banks at no cost
- [ ] Local food banks at some cost
- [ ] Business donations
- [ ] Purchase at grocery store at discount cost
- [ ] Purchase at grocery store at full price
- [ ] Donations from on-campus eateries/convenience stores
- [ ] Other _____
- [ ] Not sure / It varies widely.

Page Break

Display this question:

If Where does the pantry food come from? (Select all that apply) != Not sure / It varies widely.

And Where does the pantry food come from? (Select all that apply) q://QID3/SelectedChoicesCount Is Greater Than 1

Carry Forward Selected Choices - Entered Text from "Where does the pantry food come from? (Select all that apply)"

Q67 About what percentage of the pantry food comes from each source? (The bottom number must total 100%.)

- Community donations : _____
- Local food banks at no cost : _____
- Local food banks at some cost : _____
- Business donations : _____
- Purchase at grocery store at discount cost : _____
- Purchase at grocery store at full price : _____
- Donations from on-campus eateries/convenience stores : _____
- Other : _____
- Not sure / It varies widely. : _____
- Total : _____

Q68 Is there anything else you would like to share about the pantry's funding or donation sources?

- Yes
- No

Display this question:

If Is there anything else you would like to share about the pantry's funding or donation sources? = Yes

Q69 Please use the space below to share more about the pantry's funding and donation sources.

_____

_____

_____

_____

_____

End of Block: Funding & Donation Sources

Start of Block: Marketing & Outreach

Q70 **Marketing & Outreach**

Q71 In your perspective, how do students usually hear about the campus pantry? (Select all that apply)

- ☐ Word-of-mouth from other students
- ☐ Referrals by campus staff and professors
- ☐ Pantry staff tabling at campus events
- ☐ Students noticed the pantry's physical location
- ☐ Students saw an advertisement
- ☐ Students found the pantry website
- ☐ Other _____
- ☐ Not sure

Display this question:

If In your perspective, how do students usually hear about the campus pantry? (Select all that apply) != Not sure

And In your perspective, how do students usually hear about the campus pantry? (Select all that apply) q://QID33/SelectedChoicesCount Is Greater Than 1

Carry Forward Selected Choices - Entered Text from "In your perspective, how do students usually hear about the campus pantry? (Select all that apply)"

Q72 Please order the ways that you believe students hear about the campus pantry, with the top being the most common and the bottom being the least common. (Click & drag)

_____ Word-of-mouth from other students
_____ Referrals by campus staff and professors
_____ Pantry staff tabling at campus events
_____ Students noticed the pantry's physical location
_____ Students saw an advertisement
_____ Students found the pantry website
_____ Other
_____ Not sure

Page Break

Q73 In what ways does the campus pantry try to get the word out? (Select all that apply)

- [ ] Outreach to campus staff and professors (to promote referrals)
- [ ] Pantry staff tabling at campus events
- [ ] Pantry-specific events
- [ ] Fliers on campus
- [ ] Posters/signage on campus
- [ ] Texts to students
- [ ] Emails to students
- [ ] Mail to students
- [ ] Strong social media presence
- [ ] Prominent pantry ads/links on main campus website
- [ ] Pantry info on course syllabi
- [ ] Pantry info provided during student orientation
- [ ] Other _____
- [ ] Not sure

Q74 Is there anything else you would like to share about the pantry's marketing/outreach efforts?

- ○ Yes
- ○ No

Display this question:

If Is there anything else you would like to share about the pantry's marketing/outreach efforts? = Yes

Q75 Please use the space below to share more about the pantry's marketing/outreach efforts.

_____

_____

_____

_____

_____

End of Block: Marketing & Outreach

Start of Block: Outcomes

Q76 **Pantry Outcomes & Impacts**

Q77 How does the campus pantry collect data on the number of students served?

- ○ Students swipe their Student IDs via a card reader.
- ○ Students complete a sign-in sheet.
- ○ Both of the above.
- ○ Other _____
- ○ Not sure

Page Break

Display this question:

If How does the campus pantry collect data on the number of students served? = Students swipe their Student IDs via a card reader.

Or How does the campus pantry collect data on the number of students served? = Students complete a sign-in sheet.

Or How does the campus pantry collect data on the number of students served? = Other

Q78 Are you familiar with approximately how many students were served by the campus pantry last semester?

- ○ Yes
- ○ No
- ○ Not sure

Page Break

Display this question:

If Are you familiar with approximately how many students were served by the campus pantry last semes... = Yes

Q79 About how many students were served last semester?

_____

Display this question:

If Are you familiar with approximately how many students were served by the campus pantry last semes... = Yes

Q80 Is this number referring to the total number of student visitors (where a student visiting multiple times is counted multiple times) or the total number of unique student visitors last semester (where a student coming multiple times is counted only once)?

- ○ Total number of student visitors
- ○ Total number of unique student visitors
- ○ Not sure

Display this question:

If Are you familiar with approximately how many students were served by the campus pantry last semes... = Yes

Q81 How accurate would you say the data on the number of students served are?

- ○ Highly accurate
- ○ Somewhat accurate
- ○ Not very accurate
- ○ Not sure

Page Break

Q82 Does the campus pantry track how many pounds of food it distributes each semester?

- ○ Yes
- ○ No
- ○ Not sure

Display this question:

If Does the campus pantry track how many pounds of food it distributes each semester? = Yes

Q83 About how many pounds of food did the pantry distribute in the past semester?

_____

Page Break

Q84 Are you aware of any current effort by your campus to measure student food insecurity?

- ○ Yes
- ○ No
- ○ Not sure

Display this question:

If Are you aware of any current effort by your campus to measure student food insecurity? = Yes

Q85 Please briefly describe what your campus is currently doing to measure student food insecurity.

_____

Q86 Is there anything else you'd like to share about how the campus pantry measures its outcomes and impacts?

- ○ Yes
- ○ No

Display this question:

If Is there anything else you'd like to share about how the campus pantry measures its outcomes and... = Yes

Q87 Please use the space below to share more about the pantry's outcomes and impacts.

_____

End of Block: Outcomes

Appendix D

Interview Protocols for Pantry Staff

Interview Protocol #1 for Pantry Staff: Pantry Information

Pantry Information Interview Consent Form

You're invited to be a part of a research study! Volunteering will not benefit you personally, but you will be helping us understand food challenges and how to improve the pantry on your campus and at other similar campuses. If you decide to participate, you'll converse with me for an hour about [PANTRY NAME]. This interview involves no more risk than what a typical person experiences on a regular day. Your participation is entirely up to you. You may choose to skip any interview question and conclude the interview at any time for any reason.

Study Leadership: This study is led by Kianna Valoa, a doctoral student at Claremont Graduate University, who is supervised by Dr. Gwen Garrison.

Purpose: The purpose of this study is to better understand how to help students learn about and receive support from campus food pantries at [CAMPUS NAME] and at other similar colleges, through the implementation of a marketing/outreach intervention. In addition to learning about what kinds of marketing/outreach strategies are effective, this study also examines why they are effective.

Eligibility: To be eligible to participate in this aspect of the study, you must be currently employed at [CAMPUS NAME] and at least 18 years old.

Participation: During this study, we will converse for about an hour about [PANTRY NAME]. Questions will explore how the pantry came to be, the strengths of the pantry, and opportunities for improvement. In addition, some questions may expand on your answers to the Pantry Information Survey if you chose to fill it out.

Risks of Participation: This interview involves no more risk than what a typical person experiences on a regular day.

Benefits of Participation: I do not expect the study to benefit you personally. This study will benefit me, the lead researcher and graduate student, by fulfilling the requirements for a PhD. This study is also intended to benefit college students generally by shedding light on how campuses can make food resources easier for students to know about and use.

Compensation: You will not be paid for participating in this study.

Voluntary Participation: Your participation in this study is completely voluntary. You may choose to skip any question and end the interview at any time for any reason without it being held against you. Your decision to participate or not (and the extent of your participation) will have no impact on your current or future relationship with anyone at [CAMPUS NAME] or at Claremont Graduate University.

Confidentiality: Your responses to the interview questions will be confidential, meaning that I will know what you said but will not disclose your identity to anyone else. Your individual privacy will be protected in all publications, media, and other communications resulting from this study. I

may use the data for future research or share it with other researchers, but I will not reveal your identity with it. In order to protect the confidentiality of your responses, I will not mention the name of your campus, the name of the campus food pantry, your exact title, nor your name. Any notes resulting from this interview will not have any of these details; instead, they will have pseudonyms. Any audio recordings from this interview will be reviewed within 24 hours and then deleted. All notes and audio recordings will be stored on a password-protected, personal laptop until they are deleted.

Additional Information: If you have any questions, would like more information, or would like a copy of this form, please contact Kianna Valoa at [PHONE NUMBER 1] and [CAMPUS-AFFILIATED EMAIL 1]. You may also contact Dr. Gwen Garrison, CGU Faculty Supervisor, at [PHONE NUMBER 2] and [CAMPUS-AFFILIATED EMAIL 2]. The CGU Institutional Review Board has approved this study (IRB ID# 4326). If you have any ethical concerns about this project or your rights as a human subject in research, you may contact the CGU Institutional Review Board at (909) 607-9406 or irb@cgu.edu.

By providing your signature below, you confirm that you understand the information above, your questions about this study have been answered, and you voluntarily choose to participate in it.

Signature of Participant: _____ Date: _____
Name of Participant: _____

The undersigned researcher has reviewed the information in this consent form with the participant and answered any of his or her questions about the study.

Signature of Researcher: _____ Date: _____
Printed Name of Researcher: _____

Pantry Information Interview Questions

I'm really grateful that you're here and willing to share your insights with me today. I'd like to record what you say so that I don't miss any of it. I don't want to just rely on my notes and accidentally miss something you said. **Would it be alright if I recorded this conversation?**

Please tell me about your involvement with the campus food pantry.
Prompts if response is limited:

- When did you get involved?
- In what ways are you involved?

Can you share a little about the history of the campus food pantry?
Prompts if response is limited:

- When did it begin?
- Who started it and how?
- How has it changed over time?

Is the food pantry located within a basic needs center or a cluster of other student services?

- If yes, please describe the basic needs center/which services?
- If yes, how is marketing and outreach done for the basic needs center/these other services?

Possible follow-up questions based on the pantry information survey:
Hours
Location
Process

- What does the enrollment process look like, if any?
- What does the check-in process look like, if any?

Appearance
Food

- Please share how much food a visitor can receive within a specific timeframe (e.g., visit, week, month).

Other Resources/Services
Visitors
Organization & Employees
Funding & Donation Sources
Marketing & Outreach

- Can I see examples of each way the pantry tries to get the word out?
- Which of these outreach ways are "targeted" (meaning aiming to reach a specific group of students" and which of these outreach ways are "general" (meaning aiming to reach all students on campus)?
- Who created these outreach materials? Who disseminates them?
- What are your thoughts on the campus pantry's current marketing/outreach efforts?
- How was the pantry advertised last semester, if at all? How does that compare to this semester?

Outcomes

- What other information on student visitors is collected, if any?
- In what other ways is the pantry's success measured, if any?

What aspects of the pantry are working well?

What ways can the pantry be improved?
Prompts if response is limited:

- Which ones are you focusing on currently or in the near future?

What are the main challenges that the pantry is currently facing?
Prompts if response is limited:

- What are your plans for overcoming those challenges?

(Optional) **How is COVID-19 currently impacting the pantry/pantry use?**

Is there anything else that I missed that you think is important for understanding the campus food pantry?

Interview Protocol #2 for Pantry Staff: Intervention Design & Success

Intervention Design & Success Interview Consent Form

You're invited to be a part of a research study! Volunteering will not benefit you personally, but you will be helping us understand food challenges and how to improve the pantry on your campus and at other similar campuses. If you decide to participate, you'll converse with me for an hour about (1) the best way to design a marketing/outreach intervention for the campus pantry and (2) what it means for the intervention to be successful. This interview involves no more risk than what a typical person experiences on a regular day. Your participation is entirely up to you. You may choose to skip any interview question and conclude the interview at any time for any reason.

Study Leadership: This study is led by Kianna Valoa, a doctoral student at Claremont Graduate University, who is supervised by Dr. Gwen Garrison.

Purpose: The purpose of this study is to better understand how to help students learn about and receive support from the campus food pantry at [CAMPUS NAME] and at other similar colleges, through the implementation of a marketing/outreach intervention. In addition to learning about what kinds of marketing/outreach strategies are effective, this study also examines why they are effective.

Eligibility: To be eligible to participate in this aspect of the study, you must be currently employed at [CAMPUS NAME] and at least 18 years old.

Participation: During this study, we will converse for about an hour about (1) the best way to design a marketing/outreach intervention for the campus pantry and (2) what it means for the intervention to be successful. Questions will explore whether texts, emails, or letters are the best and what kinds of messaging might be the most successful. In addition, a few questions will ask what a “successful intervention” looks like in your perspective.

Risks of Participation: This interview involves no more risk than what a typical person experiences on a regular day.

Benefits of Participation: I do not expect the study to benefit you personally. This study will benefit me, the lead researcher and graduate student, by fulfilling the requirements for a PhD. This study is also intended to benefit college students generally by shedding light on how campuses can make food resources easier for students to know about and use.

Compensation: You will not be paid for participating in this study.

Voluntary Participation: Your participation in this study is completely voluntary. You may choose to skip any question and end the interview at any time for any reason without it being held against you. Your decision to participate or not (and the extent of your participation) will have no impact on your current or future relationship with anyone at [SCHOOL NAME] or at Claremont Graduate University.

Confidentiality: Your responses to the interview questions will be confidential, meaning that I will know what you said but will not disclose your identity to anyone else. Your individual privacy will be protected in all publications, media, and other communications resulting from this study. I may use the data for future research or share it with other researchers, but I will not reveal your

identity with it. In order to protect the confidentiality of your responses, I will not mention the name of your campus, the name of the campus food pantry, your exact title, nor your name. Any notes resulting from this interview will not have any of these details; instead, they will have pseudonyms. Any audio recordings from this interview will be reviewed within 24 hours and then deleted. All notes and audio recordings will be stored on a password-protected, personal laptop until they are deleted.

Additional Information: If you have any questions, would like more information, or would like a copy of this form, please contact Kianna Valoa at [PHONE NUMBER 1] and kianna.valoa@cgu.edu. You may also contact Dr. Gwen Garrison, CGU Faculty Supervisor, at [PHONE NUMBER 2] and [CAMPUS-AFFILIATED EMAIL 2]. The CGU Institutional Review Board has approved this study (IRB ID# 4326). If you have any ethical concerns about this project or your rights as a human subject in research, you may contact the CGU Institutional Review Board at (909) 607-9406 or irb@cgu.edu.

By providing your signature below, you confirm that you understand the information above, your questions about this study have been answered, and you voluntarily choose to participate in it.

Signature of Participant: _____ Date: _____
Name of Participant: _____

The undersigned researcher has reviewed the information in this consent form with the participant and answered any of his or her questions about the study.

Signature of Researcher: _____ Date: _____
Printed Name of Researcher: _____

Intervention Design & Success Interview Questions

I'd like to record what you say so that I don't miss any of it. I don't want to just rely on my notes and accidentally miss something you said. **Would it be alright if I recorded this conversation?**

For this study, the "intervention" refers to a specific instance of communicating information to students. The intervention involves two things: a communication medium and intentional messaging. First, let's talk about communication mediums. Due to study constraints, I've narrowed them down to three options: texts, emails, or postcards

In your perspective, which communication medium would be the most "feasible," meaning it is the easiest for you or others to carry out on your campus?

In your perspective, which communication medium would be the most "effective," meaning it is the most likely to be seen by the students in a positive way?

Do you have any other thoughts on the pros and cons of each medium?

Texts

Emails

Postcards

The second aspect of the intervention is intentional messaging. Based on a review of the literature, the following things might make the message more effective at reducing students' barriers to using the campus pantry:

- Frame food challenges as being common and that students experiencing these challenges are not alone
- Frame food pantry use as common, not just for "poor students" or "students in dire need"
- Frame pantry food as already belonging to the student/rightfully theirs (e.g., included in the tuition)
- Dispel myths of resource scarcity (where students think there is not much food available at the pantry)
- Inform students about the pantry's food, pantry's hours, and students' eligibility so there are less unknowns for them for worry about
- Include photos of pantry food (especially of name brand foods)
- Make the message personalized, such as using the student's first name and including information specific to their program
- Make the message concise
- Emphasize clear, actionable next steps
- Emphasize students' inclusivity and belonging

Let me send you the list because I know it's pretty long. **Based on this list and your own on-the-ground experiences at [CAMPUS NAME], what do you think about this draft of the message?**
Prompts if response is limited:

- How might the average student react to it?
- How can the message be improved?

- How can the message be more personalized?

(If postcards or emails are determined to be the most feasible/effective.) **How should the message be designed?**
Prompts if response is limited:
- Do you have any examples of prior designs?
- *(If postcards)* How much of a budget does [CAMPUS NAME] have to contribute to the costs of printing and mailing?

(If postcards or emails are determined to be the most feasible/effective.) **If images were included, what would they show? Why?**
- Where would they go in the message?
- Who would take or provide these images?
- In what ways might these images attract or deter a specific group of students?
- What other impact might these images have?
- Share potential best practice of including photos of recognizable food brands

The last thing I'd like to discuss is measuring the message's success. In light of the effort/costs to send out the texts/emails/postcards, what does an intervention that is <u>totally successful</u> look like?
Prompts if response is limited:
- How important is it to increase the total number of (repeating) visitors to the campus food pantry? How many more visitors might be expected as a result of the intervention? When might they be expected to come?
- How important is it to increase the number of unique visitors? How many more unique visitors might be expected because of the intervention? When might they be expected?
- How important is it to know that the visitors were students experiencing financial struggles and/or food challenges?

In light of what a total success looks like, what does an intervention that is a <u>partial success</u> look like?

Is there anything else that you'd like to share about the communication medium, intentional messaging, or definition of success?

May I email you if I have questions about what you shared today? If there's anything else that you want to add later, you can always reach out to me.

Example Interventions

Email/Postcard Option 1

Dear [STUDENT NAME],

We know that money is tight right now. [PANTRY NAME] can help. We've got a ton of food here (including fresh produce, dairy, meats, and snacks), and as a [CAMPUS ACRONYM] student you're eligible to pick up a bag of groceries every week. At the pantry we can also see if you are eligible for CalFresh, a state program that awards up to $250 per month for groceries.

[PANTRY NAME] is located at/on [LOCATION DESCRIPTION, SUITE/OFFICE #]. It's open on [DAYS] from [OPENING AND CLOSING HOURS].

[Include a simple black and white map with a yellow star and/or red arrow indicating where the campus pantry is.]

Throughout your journey here at [CAMPUS NAME], we want to support your studies and help you make progress toward your goals. If you have any questions, please don't hesitate to let us know. Stop in and see us anytime or give us a call [PANTRY PHONE NUMBER]. We hope to see you soon!

Sincerely,

[STAFF NAME]
[STAFF POSITION]
[CAMPUS UNIT] | [CAMPUS NAME]
[PANTRY PHONE NUMBER]

Email/Postcard Option 2

Dear [STUDENT NAME],

We know many students are having trouble paying for groceries. If you are, [PANTRY NAME] can help. We've got a ton of food here (including fresh produce, dairy, meats, and snacks), and as a [CAMPUS ACRONYM] student you are entitled to one full grocery bag each/per week. At the pantry we can see if you are eligible for CalFresh, a state program that awards up to $250 per month for groceries.

[PANTRY NAME] is located at/on [LOCATION DESCRIPTION, SUITE/OFFICE #]. It's open on [DAYS] from [OPENING AND CLOSING HOURS].

[Include a simple black and white map with a yellow star and/or red arrow indicating where the campus pantry is.]

Whatever your situation, we want to help you focus on studying and make progress toward your goals. If you have any questions, please don't hesitate to let us know. Stop in and see us anytime or give us a call at [PANTRY PHONE NUMBER]. We hope to see you soon!

Sincerely,

[STAFF NAME]
[STAFF POSITION]
[CAMPUS UNIT] | [CAMPUS NAME]
[PANTRY PHONE NUMBER]

Wording Differences between Email/Mail Option 1 and Email/Mail Option 2

Option 1	Option 2
We know that money is tight right now. [PANTRY NAME] can help.	We know many students are having trouble paying for groceries right now. If you are, [PANTRY NAME] can help.
you're eligible to pick up a bag of groceries every week	you are entitled to one bag of groceries each/per week.
Throughout your journey here at [CAMPUS NAME], we want to support your studies and help you make progress toward your goals.	Whatever your situation, we want to help you focus on studying and make progress toward your goals.

Text Option 1

Hey [STUDENT NAME], this is [STAFF NAME] with [CAMPUS NAME]. We know that money is tight right now. [PANTRY NAME] can help. We've got a ton of food here (including fresh produce and meats), and as a [CAMPUS ACRONYM] student you're eligible to pick up a bag of groceries every week. Whatever your situation, we want to help you focus on studying and make progress toward your goals. Click here to learn more: [PANTRY WEBSITE LINK]

Text Option 2

Hey [STUDENT NAME], this is [STAFF NAME] with [CAMPUS NAME]. We know many students are having trouble paying for groceries. If you are, [PANTRY NAME] can help. We've got a ton of food here (including fresh produce and meats), and as a [CAMPUS ACRONYM] student one full grocery bag is yours every week. We believe in your success and that food challenges should never get in the way of your studies. Click here to learn more: [PANTRY WEBSITE LINK]

Wording Differences between Text Option 1 and Text Option 2

Option 1	Option 2
We know that money is tight right now. [PANTRY NAME] can help.	We know many students are having trouble paying for groceries. If you are, [PANTRY NAME] can help.
…you're eligible to pick up a bag of groceries every week	…one full grocery bag is yours every week.
Whatever your situation, we want to help you focus on studying and make progress toward your goals.	We believe in your success and that food challenges should never get in the way of your studies.

Examples of Intentional Messaging

Letter Example 1

Dear [STUDENT FIRST NAME],

We know that money is tight right now. [PANTRY NAME] can help. We've got a ton of food here (including fresh produce, dairy, meats, and snacks), and as a [CAMPUS ACRONYM] student you're eligible to pick up a bag of groceries every week. At the pantry we can also see if you are eligible for CalFresh, a state program that awards up to $250 per month for groceries.

[PANTRY NAME] is located at/on [LOCATION DESCRIPTION, SUITE/OFFICE #]. It's open on [DAYS & TIMES].

[Simple black and white map with a yellow star and/or red arrow indicating where the campus pantry is]

Throughout your journey here at [COLLEGE NAME], we want to support your studies and help you make progress toward your goals. If you have any questions, please don't hesitate to let us know. Stop in and see us anytime or give us a call at xxx-xxx-xxxx. We hope to see you soon!

Sincerely,

[STAFF FIRST NAME]
[STAFF SIGNATURE BLOCK]

1. Inform students about the pantry's food, pantry's hours, and students' eligibility so there are less unknowns for them for worry about
2. Dispel myths of resource scarcity (where students think there is not much food available at the pantry)
3. Make the message personalized, such as using the student's first name and including information specific to their program
4. ~~Frame food challenges as being common and that students experiencing these challenges are not alone~~
5. ~~Frame pantry food as already belonging to the student/rightfully theirs (e.g., included in the tuition)~~
6. Emphasize actionable next steps
7. ~~Frame food pantry use as common, not just for "poor students" or "students in dire need"~~
8. ~~Include photos of pantry food (especially of name brand foods)~~
9. ~~Emphasize students' inclusivity and belonging on campus/at the pantry~~

Letter Example 2

Dear [STUDENT NAME],

We know many students are having trouble paying for groceries right now. If you are, [PANTRY NAME] can help. We've got a ton of food here (including fresh produce, dairy, meats, and snacks), and as a [CAMPUS ACRONYM] student you are entitled to one bag of groceries each/every/per week. At the pantry we can also see if you are eligible for CalFresh, a state program that awards up to $250 per month for groceries.

[PANTRY NAME] is located at [LOCATION DESCRIPTION, SUITE/OFFICE #]. It's open on [DAYS & TIMES].

[Simple black and white map with a yellow star and/or red arrow indicating where the campus pantry is]

Whatever your situation, we want to help you focus on studying and make progress toward your goals. If you have any questions, please don't hesitate to let us know. Stop in and see us anytime or give us a call at xxx-xxx-xxxx. We hope to see you soon!

Sincerely,

[STAFF FIRST NAME]
[STAFF SIGNATURE BLOCK]

1. Inform students about the pantry's food, pantry's hours, and students' eligibility so there are less unknowns for them for worry about
2. Dispel myths of resource scarcity (where students think there is not much food available at the pantry)
3. Make the message personalized, such as using the student's first name and including information specific to their program
4. Frame food challenges as being common and that students experiencing these challenges are not alone
5. Frame pantry food as already belonging to the student/rightfully theirs (e.g., included in the tuition)
6. Emphasize actionable next steps
7. ~~Frame food pantry use as common, not just for "poor students" or "students in dire need"~~
8. ~~Include photos of pantry food (especially of name brand foods)~~
9. ~~Emphasize students' inclusivity and belonging on campus/at the pantry~~

Text Example 1

Hey [STUDENT FIRST NAME], this is [PANTRY SUPERVISOR FIRST NAME] with [CAMPUS NAME]. We know that money is tight right now. [PANTRY NAME] can help. We've got a ton of food here (including fresh produce and meats), and as a [CAMPUS ACRONYM] student you're eligible to pick up a bag of groceries every week. Whatever your situation, we want to help you focus on studying and make progress toward your goals. Click here to learn more: [PANTRY WEBSITE]

1. Inform students about the pantry's food, pantry's hours, and students' eligibility so there are less unknowns for them for worry about
2. Dispel myths of resource scarcity (where students think there is not much food available at the pantry)
3. Make the message personalized, such as using the student's first name and including information specific to their program
4. ~~Frame food challenges as being common and that students experiencing these challenges are not alone~~
5. ~~Frame pantry food as already belonging to the student/rightfully theirs (e.g., included in the tuition)~~
6. Emphasize actionable next steps

7. ~~Frame food pantry use as common, not just for "poor students" or “students in dire need”~~
8. ~~Include photos of pantry food (especially of name brand foods)~~
9. ~~Emphasize students’ inclusivity and belonging on campus/at the pantry~~

Text Example 2

Hey [STUDENT NAME], this is [PANTRY SUPERVISOR FIRST NAME] with [CAMPUS NAME]. We know many students are having trouble paying for groceries. If you are, [PANTRY NAME] can help. We’ve got a ton of food here (including fresh produce and meats), and as a [CAMPUS ACRONYM] student one full grocery bag is yours every week. We believe in your success and that food challenges should never get in the way of your studies. Click here to learn more: [PANTRY WEBSITE]

1. Inform students about the pantry's food, pantry’s hours, and students’ eligibility so there are less unknowns for them for worry about
2. Dispel myths of resource scarcity (where students think there is not much food available at the pantry)
3. Make the message personalized, such as using the student’s first name and including information specific to their program
4. Frame food challenges as being common and that students experiencing these challenges are not alone
5. Frame pantry food as already belonging to the student/rightfully theirs (e.g., included in the tuition)
6. Emphasize actionable next steps
7. ~~Frame food pantry use as common, not just for "poor students" or “students in dire need”~~
8. ~~Include photos of pantry food (especially of name brand foods)~~
9. Emphasize students’ inclusivity and belonging on campus/at the pantry

Interview Protocol #3 for Pantry Staff: Influencing Factors

Influencing Factors Interview Consent Form

You're invited to be a part of a research study! Volunteering will not benefit you personally, but you will be helping us understand food challenges and how to improve the pantry on your campus and at other similar campuses. If you decide to participate, you'll converse with me for about 30 minutes about (1) how successful the marketing/outreach intervention was and (2) whether any potential outside factors may have impacted students' use of [PANTRY NAME]. This interview involves no more risk than what a typical person experiences on a regular day. Your participation is entirely up to you. You may choose to skip any interview question and conclude the interview at any time for any reason.

Study Leadership: This study is led by Kianna Valoa, a doctoral student at Claremont Graduate University, who is supervised by Dr. Gwen Garrison.

Purpose: The purpose of this study is to better understand how to help students learn about and receive support from campus food pantries at [SCHOOL NAME] and at other similar colleges, through the implementation of a marketing/outreach intervention. In addition to learning about what kinds of marketing/outreach strategies are effective, this study also examines why they are effective.

Eligibility: To be eligible to participate in this aspect of the study, you must be currently employed at [SCHOOL NAME] and at least 18 years old.

Participation: During this study, we will converse for about 30 minutes about (1) how successful the marketing/outreach intervention was and (2) whether any potential outside factors may have impacted students' use of [PANTRY NAME].

Risks of Participation: This interview involves no more risk than what a typical person experiences on a regular day.

Benefits of Participation: I do not expect the study to benefit you personally. This study will benefit me, the lead researcher and graduate student, by fulfilling the requirements for a PhD. This study is also intended to benefit college students generally by shedding light on how campuses can make food resources easier for students to know about and use.

Compensation: You will not be paid for participating in this study.

Voluntary Participation: Your participation in this study is completely voluntary. You may choose to skip any question and end the interview at any time for any reason without it being held against you. Your decision to participate or not (and the extent of your participation) will have no impact on your current or future relationship with anyone at [SCHOOL NAME] or at Claremont Graduate University.

Confidentiality: Your responses to the interview questions will be confidential, meaning that I will know what you said but will not disclose your identity to anyone else. Your individual privacy will be protected in all publications, media, and other communications resulting from this study. I may use the data for future research or share it with other researchers, but I will not reveal your identity with it. In order to protect the confidentiality of your responses, I will not mention the name of your campus, the name of the campus food pantry, your exact title, nor your name. Any

notes resulting from this interview will not have any of these details; instead, they will have pseudonyms. Any audio recordings from this interview will be reviewed within 24 hours and then deleted. All notes and audio recordings will be stored on a password-protected, personal laptop until they are deleted.

Additional Information: If you have any questions, would like more information, or would like a copy of this form, please contact Kianna Valoa at [PHONE NUMBER 1] and kianna.valoa@cgu.edu. You may also contact Dr. Gwen Garrison, CGU Faculty Supervisor, at [PHONE NUMBER 2] and [CAMPUS-AFFILIATED EMAIL 2]. The CGU Institutional Review Board has approved this study (IRB ID# 4326). If you have any ethical concerns about this project or your rights as a human subject in research, you may contact the CGU Institutional Review Board at (909) 607-9406 or irb@cgu.edu.

By providing your signature below, you confirm that you understand the information above, your questions about this study have been answered, and you voluntarily choose to participate in it.

Signature of Participant: _____ Date: _____
Printed Name of Participant: _____

The undersigned researcher has reviewed the information in this consent form with the participant and answered any of his or her questions about the study.

Signature of Researcher: _____ Date: _____
Printed Name of Researcher: _____

Influencing Factors Interview Questions

I'd like to record what you say so that I don't miss any of it. I don't want to just rely on my notes and accidentally miss something you said. **Would it be alright if I recorded this conversation?**

Here is a summary of how the number of pantry visitors changed over the duration of the study… *(I will share the data visualizations, which include key semester events like finals week and key study events, like when the intervention was sent out, and provide a verbal explanation of the findings.)*

Is there anything that you think occurred on campus that might have impacted the number of pantry visitors over the duration of the study?
Prompts if response is limited:

- How might it have impacted the number of pantry visitors?
    - Increase or decrease in the total number of visitors
    - Increase or decrease in the number of unique visitors
    - Changes in the type of student who visits
- When might it have impacted the number of pantry visitors (which weeks)?

Is there anything that you think occurred off campus that might have impacted the number of pantry visitors over the duration of the study?
Prompts if response is limited:

- How might it have impacted the number of pantry visitors?
    - Increase or decrease in the total number of visitors
    - Increase or decrease in the number of unique visitors
    - Changes in the type of student who visits
- When might it have impacted the number of pantry visitors (which weeks)?

(If talking to staff from the intervention campus) During a previous discussion, you described an intervention that is a total success as _____. You also described an intervention that is a partial success as _____. **Looking at how the number of pantry visitors changed over the duration of the study, would you consider the intervention a success, a partial success, or not successful at all? Why?**

Is there anything else that you'd like to share?

May I email you if I have questions about what you shared today? If there's anything else that you want to add later, you can always reach out to me.

Appendix E

Pantry Observation Checklist

(Observe the pantry for at least 1 hour. This will provide me with additional data to make sense of the responses to the pantry staff survey and the pre- and post-test student surveys.)

Hours

- Is the pantry open when it says it would be open?
- Are the hours posted? If so, where? How clearly are the hours posted?

Location

- How close is the pantry to the nearest bus stop (in miles)?
- How close is the pantry to the nearest student parking lot (in miles)?
- How private/hidden is the pantry? How public/unhidden is the pantry?

Appearance

- What does the pantry look like from the outside?
- How organized does the pantry feel?
- To what extent is the pantry decorated? How is it decorated?
- How stocked are the pantry shelves? Does the pantry feel empty or full?

Process

- How many minutes does a visitor stay at the pantry (if there were visitors)?
- What does the enrollment process look like, if any?*
- What does the check-in process look like, if any?*

Food

- What different kinds of food are available?

- How fresh or expired is each kind of food?

- How much of each kind of food is a recognizable name brand (to me)?

- How much food can a visitor receive within a specific timeframe (e.g., visit, week, month)? What kinds of food?

Visitors

- How many visitors came by?

Organization & Employees

- How many of the employees were students? How many were campus staff?
    - If they were student volunteers, how long did they stay?

- How friendly did the pantry staff seem?

- How helpful did the pantry staff seem?

Marketing & Outreach

- What do the flyers/posters advertising the pantry look like (if any)?

Outcomes

- How consistently were students asked to swipe their Student ID cards or sign in?

- How many people visited the pantry while I was there?

*Redundant with staff interview

Appendix F

Pretest and Post-Test Student Surveys

Pretest Student Survey

Pretest Student Survey Structure

Standard: Introduction & Consent Question (3 Questions)

Branch: New Branch
If
If Have you visited the campus this semester? No Is Selected

EndSurvey: Advanced

Branch: New Branch
If
If By selecting "I agree," you confirm that you understand the information above, your questions abo... I do not agree. Is Selected

EndSurvey: Advanced

Block: Knowledge of Pantry (3 Questions)
Standard: Self-Reported Pantry Use (4 Questions)
Standard: Perceptions of Stigma: Food Insecurity, Pantry Use, and Who the Pantry Serves (2 Questions)
Standard: Perceptions of Stigma: Food Insecurity, Pantry Use, and Who the Pantry Serves (1 Question)
Standard: Willingness to Use Pantry (1 Question)
Standard: Measuring Food Insecurity (10 Questions)
Standard: Background & Demographics (16 Questions**)**

Pretest Student Survey Questions

Start of Block: Introduction & Consent Question

QA
Food Challenges & Campus Resources Survey #1
October 2024

You're invited to be a part of a research study! Volunteering will not benefit you personally, but you will be helping us understand food challenges and how to improve resources on your campus and at other similar campuses. If you decide to participate, you'll answer a survey that will take no more than 8 minutes. Participating may cause psychological discomfort because a few questions ask about your experiences with food challenges. Your participation is entirely up to you. You may choose to skip any question and leave the survey at any time for any reason.

Study Leadership: This study is led by Kianna Valoa, a doctoral student at Claremont Graduate University, who is supervised by Dr. Gwen Garrison.

Purpose: The purpose of this study is to better understand food challenges and how to improve food resources on your campus and at other similar campuses.

Eligibility: To be eligible to participate in this study, you must be currently enrolled at [CAMPUS NAME] and be at least 18 years old.

Participation: During the study, you will be asked to answer a survey that will take no more than 8 minutes.

Risks of Participation: The risks that you run by taking part in this study are greater than minimal. Specifically, you may experience psychological discomfort because a few questions ask about your experiences with food challenges.

Benefits of Participation: I don’t expect the study to benefit you personally. This study will benefit me, the lead researcher and graduate student, by fulfilling the requirements for a PhD. This study is also intended to benefit college students generally by shedding light on how campuses can make food resources easier for students to know about and use.

Compensation: You will not be paid for participating in this study. However, at the end of the survey you’ll be invited to enter a random drawing for 1 of 5 $35 Amazon e-gift cards. Participation in the study is not required to enter the drawing. To enter the drawing without participating, you can select “I do not agree” below to receive a link to a short, separate form where you can provide your school email (so that I can contact you if you win).

Voluntary Participation: Your participation in this study is completely voluntary. You may stop or withdraw from the study at any time without it being held against you. Your decision to participate or not

will have no impact on your current or future connection with anyone at Claremont Graduate University or [CAMPUS NAME].

Confidentiality: This survey is anonymous, meaning we won't know who provided responses and who did not. Also, we won't passively collect any information about your device. If you choose to participate in the study and then enter the random drawing, you'll fill out a short, separate online form which asks for your school email so that I can contact you if you win. Your email will only be used for the random drawing. It will not be shared with anyone else and will only be accessible by me on a website called Qualtrics (which requires login credentials to access the form answers). Immediately after doing the drawing and notifying the winners, I will delete the emails. If you enter the random drawing, I won't know whether or not you participated in the study. If you both participate in the study and enter the random drawing, I won't be able to connect your survey responses to your email address.

Additional Information: If you have any questions, would like more information, or would like a copy of this form, please contact Kianna Valoa at [PHONE NUMBER 1] and [CAMPUS-AFFILIATED EMAIL 1]. You may also contact Dr. Gwen Garrison, CGU Faculty Supervisor, at [PHONE NUMBER 2] and [CAMPUS-AFFILIATED EMAIL 2]. The CGU Institutional Review Board has approved this study (IRB ID# 4326). If you have any ethical concerns about this project or your rights as a human subject in research, you may contact the CGU Institutional Review Board at (909) 607-9406 or irb@cgu.edu.

Q0 By selecting "I agree," you confirm that you understand the information above, your questions about this study have been answered, and you voluntarily choose to participate in it.

- ○ I agree.
- ○ I do not agree.

Q1 Have you visited the campus this semester?

- ○ Yes
- ○ No

End of Block: Introduction & Consent Question

Start of Block: Knowledge of Pantry

QB **Food Resources on Campus** *First, please help us understand how good or bad of a job the campus is doing at advertising their food resources.*

Q2 To the best of your knowledge, are the following food resources available on your campus?

	Yes	No	Not sure
CalFresh application help	○	○	○
Food pantry	○	○	○
Free farmer's market	○	○	○
Free emergency meals	○	○	○

Display this question:

If Q2 = Food pantry [Yes]

Q3 *Okay, so you've heard about the food pantry on campus. Now we'd like to know how well the campus is sharing the details about their pantry.*

Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree
I know where the pantry is located.	○	○	○	○
I know when the pantry is open.	○	○	○	○
I know whether I am eligible to use the pantry.	○	○	○	○
I know what kinds of food the pantry offers.	○	○	○	○
I know how much food I can pick up if I visited the pantry.	○	○	○	○

End of Block: Knowledge of Pantry

Start of Block: Self-Reported Pantry Use

Display this question:

If Q2 = Food pantry [Yes]

Q5 Have you ever visited the campus food pantry?

- Yes
- No
- Not sure

Display this question:

If Q5 = Yes

Q6 How often have you visited the campus pantry this semester?

- I haven't visited the pantry this semester.
- 1-3 times
- 4-6 times
- 7-9 times
- 10-12 times
- More than 12 times
- Not sure

Display this question:

If Q6 = 1-3 times

Or Q6 = 4-6 times

Or Q6 = 7-9 times

Or Q6 = 10-12 times

Or Q6 = More than 12 times

Q7 During your most recent visit to the pantry, were you asked to sign in using your student ID?

- Yes
- No
- Not sure

Display this question:

If Q6 = 1-3 times

Or Q6 = 4-6 times

Or Q6 = 7-9 times

Or Q6 = 10-12 times

Or Q6 = More than 12 times

Q8 Based on your most recent visit to the campus pantry, would you be willing to visit it again?

- Yes
- No
- Not sure

End of Block: Self-Reported Pantry Use

Start of Block: Perceptions of Stigma: Food Insecurity, Pantry Use, and Who the Pantry Serves

QD **Views on Campus Pantries & Food Challenges** *Different people have different views about campus food pantries and food challenges in general. What are your views?*

Q11 Set 1 of 3: Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree	Not Sure
It is normal for students to visit the campus pantry.	○	○	○	○	○
Only the neediest students should visit the pantry.	○	○	○	○	○
Students often experience challenges getting enough food to eat.	○	○	○	○	○

End of Block: Perceptions of Stigma: Food Insecurity, Pantry Use, and Who the Pantry Serves

Start of Block: Perceptions of Stigma: Food Insecurity, Pantry Use, and Who the Pantry Serves

Q12 Set 2 of 3: Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree	Not Sure
Being hungry occasionally is a regular part of the college experience.	○	○	○	○	○
It is never okay to be a "starving student."	○	○	○	○	○
Students almost always have enough food to eat.	○	○	○	○	○

End of Block: Perceptions of Stigma: Food Insecurity, Pantry Use, and Who the Pantry Serves

Start of Block: Willingness to Use Pantry

Q13 Set 3 of 3: Please indicate your level of agreement with the following statements. Assuming that the campus pantry was open to all students whenever they needed it:

	Strongly Disagree	Disagree	Agree	Strongly Agree	Not Sure
If a friend shared that they were experiencing food challenges, I'd encourage them to visit the campus pantry.	○	○	○	○	○
If I was running low on groceries for the week, I'd visit the pantry.	○	○	○	○	○
If I didn't have anything to eat all day, I'd visit the pantry.	○	○	○	○	○

End of Block: Willingness to Use Pantry

Start of Block: Measuring Food Insecurity

QE **Food Challenges** *This next group of questions is about food challenges you may have experienced recently. Your answers will help us understand how many students would benefit from food resources and what kinds of resources would be the most helpful.*

Q14 Which kitchen appliances do you prefer to use? (Select all that apply)

- [ ] Electric kettle (water boiler)
- [ ] Freezer
- [ ] Microwave
- [ ] Oven or toaster oven
- [ ] Refrigerator
- [ ] Stovetop or electric skillet
- [ ] Other _____
- [ ] Not sure

Page Break

Display this question:

If Q14 = Refrigerator

Or Q14 = Stovetop or electric skillet

Or Q14 = Oven or toaster oven

Or Q14 = Microwave

Or Q14 = Electric kettle (water boiler)

Or Q14 = Other

Carry Forward Selected Choices - Entered Text from "Q14"

Q15 How often can you access these kitchen appliances?

	Never	Rarely	Sometimes	Always
Electric kettle (water boiler)	○	○	○	○
Freezer	○	○	○	○
Microwave	○	○	○	○
Oven or toaster oven	○	○	○	○
Refrigerator	○	○	○	○
Stovetop or electric skillet	○	○	○	○
Other	○	○	○	○
Not sure	○	○	○	○

Page Break

Q16 Do you share most of your meals with people living in your household (like family or roommates) or do you manage your own meals?

- ○ I share meals.
- ○ I manage my own meals.

Page Break

Display this question:

If Q16 = I manage my own meals.

Q17a Thinking back over the past 30 days, how true are these statements?

	Often true	Sometimes true	Never true
I worried whether my food would run out before I got money to buy more.	○	○	○
The food that I bought just didn't last, and I didn't have money to get more.	○	○	○
I couldn't afford to eat balanced meals.	○	○	○

Display this question:

If Q17a = I worried whether my food would run out before I got money to buy more. [Often true]

Or Q17a = I worried whether my food would run out before I got money to buy more. [Sometimes true]

Or Q17a = The food that I bought just didn't last, and I didn't have money to get more. [Often true]

Or Q17a = The food that I bought just didn't last, and I didn't have money to get more. [Sometimes true]

Or Q17a = I couldn't afford to eat balanced meals. [Often true]

Or Q17a = I couldn't afford to eat balanced meals. [Sometimes true]

Q18a Thinking back over the past 30 days, please answer the following questions.

	Yes	No	Not sure
Did you ever cut the size of your meals or skip meals because there wasn't enough money for food?	○	○	○
Did you ever eat less than you felt you should because there wasn't enough money for food?	○	○	○
Were you ever hungry but didn't eat because there wasn't enough money for food?	○	○	○
Did you lose weight because there wasn't enough money for food?	○	○	○

Display this question:

If Q18a = Did you ever cut the size of your meals or skip meals because there wasn't enough money for food? [Yes]

Or Q18a = Did you ever eat less than you felt you should because there wasn't enough money for food? [Yes]

Or Q18a = Were you ever hungry but didn't eat because there wasn't enough money for food? [Yes]

Or Q18a = Did you lose weight because there wasn't enough money for food? [Yes]

Q19a Thinking back over the past 30 days, please answer the following question:

	Yes	No	Not sure
Did you ever not eat for a whole day because there wasn't enough money for food?	○	○	○

Display this question:

If Q16 = I share meals.

Q17b Thinking back over the past 30 days, how true are these statements?

	Often true	Sometimes true	Never true
We worried whether our food would run out before we got money to buy more.	○	○	○
The food that we bought just didn't last, and we didn't have money to get more.	○	○	○
I couldn't eat balanced meals because we couldn't afford it.	○	○	○

Page Break

Display this question:

If Q17b = We worried whether our food would run out before we got money to buy more. [Often true]

Or Q17b = We worried whether our food would run out before we got money to buy more. [Sometimes true]

Or Q17b = The food that we bought just didn't last, and we didn't have money to get more. [Often true]

Or Q17b = The food that we bought just didn't last, and we didn't have money to get more. [Sometimes true]

Or Q17b = I couldn't eat balanced meals because we couldn't afford it. [Often true]

Or Q17b = I couldn't eat balanced meals because we couldn't afford it. [Sometimes true]

Q18b Thinking back over the past 30 days, please answer the following questions.

	Yes	No	Not sure
Did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?	○	○	○
Did you or other adults in your household ever eat less than you felt you should because there wasn't enough money for food?	○	○	○
Were you or other adults in your household ever hungry but didn't eat because there wasn't enough money for food?	○	○	○
Did you or other adults in your household lose weight because there wasn't enough money for food?	○	○	○

Display this question:

If Q18b = Did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food? [Yes]

Or Q18b = Did you or other adults in your household ever eat less than you felt you should because there wasn't enough money for food? [Yes]

Or Q18b = Were you or other adults in your household ever hungry but didn't eat because there wasn't enough money for food? [Yes]

Or Q18b = Did you or other adults in your household lose weight because there wasn't enough money for food? [Yes]

Q19b Thinking back over the past 30 days, please answer the following question:

	Yes	No	Not sure
Did you or other adults in your household ever not eat for a whole day because there wasn't enough money for food?	○	○	○

End of Block: Measuring Food Insecurity

Start of Block: Background & Demographics

QF ***Background & Demographics*** *Almost done! It may not seem fancy, but knowing a little about your background and demographics is really important because it helps us analyze all of your other answers.*

Q20 Are you currently an undergraduate or a graduate student?

- ○ Undergraduate student
- ○ Graduate student
- ○ Not currently enrolled
- ○ Prefer not to answer

Display this question:

If Q20 = Undergraduate student

Or Q20 = Graduate student

Q21 What is your enrollment status?

- ○ Part-time (taking less than 12 units this semester)
- ○ Full-time (taking 12 or more units this semester)
- ○ Prefer not to answer

Q22 Are you currently employed?

- ○ Yes
- ○ No
- ○ Prefer not to answer

Page Break

Display this question:

If Q22 = Yes

Q23 About how many hours do you work per week?

- 1-9
- 10-19
- 20-29
- 30-39
- 40 or more
- It varies
- Prefer not to answer

Q24 Are you currently looking for work (or for additional work)?

- Yes
- No
- Prefer not to answer

Page Break

Q25 Do you identify as Hispanic or Latino?

- ○ Hispanic or Latino origin
- ○ Not Hispanic or Latino origin
- ○ Prefer not to answer

Q26 Check all of the ethnicity, nation, and ancestry groups that you identify with.

- ☐ Asian
- ☐ American Indian or Alaskan Native
- ☐ Black or African American
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ White
- ☐ Other
- ☐ Prefer not to answer

Page Break

Q27 What is your age?

- Younger than 18
- 18 to 20
- 21 to 25
- 26 to 30
- Older than 30
- Prefer not to answer

Q28 How do you describe your gender identity/expression?

- Male
- Female
- Non-binary
- Prefer not to answer

Page Break

Q29 Which of the following student groups apply to you? (Select all that apply)

- [ ] Student with disabilities
- [ ] Current / former foster youth
- [ ] International student
- [ ] Out-of-state student
- [ ] Served in the military
- [ ] DREAM / DACA student
- [ ] Student parent
- [ ] Prefer not to answer

Q30 Did you file a Free Application for Federal Student Aid (FAFSA) or California Dream Act Application (CADAA) for this current 2022-2023 academic year?

- ○ Yes
- ○ No
- ○ Not sure

Display this question:

If Q30 = Yes

Q31 Are you currently a Pell grant recipient?

- ○ Yes
- ○ No
- ○ Not sure

Display this question:

If Q30 = Yes

Q32 Are you currently a California College Promise Grant (CCC fee waiver) recipient, meaning you didn't have to pay for tuition this semester?

- ○ Yes
- ○ No
- ○ Not sure

Page Break

Q33 *Housing challenges refer to not having stable or reliable housing. Examples include briefly living on the street, in your car, in motels, at campgrounds, at single-occupancy facilities, or temporarily couch surfing at other people's homes in the evenings.*

This semester, would you say you've experienced housing challenges?

- ○ Yes
- ○ No
- ○ Not sure

Q34 *Here's the last demographic question!*

Which of the following other food resources have you used this semester?

- ☐ CalFresh (SNAP) program
- ☐ WIC program
- ☐ Off-campus food pantry
- ☐ Other _____
- ☐ None of the above

End of Block: Background & Demographics

Post-Test Student Survey

Post-Test Student Survey Structure

Standard: Introduction & Consent Question (3 Questions)

Branch: New Branch
If
If Have you visited the campus this semester? No Is Selected

EndSurvey: Advanced

Branch: New Branch
If
If By selecting "I agree," you confirm that you understand the information above, your questions abo... I do not agree. Is Selected

EndSurvey: Advanced

Block: Knowledge of Pantry (5 Questions)
Standard: Self-Reported Pantry Use (3 Questions)
Standard: Perceptions of Pantry Design (Structural Barriers) (5 Questions)
Standard: Perceptions of Stigma: Food Insecurity, Pantry Use, and Who the Pantry Serves (2 Questions)
Standard: Perceptions of Stigma: Food Insecurity, Pantry Use, and Who the Pantry Serves (1 Question)
Standard: Willingness to Use Pantry (1 Question)
Standard: Measuring Food Insecurity (8 Questions)
Standard: Background & Demographics (15 Questions)
Standard: Open-Ended Questions (3 Questions)

Post-Test Student Survey Questions

Start of Block: Introduction & Consent Question

QA
Food Challenges & Campus Resources Survey #2
December 2024

You're invited to be a part of a research study! Volunteering will not benefit you personally, but you will be helping us understand food challenges and how to improve resources on your campus and at other similar campuses. If you decide to participate, you'll answer a survey that will take no more than 10 minutes. Participating may cause psychological discomfort because a few questions ask about your experiences with food challenges. Your participation is entirely up to you. You may choose to skip any question and leave the survey at any time for any reason.

If this looks familiar because you've seen or filled out a similar survey last month, that's totally okay! You are welcome to fill out this new survey!

Study Leadership: This study is led by Kianna Valoa, a doctoral student at Claremont Graduate University, who is supervised by Dr. Gwen Garrison.

Purpose: The purpose of this study is to better understand food challenges and how to improve food resources on your campus and at other similar campuses.

Eligibility: To be eligible to participate in this study, you must be currently enrolled at [CAMPUS NAME] and be at least 18 years old.

Participation: During the study, you will be asked to answer a survey that will take no more than 10 minutes.

Risks of Participation: The risks that you run by taking part in this study are greater than minimal. Specifically, you may experience psychological discomfort because a few questions ask about your experiences with food challenges.

Benefits of Participation: I don’t expect the study to benefit you personally. This study will benefit me, the lead researcher and graduate student, by fulfilling the requirements for a PhD. This study is also intended to benefit college students generally by shedding light on how campuses can make food resources easier for students to know about and use.

Compensation: You will not be paid for participating in this study. However, at the end of the survey you’ll be invited to enter a random drawing for 1 of 5 $35 Amazon e-gift cards. Participation in the study is not required to enter the drawing. To enter the drawing without participating, you can select “I do not agree” below to receive a link to a short, separate form where you can provide your school email (so that I can contact you if you win).

Voluntary Participation: Your participation in this study is completely voluntary. You may stop or withdraw from the study at any time without it being held against you. Your decision to participate or not

will have no impact on your current or future connection with anyone at Claremont Graduate University or [CAMPUS NAME].

Confidentiality: This survey is anonymous, meaning we won't know who provided responses and who did not. Also, we won't passively collect any information about your device. If you choose to participate in the study and then enter the random drawing, you'll fill out a short, separate online form which asks for your school email so that I can contact you if you win. Your email will only be used for the random drawing. It will not be shared with anyone else and will only be accessible by me on a website called Qualtrics (which requires login credentials to access the form answers). Immediately after doing the drawing and notifying the winners, I will delete the emails. If you enter the random drawing, I won't know whether or not you participated in the study. If you both participate in the study and enter the random drawing, I won't be able to connect your survey responses to your email address.

Additional Information: If you have any questions, would like more information, or would like a copy of this form, please contact Kianna Valoa at [PHONE NUMBER 1] and [CAMPUS-AFFILIATED EMAIL 1]. You may also contact Dr. Gwen Garrison, CGU Faculty Supervisor, at [PHONE NUMBER 2] and [CAMPUS-AFFILIATED EMAIL 2]. The CGU Institutional Review Board has approved this study (IRB ID# 4326). If you have any ethical concerns about this project or your rights as a human subject in research, you may contact the CGU Institutional Review Board at (909) 607-9406 or irb@cgu.edu.

Q0 By selecting "I agree," you confirm that you understand the information above, your questions about this study have been answered, and you voluntarily choose to participate in it.

- ○ I agree.
- ○ I do not agree.

Q1 Have you visited the campus this semester?

- ○ Yes
- ○ No

End of Block: Introduction & Consent Question

Start of Block: Knowledge of Pantry

QB **Food Resources on Campus** *First, please help us understand how good or bad of a job the campus is doing at advertising their food resources.*

Q2 To the best of your knowledge, are the following food resources available on your campus?

	Yes	No	Not sure
CalFresh application help	○	○	○
Food pantry	○	○	○
Free farmer's market	○	○	○
Free emergency meals	○	○	○

Display this question:

If Q2 = Food pantry [Yes]

Q3 *Okay, so you've heard about the food pantry on campus. Now we'd like to know how well the campus is sharing the details about their pantry.*

Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree
I know where the pantry is located.	○	○	○	○
I know when the pantry is open.	○	○	○	○
I know whether I am eligible to use the pantry.	○	○	○	○
I know what kinds of food the pantry offers.	○	○	○	○
I know how much food I can pick up if I visited the pantry.	○	○	○	○

Page Break

Display this question:

If Q2 = Food pantry [Yes]

Q4a To your knowledge, have you received a postcard in the mail over the past few weeks inviting you to visit the campus pantry?

- ○ Yes
- ○ No
- ○ Not sure

Display this question:

If Q4a = Yes

Q4b Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree	Not sure
The postcard included everything I needed to know to visit the pantry.	○	○	○	○	○
The postcard made me feel more comfortable visiting the pantry.	○	○	○	○	○

End of Block: Knowledge of Pantry

Start of Block: Self-Reported Pantry Use

Display this question:

If Q2 = Food pantry [Yes]

Q5 Have you ever visited the campus food pantry?

- ○ Yes
- ○ No
- ○ Not sure

Display this question:

If Q5 = Yes

Q6 How often have you visited the campus pantry this semester?

- ○ I haven't visited the pantry this semester.
- ○ 1-3 times
- ○ 4-6 times
- ○ 7-9 times
- ○ 10-12 times
- ○ More than 12 times
- ○ Not sure

Display this question:

If Q6 = 1-3 times

Or Q6 = 4-6 times

Or Q6 = 7-9 times

Or Q6 = 10-12 times

Or Q6 = More than 12 times

Q7 During your most recent visit to the pantry, were you asked to sign in using your student ID?

- ○ Yes
- ○ No
- ○ Not sure

End of Block: Self-Reported Pantry Use

Start of Block: Perceptions of Pantry Design (Structural Barriers)

Display this question:

If Q2 = Food pantry [Yes]

QC **Campus Pantry Design** *The next few questions are about how the pantry is designed—such as its location, appearance, hours, and food—so that we can learn about ways to improve it.*

Display this question:

If Q2 = Food pantry [Yes]

Q9a Set 1 of 3: Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree	Not Applicable
The pantry is easy to get to.	○	○	○	○	○
The pantry is in a sufficiently private location.	○	○	○	○	○
The pantry's hours are clear.	○	○	○	○	○
The pantry's hours work well with my schedule.	○	○	○	○	○

Display this question:

If Q2 = Food pantry [Yes]

Q9b Set 2 of 3: Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree	Not Applicable
The pantry is well organized.	○	○	○	○	○
The pantry is nicely decorated.	○	○	○	○	○
The pantry employees are helpful.	○	○	○	○	○
The pantry employees make me feel welcome.	○	○	○	○	○

Page Break

Display this question:

If Q2 = Food pantry [Yes]

Q9c Set 3 of 3: Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree	Not Applicable
The pantry is full of food with few bare shelves.	○	○	○	○	○
The food at the pantry is fresh and not expired.	○	○	○	○	○
The pantry offers the kinds of foods that I like to eat.	○	○	○	○	○
I get a satisfying amount of food each time I visit.	○	○	○	○	○

Page Break

Display this question:

If Q6 = 1-3 times

Or Q6 = 4-6 times

Or Q6 = 7-9 times

Or Q6 = 10-12 times

Or Q6 = More than 12 times

Q8 Based on your most recent visit to the campus pantry, would you be willing to visit it again?

- ○ Yes
- ○ No
- ○ Not sure

End of Block: Perceptions of Pantry Design (Structural Barriers)

Start of Block: Perceptions of Stigma: Food Insecurity, Pantry Use, and Who the Pantry Serves

QD **Views on Campus Pantries & Food Challenges** *Different people have different views about campus food pantries and food challenges in general. What are your views?*

Q11 Set 1 of 3: Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree	Not Sure
It is normal for students to visit the campus pantry.	○	○	○	○	○
Only the neediest students should visit the pantry.	○	○	○	○	○
Students often experience challenges getting enough food to eat.	○	○	○	○	○

End of Block: Perceptions of Stigma: Food Insecurity, Pantry Use, and Who the Pantry Serves

Start of Block: Perceptions of Stigma: Food Insecurity, Pantry Use, and Who the Pantry Serves

Q12 Set 2 of 3: Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree	Not Sure
Being hungry occasionally is a regular part of the college experience.	○	○	○	○	○
It is never okay to be a "starving student."	○	○	○	○	○
Students almost always have enough food to eat.	○	○	○	○	○

End of Block: Perceptions of Stigma: Food Insecurity, Pantry Use, and Who the Pantry Serves

Start of Block: Willingness to Use Pantry

Q13 Set 3 of 3: Please indicate your level of agreement with the following statements. Assuming that the campus pantry was open to all students whenever they needed it:

	Strongly Disagree	Disagree	Agree	Strongly Agree	Not Sure
If a friend shared that they were experiencing food challenges, I'd encourage them to visit the campus pantry.	○	○	○	○	○
If I was running low on groceries for the week, I'd visit the pantry.	○	○	○	○	○
If I didn't have anything to eat all day, I'd visit the pantry.	○	○	○	○	○

End of Block: Willingness to Use Pantry

Start of Block: Measuring Food Insecurity

QE **Food Challenges** *This next group of questions is about food challenges you may have experienced recently. Your answers will help us understand how many students would benefit from food resources and what kinds of resources would be the most helpful.*

Q16 Do you share most of your meals with people living in your household (like family or roommates) or do you manage your own meals?

- ○ I share meals.
- ○ I manage my own meals.

Display this question:

If Q16 = I manage my own meals.

Q17a Thinking back over the past 30 days, how true are these statements?

	Often true	Sometimes true	Never true
I worried whether my food would run out before I got money to buy more.	○	○	○
The food that I bought just didn't last, and I didn't have money to get more.	○	○	○
I couldn't afford to eat balanced meals.	○	○	○

Page Break

Display this question:

If Q17a = I worried whether my food would run out before I got money to buy more. [Often true]

Or Q17a = I worried whether my food would run out before I got money to buy more. [Sometimes true]

Or Q17a = The food that I bought just didn't last, and I didn't have money to get more. [Often true]

Or Q17a = The food that I bought just didn't last, and I didn't have money to get more. [Sometimes true]

Or Q17a = I couldn't afford to eat balanced meals. [Often true]

Or Q17a = I couldn't afford to eat balanced meals. [Sometimes true]

Q18a Thinking back over the past 30 days, please answer the following questions.

	Yes	No	Not sure
Did you ever cut the size of your meals or skip meals because there wasn't enough money for food?	○	○	○
Did you ever eat less than you felt you should because there wasn't enough money for food?	○	○	○
Were you ever hungry but didn't eat because there wasn't enough money for food?	○	○	○
Did you lose weight because there wasn't enough money for food?	○	○	○

Page Break

Display this question:

If Q18a = Did you ever cut the size of your meals or skip meals because there wasn't enough money for food? [Yes]

Or Q18a = Did you ever eat less than you felt you should because there wasn't enough money for food? [Yes]

Or Q18a = Were you ever hungry but didn't eat because there wasn't enough money for food? [Yes]

Or Q18a = Did you lose weight because there wasn't enough money for food? [Yes]

Q19a Thinking back over the past 30 days, please answer the following question:

	Yes	No	Not sure
Did you ever not eat for a whole day because there wasn't enough money for food?	○	○	○

Page Break

Display this question:

If Q16 = I share meals.

Q17b Thinking back over the past 30 days, how true are these statements?

	Often true	Sometimes true	Never true
We worried whether our food would run out before we got money to buy more.	○	○	○
The food that we bought just didn't last, and we didn't have money to get more.	○	○	○
I couldn't eat balanced meals because we couldn't afford it.	○	○	○

Display this question:

If Q17b = We worried whether our food would run out before we got money to buy more. [Often true]

Or Q17b = We worried whether our food would run out before we got money to buy more. [Sometimes true]

Or Q17b = The food that we bought just didn't last, and we didn't have money to get more. [Often true]

Or Q17b = The food that we bought just didn't last, and we didn't have money to get more. [Sometimes true]

Or Q17b = I couldn't eat balanced meals because we couldn't afford it. [Often true]

Or Q17b = I couldn't eat balanced meals because we couldn't afford it. [Sometimes true]

Q18b Thinking back over the past 30 days, please answer the following questions.

	Yes	No	Not sure
Did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?	○	○	○
Did you or other adults in your household ever eat less than you felt you should because there wasn't enough money for food?	○	○	○
Were you or other adults in your household ever hungry but didn't eat because there wasn't enough money for food?	○	○	○
Did you or other adults in your household lose weight because there wasn't enough money for food?	○	○	○

Display this question:

If Q18b = Did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food? [Yes]

Or Q18b = Did you or other adults in your household ever eat less than you felt you should because there wasn't enough money for food? [Yes]

Or Q18b = Were you or other adults in your household ever hungry but didn't eat because there wasn't enough money for food? [Yes]

Or Q18b = Did you or other adults in your household lose weight because there wasn't enough money for food? [Yes]

Q19b Thinking back over the past 30 days, please answer the following question:

	Yes	No	Not sure
Did you or other adults in your household ever not eat for a whole day because there wasn't enough money for food?	○	○	○

End of Block: Measuring Food Insecurity

Start of Block: Background & Demographics

QF ***Background & Demographics*** *Almost done! It may not seem fancy, but knowing a little about your background and demographics is really important because it helps us analyze all of your other answers.*

Q20 Are you currently an undergraduate or a graduate student?

- Undergraduate student
- Graduate student
- Not currently enrolled
- Prefer not to answer

Display this question:
If Q20 = Undergraduate student
Or Q20 = Graduate student

Q21 What is your enrollment status?

- Part-time (taking less than 12 units this semester)
- Full-time (taking 12 or more units per semester)
- Prefer not to answer

Q22 Are you currently employed?

- Yes
- No
- Prefer not to answer

Page Break

Display this question:

If Q22 = Yes

Q23 About how many hours do you work per week?

- 1-9
- 10-19
- 20-29
- 30-39
- 40 or more
- It varies
- Prefer not to answer

Q24 Are you currently looking for work (or for additional work)?

- Yes
- No
- Prefer not to answer

Page Break

Q25 Do you identify as Hispanic or Latino?

- Hispanic or Latino origin
- Not Hispanic or Latino origin
- Prefer not to answer

Q26 Check all of the ethnicity, nation, and ancestry groups that you identify with.

- [ ] Asian
- [ ] American Indian or Alaskan Native
- [ ] Black or African American
- [ ] Native Hawaiian or Other Pacific Islander
- [ ] White
- [ ] Other
- [ ] Prefer not to answer

Page Break

Q27 What is your age?

- ○ Younger than 18
- ○ 18 to 20
- ○ 21 to 25
- ○ 26 to 30
- ○ Older than 30
- ○ Prefer not to answer

Q28 How do you describe your gender identity/expression?

- ○ Male
- ○ Female
- ○ Non-binary
- ○ Prefer not to answer

Page Break

Q29 Which of the following student groups apply to you? Please select all that apply.

- ☐ Student with disabilities
- ☐ Current / former foster youth
- ☐ International student
- ☐ Out-of-state student
- ☐ Served in the military
- ☐ DREAM / DACA student
- ☐ Student parent
- ☐ Prefer not to answer

Q30 Did you file a Free Application for Federal Student Aid (FAFSA) or California Dream Act Application (CADAA) for this current 2022-2023 academic year?

- ○ Yes
- ○ No
- ○ Not sure

Display this question:

If Q30 = Yes

Q31 Are you currently a Pell grant recipient?

- Yes
- No
- Not sure

Q33 *Housing challenges refer to not having stable or reliable housing. Examples include briefly living on the street, in your car, in motels, at campgrounds, at single-occupancy facilities, or temporarily couch surfing at other people's homes in the evenings.*

This semester, would you say you've experienced housing challenges?

- Yes
- No
- Not sure

Q34 *Here's the last demographic question!*

ay? *These last two questions are totally optional, but your responses will be extremely helpful. As a* Which of the following other food resources have you used this semester?

- ☐ CalFresh (SNAP) program
- ☐ WIC program
- ☐ Off-campus food pantry
- ☐ Other _____
- ☐ None of the above

End of Block: Background & Demographics

Start of Block: Open-Ended Questions

Display this question:

If Q2 = Food pantry [Yes]

QG **What Do You Say?** *These last two questions are totally optional, but your responses will be extremely helpful. As a student at [CAMPUS NAME],* you are the expert on your campus's food pantry. *Your insights on what's working well and what could be improved will be reviewed with the Food Pantry Coordinator and shape the future of the ASI Food Pantry.*

Display this question:

If Q2 = Food pantry [Yes]

Q35 What are two ways that the food pantry is doing a good job?

_____

_____

_____

_____

_____

Display this question:

If Q2 = Food pantry [Yes]

Q36 What are two ways that the food pantry can be improved?

_____

_____

_____

_____

_____

End of Block: Open-Ended Questions

Appendix G

Pre- and Post-Test Survey Questions Organized by Construct

1. **Knowledge of the food pantry**
   Composite score note: higher scores indicate greater knowledge that the pantry exists, who is eligible, and how it works.
   a. Q2_2 (food pantry)

To the best of your knowledge, are the following food resources available on your campus?

	Yes	No	Not sure
CalFresh application help	○	○	○
Food pantry	○	○	○
Free farmer's market	○	○	○
Free emergency meals	○	○	○

   b. Q3_1, Q3_2, Q3_3, Q3_4, Q3_5

Okay, so you've heard about the food pantry on campus. Now we'd like to know how well the campus is sharing the details about their pantry.

Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree
I know where the pantry is located.	○	○	○	○
I know when the pantry is open.	○	○	○	○
I know whether I am eligible to use the pantry.	○	○	○	○
I know what kinds of food the pantry offers.	○	○	○	○
I know how much food I can pick up if I visited the pantry.	○	○	○	○

2. **Intervention**
   POST-TEST ONLY
   a. Q4a

To your knowledge, have you received a [TEXT/EMAIL/LETTER] over the past few weeks inviting you to visit the campus pantry?

○ Yes
○ No
○ Not sure

   b. Q4b_1, Q4b_2

Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree	Not sure
The [TEXT/EMAIL/LETTER] included everything I needed to know to visit the pantry.	○	○	○	○	○
The [TEXT/EMAIL/LETTER] made me feel more comfortable visiting the pantry.	○	○	○	○	○

3. **Self-reported usage of the campus food pantry**
   a. Q5

      Have you ever visited the campus food pantry?

      ○ Yes
      ○ No
      ○ Not sure

   b. Q6

      How often have you visited the campus pantry this semester?

      Click here to edit choices

      I haven't visited the pantry this semester.

4. **Perceptions of Pantry Design**
   POST-TEST ONLY
   a. Q9a_1, Q9a_2, Q9a_3, Q9a_4

      Set 1 of 3: Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree	Not Applicable
The pantry is easy to get to.	○	○	○	○	○
The pantry is in a sufficiently private location.	○	○	○	○	○
The pantry's hours are clear.	○	○	○	○	○
The pantry's hours work well with my schedule.	○	○	○	○	○

   b. Q9b_1, Q9b_2, Q9b_3, Q9b_4

Set 2 of 3: Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree	Not Applicable
The pantry is well organized.	○	○	○	○	○
The pantry is nicely decorated.	○	○	○	○	○
The pantry employees are helpful.	○	○	○	○	○
The pantry employees make me feel welcome.	○	○	○	○	○

c. Q9c_1, Q9c_2, Q9c_3, Q9c_4

Set 3 of 3: Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree	Not Applicable
The pantry is full of food with few bare shelves.	○	○	○	○	○
The food at the pantry is fresh and not expired.	○	○	○	○	○
The pantry offers the kinds of foods that I like to eat.	○	○	○	○	○
I get a satisfying amount of food each time I visit.	○	○	○	○	○

5. **Perceptions of the prevalence of food insecurity**
   Composite score note: higher scores indicate greater belief that food insecurity is prevalent.
   a. Q11_3: Students on my campus often experience challenges getting enough food to eat.
   b. Q12_3_Reverse: Students almost always have enough food to eat.
6. **Perceptions of who the food pantry is meant to serve**
   Composite score note: higher scores indicate greater belief that the campus food pantry is meant to be used by students.
   a. Q11_1: It is normal for students to visit the campus pantry.
   b. Q11_2_Reverse: Only the neediest students should visit the pantry.
7. **Perceptions of the normalcy and acceptability of food insecurity**
   Composite score note: higher scores indicate greater belief that hunger is a non-normal, unacceptable experience.
   a. Q12_1_Reverse: Being hungry occasionally is a regular part of the college experience.
   b. Q12_2: It is never okay to be a “starving student”.
8. **Willingness to use the campus food pantry**
   a. Q8

Based on your most recent visit to the campus pantry, would you be willing to visit it again?

- ○ Yes
- ○ No
- ○ ⊘ Not sure

b. Q13_1, Q13_2, Q13_3

Set 3 of 3: Please indicate your level of agreement with the following statements. Assuming that the campus pantry was open to all students whenever they needed it:

	Strongly Disagree	Disagree	Agree	Strongly Agree	⊘ Not Sure
If a friend shared that they were experiencing food challenges, I'd encourage them to visit the campus pantry.	○	○	○	○	○
If I was running low on groceries for the week, I'd visit the pantry.	○	○	○	○	○
If I didn't have anything to eat all day, I'd visit the pantry.	○	○	○	○	○

9. **Measuring Food Insecurity**
   a. Access to necessary appliances
   PRETEST ONLY
      i. Q14_1, Q14_2, Q14_3, Q14_4, Q14_5, Q14_6

Which kitchen appliances do you prefer to use? (Select all that apply)

- ☐ Refrigerator
- ☐ Stovetop or electric skillet
- ☐ Oven or toaster oven
- ☐ Microwave
- ☐ Electric kettle (water boiler)
- ☐ Other
- ☐ ⊘ Not sure

      ii. Q15_1, Q15_2, Q15_3, Q15_4, Q15_5, Q15_6

How often can you access these kitchen appliances?

	Never	Rarely	Sometimes	Always
↳ Refrigerator	○	○	○	○
↳ Stovetop or electric skillet	○	○	○	○
↳ Oven or toaster oven	○	○	○	○
↳ Microwave	○	○	○	○
↳ Electric kettle (water boiler)	○	○	○	○
↳ Other	○	○	○	○
↳ Not sure	○	○	○	○

b. Food insecurity status

i. Q16

Do you share most of your meals with people living in your household (like family or roommates) or do you manage your own meals?

○ I share meals.

○ I manage my own meals.

ii. Q17a

Thinking back over the past 30 days, how true are these statements?

	Often true	Sometimes true	Never true
I worried whether my food would run out before I got money to buy more.	○	○	○
The food that I bought just didn't last, and I didn't have money to get more.	○	○	○
I couldn't afford to eat balanced meals.	○	○	○

iii. Q18a

Thinking back over the past 30 days, please answer the following questions.

	Yes	No	⃠ Not sure
Did you ever cut the size of your meals or skip meals because there wasn't enough money for food?	○	○	○
Did you ever eat less than you felt you should because there wasn't enough money for food?	○	○	○
Were you ever hungry but didn't eat because there wasn't enough money for food?	○	○	○
Did you lose weight because there wasn't enough money for food?	○	○	○

iv. Q19a

Thinking back over the past 30 days, please answer the following question:

	Yes	No	Not sure
Did you ever not eat for a whole day because there wasn't enough money for food?	○	○	○

v. Q17b

Thinking back over the past 30 days, how true are these statements?

	Often true	Sometimes true	Never true
We worried whether our food would run out before we got money to buy more.	○	○	○
The food that we bought just didn't last, and we didn't have money to get more.	○	○	○
I couldn't eat balanced meals because we couldn't afford it.	○	○	○

vi. Q18b

Thinking back over the past 30 days, please answer the following questions.

	Yes	No	Not sure
Did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?	○	○	○
Did you or other adults in your household ever eat less than you felt you should because there wasn't enough money for food?	○	○	○
Were you or other adults in your household ever hungry but didn't eat because there wasn't enough money for food?	○	○	○

vii. Q19b

Thinking back over the past 30 days, please answer the following question:

	Yes	No	Not sure
Did you or other adults in your household ever not eat for a whole day because there wasn't enough money for food?	○	○	○

10. **Background & Demographics**
    a. Q20 – Q33

11. **Other**
    a. Q1 – Consent to Participate in Study

By selecting "I agree," you confirm that you understand the information above, your questions about this study have been answered, and you voluntarily choose to participate in it.

- ○ I agree.
- ○ I do not agree.

    b. Q7 - Accuracy of pantry visitor data

During your most recent visit to the pantry, were you asked to sign in using your student ID?

- ○ Yes
- ○ No
- ○ ⃠ Not sure

    c. Q34 – Other Food Resource Use

Here's the last demographic question!

Which of the following other food resources have you used this semester?

- ☐ CalFresh (SNAP) program
- ☐ WIC program
- ☐ Off-campus food pantry
- ☐ Other
- ☐ ⃠ None of the above

    d. Open Ended Questions
    POST-TEST ONLY
        i. Q35

What two aspects of the campus pantry are working well?

        ii. Q36

What are two ways that the campus pantry can be improved?

Appendix H

Student Survey Communications

Pretest Survey Email Pre-Notification

Subject Line: Upcoming Survey on Food Challenges & Resources
Email Content:

Good afternoon,

My name is [STAFF NAME] and I serve as the [STAFF POSITION].

I am excited to announce that [CAMPUS NAME] has partnered with doctoral student Kianna Valoa, at Claremont Graduate University to do a study on **food challenges and resources** (IRB #4326). In one week, you'll be invited to complete an online survey.

As a [CAMPUS NAME] student, you have valuable insights that can help us improve our campus. Keep an eye on your inbox and thanks in advance,

[STAFF NAME]
[STAFF POSITION]
[CAMPUS UNIT] | [CAMPUS NAME]

Pretest Survey Email Invitation

Subject Line: Invite to Complete Survey on Food Challenges & Resources
Email Content:

Good afternoon,

You are invited to take a survey! Your participation in this 8-minute anonymous survey will provide valuable insights on **food challenges and how to improve food resources** at [CAMPUS NAME]. We can only understand these issues with your help. To show our appreciation for your time, you can win one of five $35 Amazon gift cards!

The survey opens today and ends on October 16th. Here's the link: Food Challenges & Resources Survey [HYPERLINK]

This 1st survey is part of a multi-part study conducted by [CAMPUS NAME] in partnership with doctoral student Kianna Valoa at Claremont Graduate University. If you have any questions about this study, email us back at foodpantrymarketing@csus.edu.

Thank you for your time!

[STAFF NAME]
[STAFF POSITION]

[CAMPUS UNIT] | [CAMPUS NAME]

Pretest Survey Email Reminder

Subject Line: Last Chance to Complete the Food Challenges & Resources Survey!
Email Content:

Have you responded to the Food Challenges & Resources Survey [HYPERLINK] yet? To show our appreciation for your time, you can win one of five $35 Amazon gift cards!

The survey closes tonight at 11:00 PM.

Warmly,

[NAME OF SCHOOL STAFF]

Pretest Survey Gift Card Notification

Subject Line: RE: Invite to Complete Survey on Food Challenges & Resources
Email Content:

Hello [STUDENT NAME],

Thank you for completing the Food Challenges & Campus Resources Survey #1 this month. You were randomly selected as one of the survey raffle winners. Please see the following information below from our research partners:

> "Your $35.00 Amazon gift card is ready to claim - please use the following link. Please note that you will be prompted to sign into your existing Amazon account. If you do not have an Amazon account, you will need to create one.
>
> Once applied to your Amazon account, the entire amount will be added to your gift card balance. Your gift card balance can't be transferred to other accounts, used to buy other gift cards, or, except as required by law, redeemed for cash.
>
> If you experience any issues using your gift card, you can reference your gift card by providing the following information to Amazon Customer Service: Order Number: [#####]."

Let me know when you have successfully claimed your gift card and I will notify the research team to update their records - we appreciate your support with guiding the [PANTRY NAME] mission and vision.

[STAFF NAME]
[STAFF POSITION]
[CAMPUS UNIT] | [CAMPUS NAME]

Post-Test Survey Email Invitation

Email Invitation
Subject Line: Invite to Complete Survey #2 on Food Challenges & Resources – Another Chance!
Email Content:

Good afternoon,

You are invited to take a survey! Your participation in this 10-minute anonymous survey will provide valuable insights on **food challenges and how to improve food resources** at [CAMPUS NAME]. You could also win 1 of 5 $35 Amazon e-gift cards, just in time for the holidays, for completing this survey by Thursday, December 5th!

> If this looks familiar because you've seen or filled out a similar survey last month, that's totally okay! You are welcome to fill out this new survey. Click here to take the survey: [HYPERLINK]

This 2nd survey is the last part of a study conducted by [CAMPUS NAME] in partnership with doctoral student Kianna Valoa at Claremont Graduate University. If you have any questions about this study, email us back at foodpantrymarketing@csus.edu.

Thank you for your time!

[STAFF NAME]
[STAFF POSITION]
[CAMPUS UNIT] | [CAMPUS NAME]

Post-Test Survey Email Reminder #1

Date: December 2, 2024 & December 4, 2024
Subject Line: Reminder to Complete Survey #2 on Food Challenges & Resources
Email Content:

Dear [STUDENT NAME],

Have you responded to the second Food Challenges & Resources Survey [HYPERLINK] yet? We want to hear from you! To show our appreciation for your time, you can win one of five $35 Amazon gift cards just in time for the holidays!

Don’t wait too long though! The survey closes next Monday, December 9th at 11:00 PM.
Appreciatively,

[STAFF NAME]
[STAFF POSITION]
[CAMPUS UNIT] | [CAMPUS NAME]

Post-Test Survey Email Reminder #2

Date: December 2, 2024
Subject Line: RE: Reminder to Complete Survey #2 on Food Challenges & Resources
Email Content:

We're close to having enough responses, but we aren't quite there yet - looking for just 10 more students to respond!

We've extended the deadline until Saturday, December 14th, at 11:00am. Food Challenges & Resources Survey [HYPERLINK]

[STAFF NAME]
[STAFF POSITION]
[CAMPUS UNIT] | [CAMPUS NAME]

Appendix I

Respondent Demographics

Demographics by Student Group: Counts and Percents

Question / Answer option	Pretest				Post-test					
	Full Intervention		Control		Partial Intervention		Full Intervention		Control	
	n	Valid %	n	Valid %	n	Valid %	n	Valid %	n	Valid %
Q20 Degree program										
Undergraduate	124	83%	152	88%	214	85%	106	83%	126	88%
Graduate	26	17%	20	12%	38	15%	22	17%	17	12%
Q21 Enrollment										
Less than 12 units	17	12%	22	13%	43	17%	12	10%	21	15%
12 or more units	129	88%	150	87%	205	83%	112	90%	120	85%
Q22 Currently employed										
Yes	82	58%	93	55%	155	64%	69	56%	81	60%
No	60	42%	75	45%	86	36%	55	44%	53	40%
Q23 Hours worked per week										
1–9	5	6%	9	10%	15	10%	7	11%	10	13%
10–19	31	40%	37	42%	63	43%	23	35%	28	37%
20–29	25	32%	23	26%	35	24%	15	23%	23	30%
30–39	8	10%	6	7%	14	10%	12	19%	7	9%
40+	9	12%	14	16%	18	12%	8	12%	8	11%
Q24 Looking for work/more work										
Yes	74	53%	90	55%	134	57%	54	48%	71	54%
No	66	47%	75	46%	102	43%	58	52%	61	46%
Q27 Age range										
18–20	50	35%	52	33%	65	29%	35	29%	44	32%
21–25	47	33%	60	38%	113	50%	47	39%	56	41%
26–30	18	13%	30	19%	19	8%	18	15%	21	15%
31+	27	19%	17	11%	20	13%	20	17%	17	12%

Q28 Gender identity										
Male	34	23%	38	22%	56	23%	29	23%	34	24%
Female	108	73%	122	72%	177	73%	92	73%	100	71%
Non-binary	6	4%	10	6%	10	4%	5	4%	6	4%
Q29_1 Students with disabilities										
Not selected	62	74%	64	74%	86	72%	43	69%	41	73%
Selected	22	26%	23	26%	34	28%	19	31%	15	27%
Q29_2 Current/former foster youth										
Not selected	81	96%	85	98%	114	95%	60	97%	53	95%
Selected	3	4%	2	2%	6	5%	2	3%	3	5%
Q29_3 International student										
Not selected	76	91%	78	90%	108	90%	58	94%	50	89%
Selected	8	10%	9	10%	12	10%	4	7%	6	11%
Q29_4 Out-of-state student										
Not selected	83	99%	87	100%	117	98%	61	98%	56	100%
Selected	1	1%	0		3	3%	1	2%	0	0%
Q29_5 Served in the military										
Not selected	79	94%	85	98%	118	98%	60	97%	55	98%
Selected	5	6%	2	2%	2	2%	2	3%	1	2%
Q29_6 DREAM / DACA student										
Not selected	77	92%	83	85%	118	98%	59	95%	50	89%
Selected	7	8%	4	15%	2	2%	3	5%	6	11%
Q29_7 Student parent										
Not selected	68	81%	74	85%	101	84%	54	87%	50	89%
Selected	16	19%	13	15%	19	16%	8	13%	6	11%
Q30 File FAFSA / CADAA										
Yes	124	72%	146	87%	208	86%	103	82%	120	85%
No	19	11%	21	13%	33	14%	22	18%	21	15%
Q31 Pell Grant recipient										
Yes	63	62%	73	58%	106	62%	61	66%	62	60%
No	39	38%	53	42%	66	38%	31	34%	41	40%

Q33 Housing challenges										
Yes	21	15%	34	21%	34	14%	26	21%	22	16%
No	121	85%	127	79%	204	86%	97	79%	117	84%
Q34_1 CalFresh (SNAP) program										
Not selected	114	78%	124	74%	181	74%	87	76%	107	76%
Selected	33	22%	43	26%	63	26%	28	24%	33	24%
Q34_2 WIC program										
Not selected	138	94%	159	95%	235	96%	111	97%	137	98%
Selected	9	6%	8	5%	9	4%	4	4%	3	2%
Q34_3 Off-campus food pantry										
Not selected	137	93%	156	93%	216	89%	104	90%	130	93%
Selected	10	7%	11	7%	28	12%	11	10%	10	7%
Q34_4 Other food resource										
Not selected	142	97%	162	97%	240	98%	114	99%	136	97%
Selected	5	3%	5	3%	4	2%	1	1%	4	3%
Q34_5 None of above resources										
Not selected	47	32%	55	33%	82	34%	36	31%	42	30%
Selected	100	68%	112	67%	162	66%	79	69%	98	70%
Q16–Q19 Food Insecurity Status										
Food secure	65	46%	63	39%	100	41%	61	49%	61	44%
Food insecure	78	55%	99	61%	142	59%	63	51%	77	56%
Q25 Hispanic or Latino origin										
Yes	62	45%	66	41%	83	36%	48	39%	55	43%
No	75	55%	97	60%	146	64%	74	61%	74	57%
Q26 Ethnicities										
Asian only	28	24%	35	24%	65	30%	35	33%	30	26%
American Indian or Alaskan Native only	2	2%	0	0%	3	1%	0	0%	3	3%
Black or African American only	11	10%	6	4%	15	7%	7	7%	4	4%
White only	39	34%	53	37%	72	34%	38	36%	35	30%
Other only	15	13%	22	15%	23	11%	16	15%	14	12%
Two or more ethnicities	20	17%	29	20%	36	17%	10	9%	29	25%

Demographics by Student Group: Means

Question Answer option (answer value)	Pretest				Post-test					
	Full Intervention		Control		Partial Intervention		Full Intervention		Control	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Q20 Degree program Undergraduate (1) Graduate (2)	1.17	0.38	1.12	0.32	1.15	0.36	1.17	0.38	1.12	0.33
Q21 Enrollment Less than 12 units (1) 12 or more units (2)	1.88	0.32	1.87	0.36	1.83	0.38	1.90	0.30	1.85	0.36
Q22 Currently employed Yes (1) No (2)	1.42	0.50	1.45	0.50	1.36	0.48	1.44	0.50	1.4	0.49
Q23 Hours worked per week 1–9 (1) 10–19 (2) 20–29 (3) 30–39 (4) 40+ (5)	2.81	1.09	2.76	1.22	2.70	1.17	2.86	1.21	2.67	1.15
Q24 Looking for work/more work Yes (1) No (2)	1.47	0.50	1.45	0.50	1.43	0.50	1.52	0.50	0.5	0.50
Q27 Age range 18–20 (1) 21–25 (2) 26–30 (3) 31+ (4)	2.15	1.11	2.08	0.97	2.06	0.95	2.19	1.04	2.08	0.98

Q28 Gender identity										
Male (1) Female (2) Non-binary (3)	1.81	0.49	1.84	0.51	1.81	0.49	1.81	0.49	1.8	0.50
29_1 Students with disabilities										
Not selected (0) Selected (1)	0.26	0.44	0.26	0.440	0.28	0.45	0.31	0.47	0.27	0.45
29_2 Current/former foster youth										
Not selected (0) Selected (1)	0.04	0.19	0.02	0.15	0.05	0.22	0.03	0.18	0.05	0.23
Q29_3 International student										
Not selected (0) Selected (1)	0.10	0.30	0.10	0.31	0.10	0.30	0.06	0.25	0.11	0.31
Q29_4 Out-of-state student										
Not selected (0) Selected (1)	0.01	0.11	0.00	0.00	0.03	0.16	0.02	0.13	0.00	0.00
Q29_5 Served in the military										
Not selected (0) Selected (1)	0.06	0.24	0.02	0.15	0.02	0.13	0.03	0.18	0.02	0.13
Q29_6 DREAM / DACA student										
Not selected (0) Selected (1)	0.08	0.28	0.05	0.21	0.02	0.13	0.05	0.22	0.11	0.31
Q29_7 Student parent										
Not selected (0) Selected (1)	0.19	0.40	0.15	0.36	0.16	0.37	0.13	0.34	0.11	0.31
Q30 File FAFSA / CADAA										
Yes (1) No (2)	1.13	0.34	1.13	0.33	1.14	0.34	1.18	0.38	1.15	0.36
Q31 Pell Grant recipient										
Yes (1) No (2)	1.38	0.49	1.42	0.50	1.38	0.49	1.34	0.48	1.40	0.49

Q33 Housing challenges										
Yes (1) / No (2)	1.85	0.36	1.79	0.41	1.86	0.35	1.79	0.41	1.84	0.37
Q34_1 CalFresh (SNAP) program										
Not selected (0) / Selected (1)	0.22	0.42	0.26	0.44	0.26	0.44	0.24	0.43	0.24	0.43
Q34_2 WIC program										
Not selected (0) / Selected (1)	0.22	0.24	0.22	0.21	0.04	0.19	0.03	0.18	0.02	0.15
Q34_3 Off-campus food pantry										
Not selected (0) / Selected (1)	0.07	0.25	0.07	0.25	0.11	0.32	0.10	0.30	0.07	0.26
Q34_4 Other food resource										
Not selected (0) / Selected (1)	0.03	0.18	0.03	0.17	0.02	0.13	0.01	0.09	0.03	0.17
Q34_5 None of above resources										
Not selected (0) / Selected (1)	0.68	0.47	0.67	0.47	0.66	0.47	0.69	0.47	0.70	0.46
Q16–Q19 Food Insecurity Status										
Food secure (0) / Food insecure (1)	0.55	0.50	0.61	0.49	0.59	0.49	0.51	0.50	0.56	0.50
Q25 Hispanic or Latino origin										
Yes (1) / No (2)	1.55	0.50	1.60	0.49	1.64	0.48	1.61	0.49	1.57	0.50

Demographics by Survey: Counts and Percents

Question		Pretest		Post-test	
	Answer option	n	Valid %	n	Valid %
Q20 Degree program					
	Undergraduate	276	86%	446	85%
	Graduate	46	14%	77	15%
Q21 Enrollment					
	Less than 12 units	39	12%	76	15%
	12 or more units	279	88%	437	85%
Q22 Currently employed					
	Yes	175	57%	305	61%
	No	135	44%	194	39%
Q23 Hours worked per week					
	1–9	14	8%	32	11%
	10–19	68	41%	114	40%
	20–29	48	29%	73	26%
	30–39	14	8%	33	12%
	40+	23	14%	34	12%
Q24 Looking for work/more work					
	Yes	164	54%	259	54%
	No	141	46%	221	46%
Q27 Age range					
	18–20	102	34%	144	30%
	21–25	107	36%	216	45%
	26–30	48	16%	58	12%
	31+	44	15%	67	14%
Q28 Gender identity					
	Male	72	23%	119	23%
	Female	230	72%	396	73%
	Non-binary	16	5%	21	4%
Q29_1 Students with disabilities					
	Not selected	126	74%	170	71%
	Selected	45	26%	68	29%
Q29_2 Current/former foster youth					
	Not selected	166	97%	227	95%
	Selected	5	3%	11	5%
Q29_3 International student					
	Not selected	154	90%	216	91%
	Selected	17	10%	22	9%
Q29_4 Out-of-state student					
	Not selected	170	99%	234	98%
	Selected	1	1%	4	2%
Q29_5 Served in the military					
	Not selected	164	96%	233	98%
	Selected	7	4%	5	2%

Q29_6 DREAM / DACA student				
Not selected	160	94%	227	95%
Selected	11	6%	11	5%
Q29_7 Student parent				
Not selected	142	83%	205	86%
Selected	29	17%	33	14%
Q30 File FAFSA / CADAA				
Yes	270	87%	431	85%
No	40	13%	76	15%
Q31 Pell Grant recipient				
Yes	136	60%	229	62%
No	92	40%	138	38%
Q33 Housing challenges				
Yes	55	18%	82	16%
No	248	82%	418	84%
Q34_1 CalFresh (SNAP) program				
Not selected	238	76%	375	75%
Selected	76	24%	124	25%
Q34_2 WIC program				
Not selected	297	95%	483	97%
Selected	17	5%	16	3%
Q34_3 Off-campus food pantry				
Not selected	293	93%	450	90%
Selected	21	7%	49	10%
Q34_4 Other food resource				
Not selected	304	97%	490	98%
Selected	10	3%	9	2%
Q34_5 None of above resources				
Not selected	102	33%	160	32%
Selected	212	68%	339	68%
Q16–Q19 Food Insecurity Status				
Food secure	128	42%	222	44%
Food insecure	177	58%	282	56%
Q25 Hispanic or Latino origin				
Yes (1)	128	43%	186	39%
No (2)	172	57%	294	61%
Q26 Ethnicities				
Asian only	63	24%	130	30%
American Indian or Alaskan Native only	2	1%	6	1%
Black or African American only	17	7%	26	6%
White only	92	35%	145	33%
Other only	37	14%	53	12%
Two or more ethnicities	49	19%	75	17%

Demographics by Survey: Means

Question Answer option (answer value)	Pretest Mean	 Std. Deviation	Post-test Mean	 Std. Deviation
Q20 Class level Undergraduate (1) Graduate (2)	1.14	0.35	1.15	0.36
Q21 Enrollment Less than 12 units (1) 12 or more units (2)	1.88	0.33	1.85	0.36
Q22 Currently employed Yes (1) No (2)	1.44	0.50	1.39	0.49
Q23 Hours worked per week 1–9 (1) 10–19 (2) 20–29 (3) 30–39 (4) 40+ (5)	2.78	1.16	2.73	1.17
Q24 Looking for work/more work Yes (1) No (2)	1.46	0.50	1.46	0.50
Q27 Age range 18–20 (1) 21–25 (2) 26–30 (3) 31+ (4)	2.11	1.04	2.1	0.98
Q28 Gender identity Male (1) Female (2) Non-binary (3)	1.82	0.50	1.81	0.49
Q29_1 Students with disabilities Not selected (0) Selected (1)	0.26	0.44	0.29	0.45
Q29_2 Current/former foster youth Not selected (0) Selected (1)	0.03	0.17	0.05	0.21
Q29_3 International student Not selected (0) Selected (1)	0.10	0.30	0.09	0.29
Q29_4 Out-of-state student Not selected (0) Selected (1)	0.01	0.08	0.02	0.13
Q29_5 Served in the military Not selected (0)	0.04	0.20	0.02	0.14

Selected (1)				
Q29_6 DREAM / DACA student				
Not selected (0)	0.06	0.25	0.05	0.21
Selected (1)				
Q29_7 Student parent				
Not selected (0)	0.17	0.38	0.14	0.35
Selected (1)				
Q30 File FAFSA / CADAA				
Yes (1)	1.13	0.34	1.15	0.36
No (2)				
Q31 Pell Grant recipient				
Yes (1)	1.40	0.49	1.38	0.49
No (2)				
Q33 Housing challenges				
Yes (1)	1.82	0.39	1.84	0.37
No (2)				
Q34_1 CalFresh (SNAP) program				
Not selected (0)	0.24	0.43	0.25	0.43
Selected (1)				
Q34_2 WIC program				
Not selected (0)	0.05	0.23	0.03	0.18
Selected (1)				
Q34_3 Off-campus food pantry				
Not selected (0)	0.07	0.25	0.10	0.30
Selected (1)				
Q34_4 Other food resource				
Not selected (0)	0.03	0.18	0.02	0.13
Selected (1)				
Q34_5 None of above resources				
Not selected (0)	0.68	0.47	0.68	0.47
Selected (1)				
Q16–Q19 Food Insecurity Status				
Food secure (0)	0.58	0.49	0.56	0.50
Food insecure (1)				
Q25 Hispanic or Latino origin				
Yes (1)	1.57	0.50	1.61	0.49
No (2)				

Appendix J

Student Participants Experiencing Food Insecurity

Food Insecure Students: Counts and Rates by Class Level (Q20)

Class Level	Pretest		Post-test	
	n	% of total	n	% of total
Undergraduate	152	59%	243	57%
Graduate	25	56%	36	48%
Not currently enrolled	0	—	0	—

Note. To guide interpretation, 152 of undergraduates who responded to the pretest survey were food insecure, which makes up 59% of all undergraduates who responded to the pretest survey. Undergraduate students are slightly more likely to experience food insecurity compared to graduate students.

Food Insecure Students: Counts and Rates by Enrollment (Q21)

Enrollment	Pretest		Post-test	
	n	% of total	n	% of total
Part-time (less than 12 units)	22	63%	43	58%
Full-time (12 or more units)	152	58%	228	55%

Food Insecure Students: Counts and Rates by Employment (Q22)

Employment Status	Pretest		Post-test	
	n	% of total	n	% of total
Employed	96	59%	169	57%
Not employed	69	54%	99	55%

Food Insecure Students: Counts and Rates by Hispanic or Latino (Q25)

Hispanic or Latino	Pretest		Post-test	
	n	% of total	n	% of total
Yes	80	67%	108	61%
No	83	52%	142	51%

Food Insecure Students: Counts and Rates by Ethnicity (Q26)

Ethnicity	Pretest		Post-test	
	n	% of total	n	% of total
Asian	34	57%	70	57%
American Indian	1	100%	4	80%
Black or African American	13	76%	19	83%
Hawaiian	0	—	0	—
White	38	44%	68	49%
Other	23	62%	36	71%

Note. Counts and percentages are duplicative, where a student could identify as belonging to more than one ethnicity.

Food Insecure Students: Counts and Rates by Age Range (Q27)

Age Range	Pretest		Post-test	
	n	% of total	n	% of total
18–20	47	50%	69	50%
21–25	58	56%	124	60%
26–30	26	61%	26	47%
31+	28	67%	36	56%

Food Insecure Students: Counts and Rates by Gender Identity (Q28)

Gender Identity	Pretest		Post-test	
	n	% of total	n	% of total
Male	37	53%	55	48%
Female	128	60%	208	59%
Non-binary	7	44%	9	43%

Food Insecure Students: Counts and Rates by Student Group (Q29)

Student Group	Pretest		Post-test	
	n	% of total	n	% of total
Student with disabilities	27	64%	44	68%
Not student with disabilities	75	64%	95	60%
Current / former foster youth	4	80%	7	78%
Not current/former foster youth	98	63%	132	61%
International student	6	38%	14	67%
Not international student	96	67%	125	62%
Out-of-state student	1	100%	1	33%
Not out-of-state student	101	64%	138	62%
Served in the military	5	71%	2	40%
Did not serve in the military	97	63%	137	63%
DREAM / DACA student	4	36%	3	30%
Not DREAM / DACA student	98	66%	136	64%
Student parent	20	71%	17	57%
Not student parent	82	62%	122	63%

Note. Counts and percentages are duplicative, where a student could identify as belonging to more than one group. To guide interpretation, 27 of students who responded to the pretest survey and indicated they had a disability were food insecure, which makes up 64% of all respondents who indicated they had a disability. In this instance, disability status does not increase the odds of experiencing food insecurity.

Food Insecure Students: Counts and Rates by Housing Challenges (Q33)

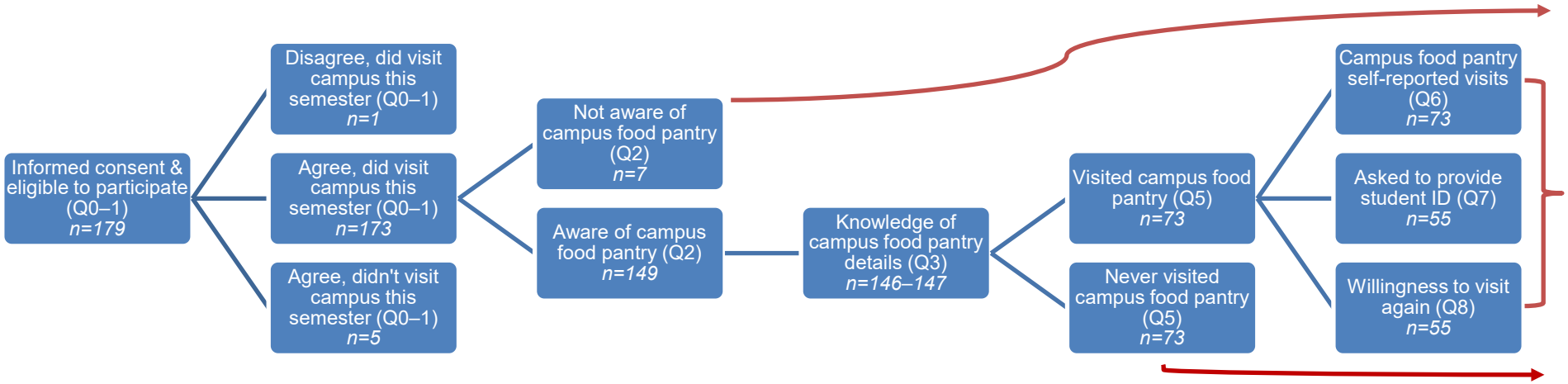
Housing Challenges	Pretest		Post-test	
	n	% of total	n	% of total
Experiencing housing challenges	42	81%	66	90%
Not experiencing housing challenges	121	52%	119	49%

Appendix K

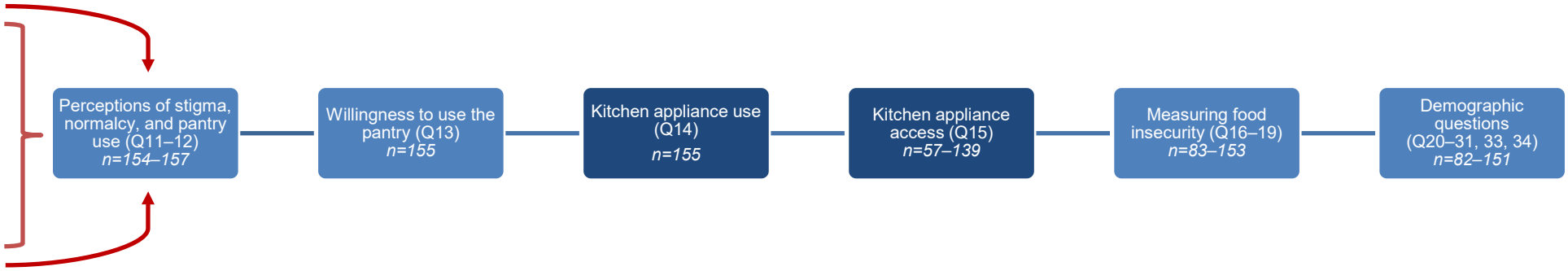
Student Survey Flows, Answer Counts, and Answer Rates

Visualizations of Student Survey Flows

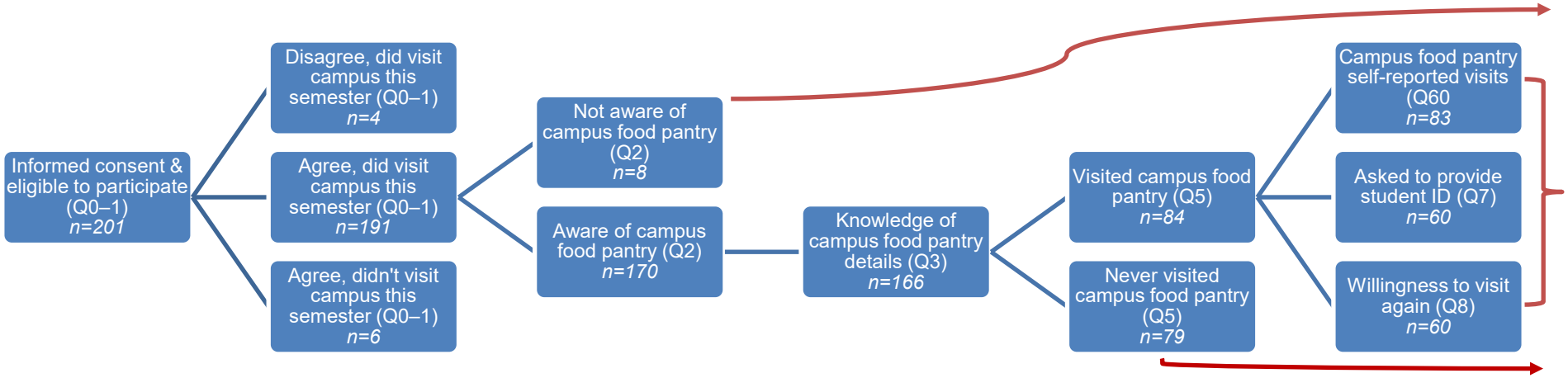
Pretest Student Survey for Full Intervention Group: Survey Flow and Response Totals (Part 1)



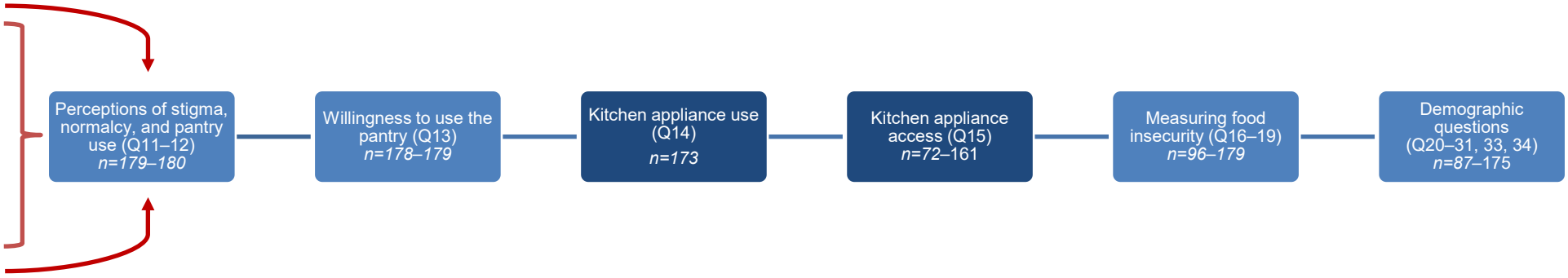
Pretest Student Survey for Full Intervention Group: Survey Flow and Response Totals (Part 2)



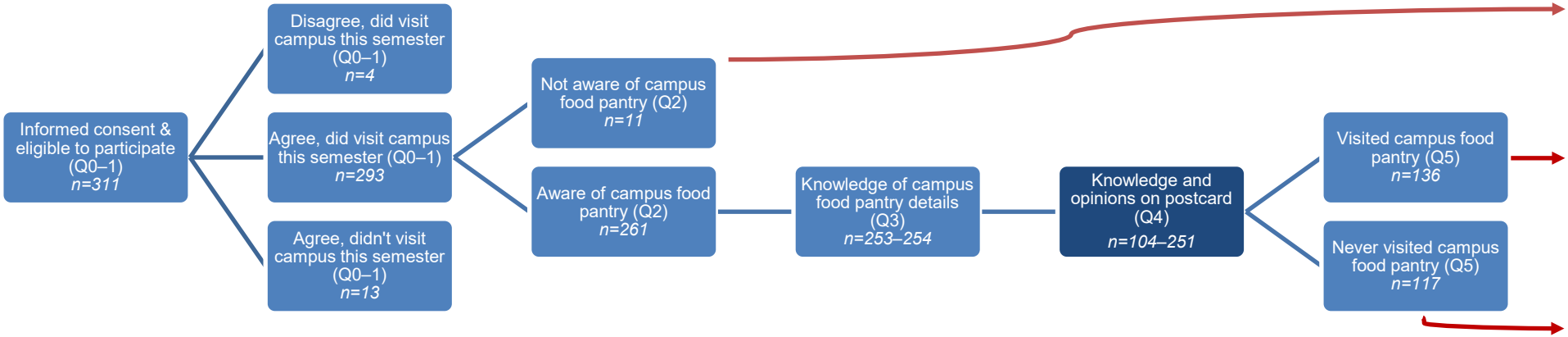
Pretest Student Survey for Control Group: Survey Flow and Response Totals (Part 1)



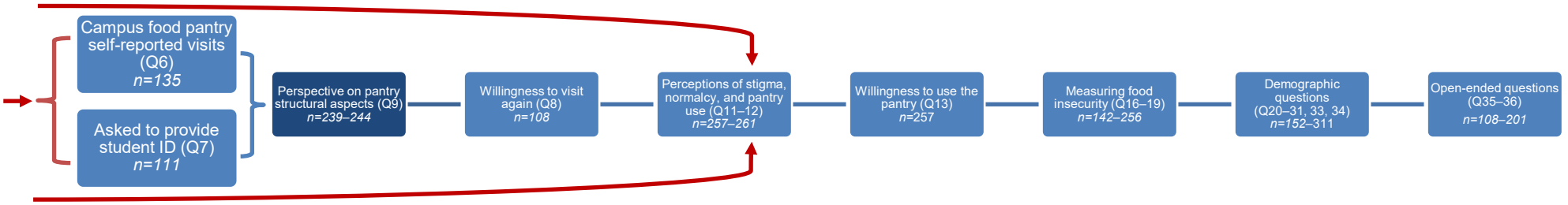
Pretest Student Survey for Control Group: Survey Flow and Response Totals (Part 2)



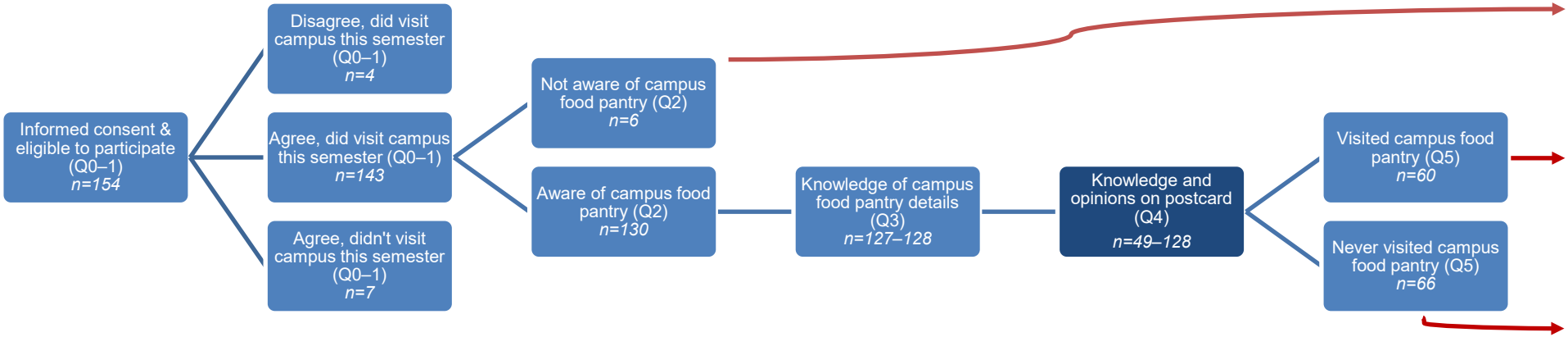
Post-Test Student Survey for Partial Intervention Group: Survey Flow and Response Totals (Part 1)



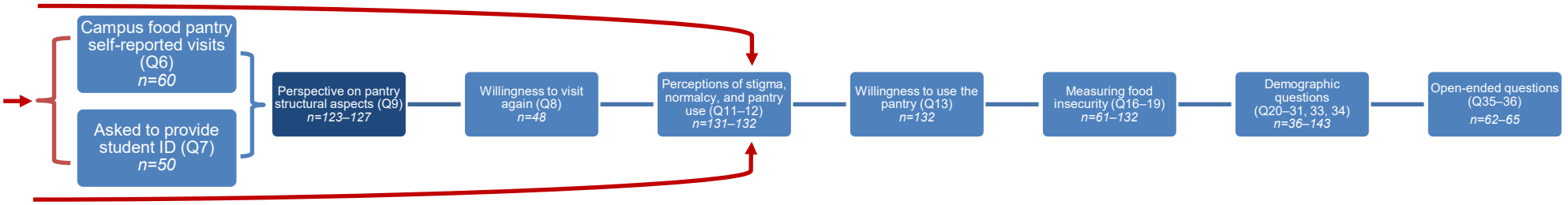
Post-Test Student Survey for Partial Intervention Group: Survey Flow and Response Totals (Part 2)



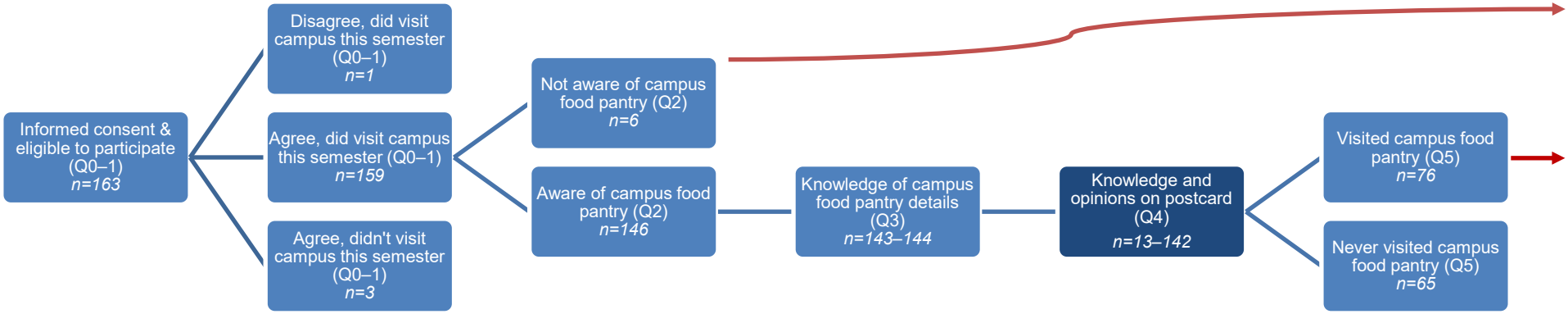
Post-Test Student Survey for Full Intervention Group: Survey Flow and Response Totals (Part 1)



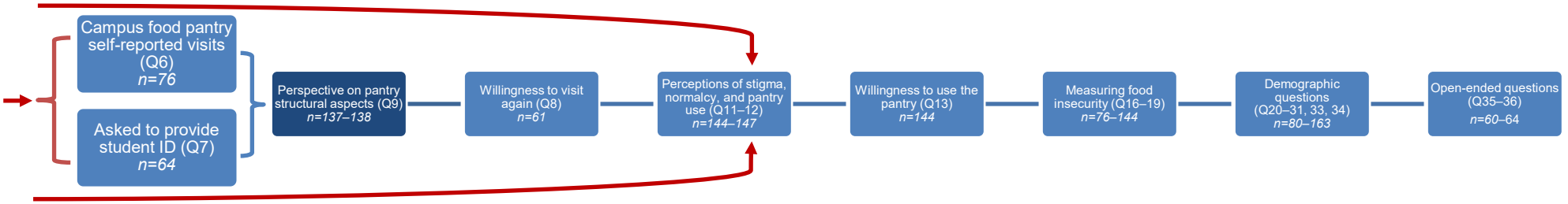
Post-Test Student Survey for Full Intervention Group: Survey Flow and Response Totals (Part 2)



Post-Test Student Survey for Control Group: Survey Flow and Response Totals (Part 1)

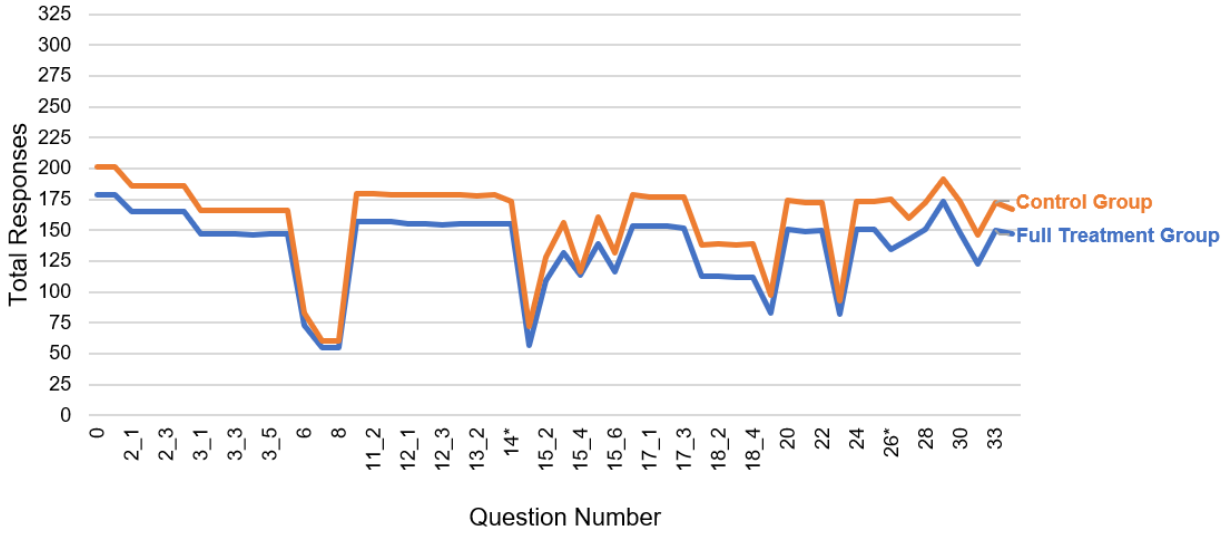


Post-Test Student Survey for Control Group: Survey Flow and Response Totals (Part 2)

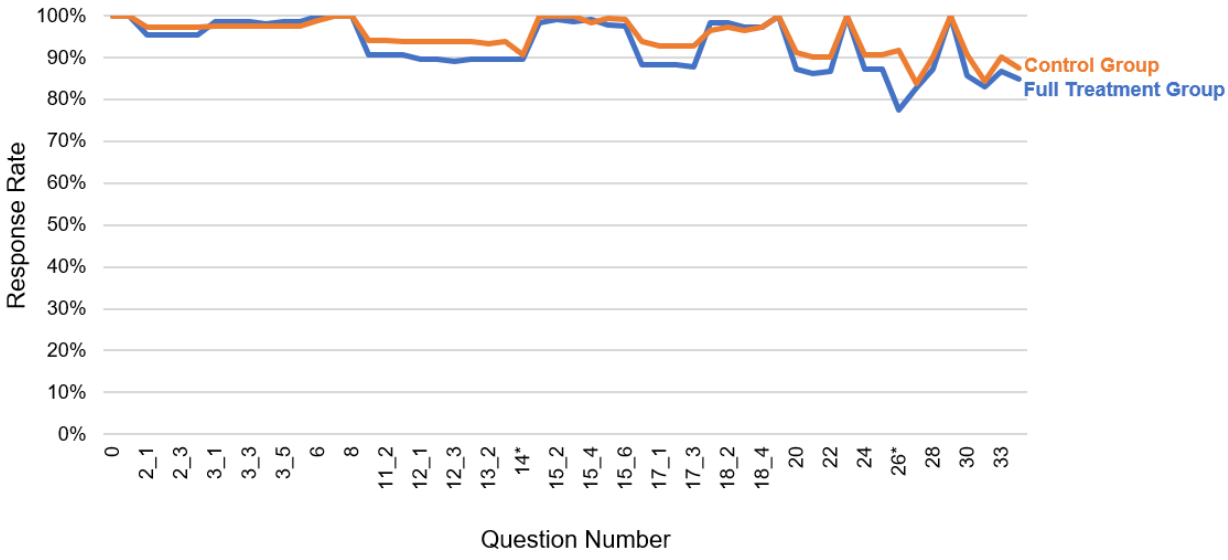


Visualizations of Student Survey Answer Counts and Rates

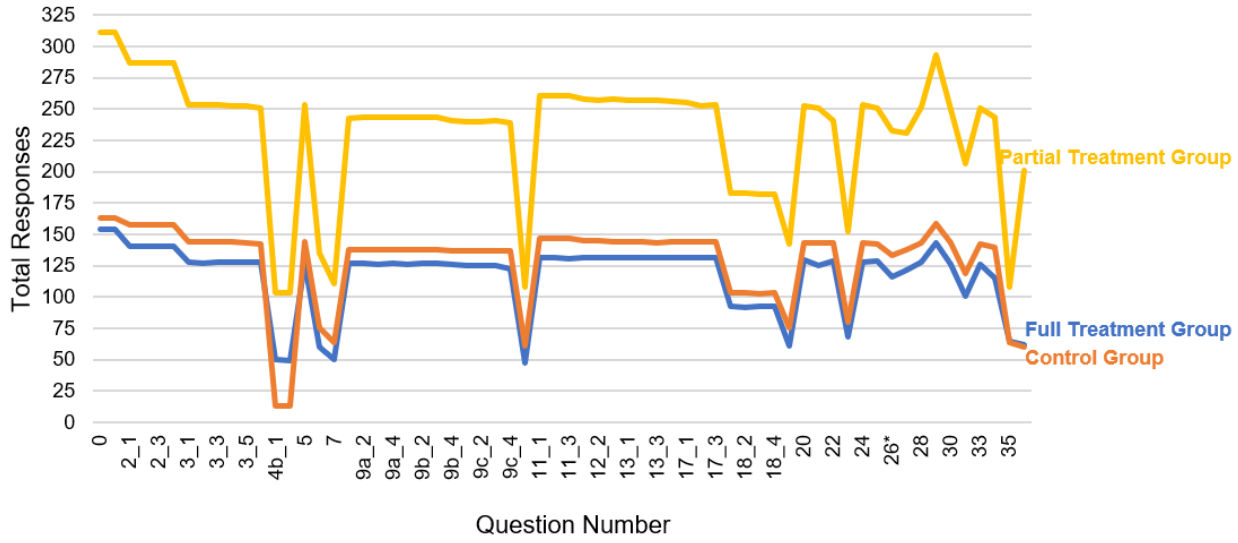
Pretest Student Survey Answer Counts



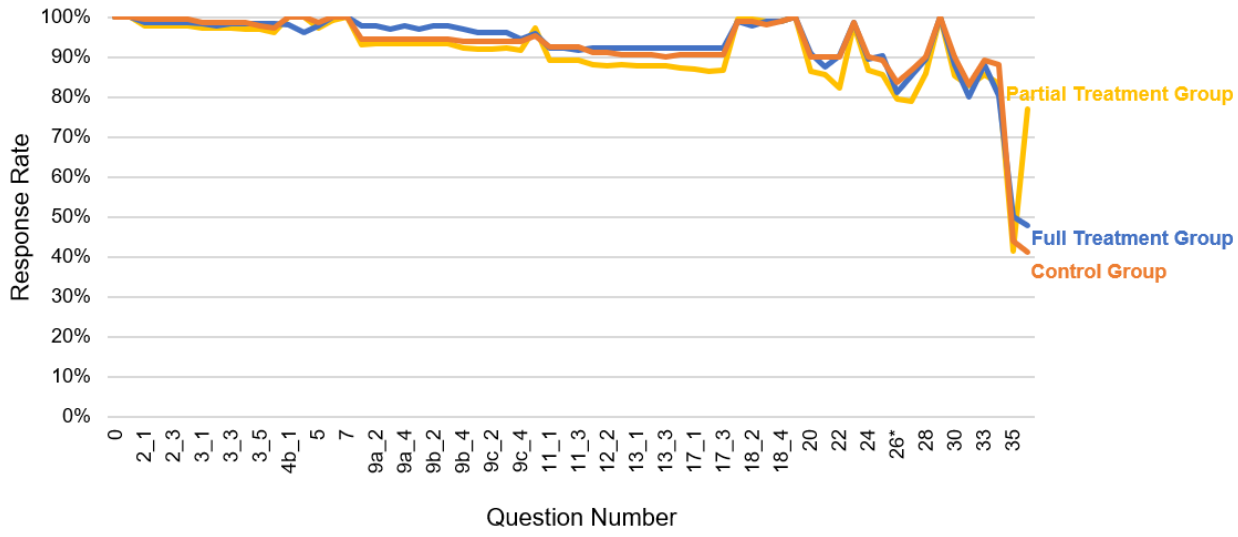
Pretest Student Survey Answer Rates



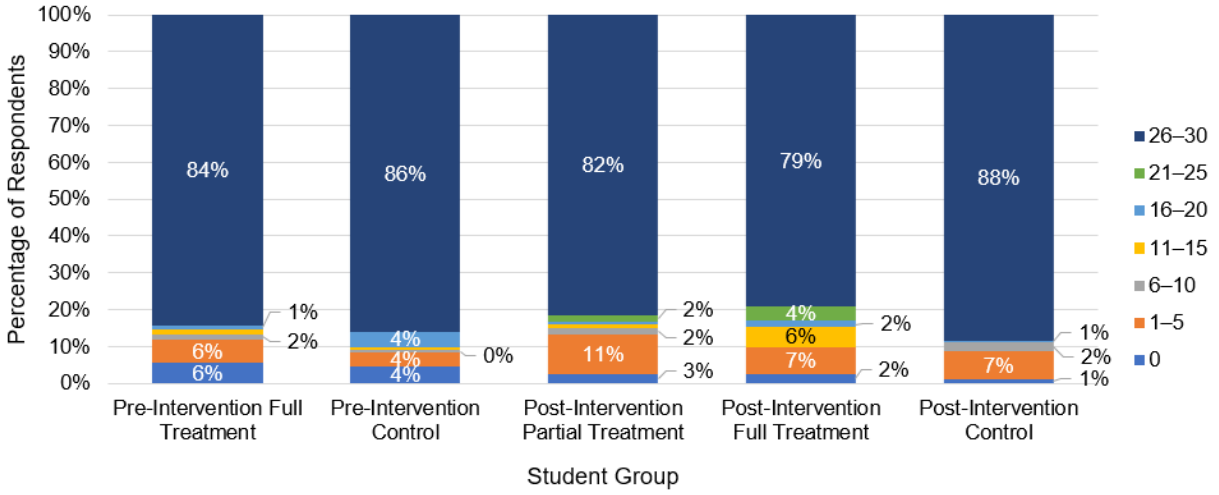
Post-Test Student Survey Answer Counts



Post-Test Student Survey Answer Rates



Number of Questions Answered per Respondent



Note. Calculations based on questions all respondents (who passed Q1) could view and answer.

Tables of Student Survey Answer Counts and Rates

Pretest Student Survey Answer Counts

Question	Full Intervention #	Control #	Question Content
0	179	201	Consent and 18 or older
1	179	201	Visited campus ever
2_1	165	186	Available: CalFresh
2_2	165	186	Available: Food pantry
2_3	165	186	Available: Farmer's market
2_4	165	186	Available: Emergency meals
3_1	147	166	Knowledge: Pantry located
3_2	147	166	Knowledge: Pantry open
3_3	147	166	Knowledge: Pantry eligible
3_4	146	166	Knowledge: Pantry food options
3_5	147	166	Knowledge: Pantry food amount
5	147	166	Visited pantry ever
6	73	83	Pantry visits this semester
7	55	60	Student ID sign in
8	55	60	Willingness: Return to pantry
11_1	157	180	Perceptions: Normal to visit pantry
11_2	157	180	Perceptions: Pantry only for neediest students
11_3	157	179	Perceptions: Often experience food issues
12_1	155	179	Perceptions: Hunger sometimes normal
12_2	155	179	Perceptions: Never okay starving student
12_3	154	179	Perceptions: Almost always enough food
13_1	155	179	Willingness: Encourage friend to go
13_2	155	178	Willingness: Go when low on groceries
13_3	155	179	Willingness: Go when haven't eaten all day
14*	155	173	Kitchen appliances use
15_1	57	72	Often use: Kettle
15_2	109	128	Often use: Freezer
15_3	132	156	Often use: Microwave
15_4	114	116	Often use: Oven/toaster oven
15_5	139	161	Often use: Fridge
15_6	116	132	Often use: Skillet/electric skillet
16	153	179	Meals individual or shared
17_1	153	177	Worried food run out
17_2	153	177	Food bought didn't last
17_3	152	177	Can't afford balanced meals
18_1	113	138	Reduce/skip meals
18_2	113	139	Eat less than should
18_3	112	138	Hungry but didn't eat

18_4	112	139	Lose weight
19_1	83	97	Didn't eat whole day
20	151	174	Degree program
21	149	172	Enrollment
22	150	172	Currently employed
23	82	93	Hours worked per week
24	151	173	Looking for work/more work
25	151	173	Hispanic or Latino origin
26*	134	175	Ethnicities
27	143	160	Age range
28	151	172	Gender identity
29**	173	191	Student groups
30	148	173	File FAFSA/CADAA
31	123	146	Pell Grant recipient
33	150	172	Housing challenges
34*	147	167	Other food resources

Note. Q32 was omitted because it was included in the survey in error.
*Excluded zero selections from the response count.
**Included zero selections in the response count.

Pretest Student Survey Answer Rates

Question	Full Intervention %	Control %	Question Content
0	100%	100%	Consent and 18 or older
1	100%	100%	Visited campus ever
2_1	95%	97%	Available: CalFresh
2_2	95%	97%	Available: Food pantry
2_3	95%	97%	Available: Farmer's market
2_4	95%	97%	Available: Emergency meals
3_1	99%	98%	Knowledge: Pantry located
3_2	99%	98%	Knowledge: Pantry open
3_3	99%	98%	Knowledge: Pantry eligible
3_4	98%	98%	Knowledge: Pantry food options
3_5	99%	98%	Knowledge: Pantry food amount
5	99%	98%	Visited pantry ever
6	100%	99%	Pantry visits this semester
7	100%	100%	Student ID sign in
8	100%	100%	Willingness: Return to pantry
11_1	91%	94%	Perceptions: Normal to visit pantry
11_2	91%	94%	Perceptions: Pantry only for neediest students
11_3	91%	94%	Perceptions: Often experience food issues
12_1	90%	94%	Perceptions: Hunger sometimes normal
12_2	90%	94%	Perceptions: Never okay starving student
12_3	89%	94%	Perceptions: Almost always enough food
13_1	90%	94%	Willingness: Encourage friend to go
13_2	90%	93%	Willingness: Go when low on groceries
13_3	90%	94%	Willingness: Go when haven't eaten all day
14*	90%	91%	Kitchen appliances use
15_1	98%	100%	Often use: Kettle
15_2	99%	100%	Often use: Freezer
15_3	99%	100%	Often use: Microwave
15_4	99%	98%	Often use: Oven/toaster oven
15_5	98%	99%	Often use: Fridge
15_6	97%	99%	Often use: Skillet/electric skillet
16	88%	94%	Meals individual or shared
17_1	88%	93%	Worried food run out
17_2	88%	93%	Food bought didn't last
17_3	88%	93%	Can't afford balanced meals
18_1	98%	97%	Reduce/skip meals
18_2	98%	97%	Eat less than should
18_3	97%	97%	Hungry but didn't eat
18_4	97%	97%	Lose weight
19_1	100%	100%	Didn't eat whole day

20	87%	91%	Degree program
21	86%	90%	Enrollment
22	87%	90%	Currently employed
23	100%	100%	Hours worked per week
24	87%	91%	Looking for work/more work
25	87%	91%	Hispanic or Latino origin
26*	77%	92%	Ethnicities
27	83%	84%	Age range
28	87%	90%	Gender identity
29**	100%	100%	Student groups
30	86%	91%	File FAFSA/CADAA
31	83%	84%	Pell Grant recipient
33	87%	90%	Housing challenges
34*	85%	87%	Other food resources

Note. Q32 was omitted because it was included in the survey in error.
*Excluded zero selections from the response count.
**Included zero selections in the response count.

Post-Test Student Survey Answer Counts

Question	Partial Intervention #	Full Intervention #	Control #	Question Content
0	311	154	163	Consent and 18 or older
1	311	154	163	Visited campus ever
2_1	287	141	158	Available: CalFresh
2_2	287	141	158	Available: Food pantry
2_3	287	141	158	Available: Farmer's market
2_4	287	141	158	Available: Emergency meals
3_1	254	128	144	Knowledge: Pantry located
3_2	254	127	144	Knowledge: Pantry open
3_3	254	128	144	Knowledge: Pantry eligible
3_4	253	128	144	Knowledge: Pantry food options
3_5	253	128	143	Knowledge: Pantry food amount
4a	251	128	142	Knowledge of postcard
4b_1	104	50	13	Postcard informative
4b_2	104	49	13	Postcard comfortable visiting
5	254	127	144	Visited pantry ever
6	135	60	76	Pantry visits this semester
7	111	50	64	Student ID sign in
9a_1	243	127	138	Pantry easy to get to
9a_2	244	127	138	Pantry private location
9a_3	244	126	138	Pantry hours are clear
9a_4	244	127	138	Pantry hours work for me
9b_1	244	126	138	Pantry well organized
9b_2	244	127	138	Pantry nicely decorated
9b_3	244	127	138	Pantry employees helpful
9b_4	241	126	137	Pantry employees welcoming
9c_1	240	125	137	Pantry full (not empty)
9c_2	240	125	137	Pantry food fresh (not expired)
9c_3	241	125	137	Pantry food options I like
9c_4	239	123	137	Pantry food amount good
8	108	48	61	Willingness: Return to pantry
11_1	261	132	147	Perceptions: Normal to visit pantry
11_2	261	132	147	Perceptions: Pantry only for neediest students
11_3	261	131	147	Perceptions: Often experience food issues
12_1	258	132	145	Perceptions: Hunger sometimes normal
12_2	257	132	145	Perceptions: Never okay starving student
12_3	258	132	144	Perceptions: Almost always enough food
13_1	257	132	144	Willingness: Encourage friend to go

13_2	257	132	144	Willingness: Go when low on groceries
13_3	257	132	143	Willingness: Go when haven't eaten all day
16	256	132	144	Meals individual or shared
17_1	255	132	144	Worried food run out
17_2	253	132	144	Food bought didn't last
17_3	254	132	144	Can't afford balanced meals
18_1	183	93	104	Reduce/skip meals
18_2	183	92	104	Eat less than should
18_3	182	93	103	Hungry but didn't eat
18_4	182	93	104	Lose weight
19_1	142	61	76	Didn't eat whole day
20	253	130	143	Degree program
21	251	125	143	Enrollment
22	241	129	143	Currently employed
23	152	68	80	Hours worked per week
24	254	128	143	Looking for work/more work
25	251	129	142	Hispanic or Latino origin
26*	233	116	133	Ethnicities
27	231	122	138	Age range
28	252	128	143	Gender identity
29**	293	143	159	Student groups
30	250	126	143	File FAFSA/CADAA
31	207	101	119	Pell Grant recipient
33	251	126	142	Housing challenges
34*	244	115	140	Other food resources
35	108	65	64	Write-In: Pantry doing well
36	201	62	60	Write-In: Pantry could improve

Note. *Excluded zero selections from the response count.
**Included zero selections in the response count.

Post-Test Student Survey Answer Rates

Question	Partial Intervention %	Full Intervention %	Control %	Question Content
0	100%	100%	100%	Consent and 18 or older
1	100%	100%	100%	Visited campus ever
2_1	98%	99%	99%	Available: CalFresh
2_2	98%	99%	99%	Available: Food pantry
2_3	98%	99%	99%	Available: Farmer's market
2_4	98%	99%	99%	Available: Emergency meals
3_1	97%	98%	99%	Knowledge: Pantry located
3_2	97%	98%	99%	Knowledge: Pantry open
3_3	97%	98%	99%	Knowledge: Pantry eligible
3_4	97%	98%	99%	Knowledge: Pantry food options
3_5	97%	98%	98%	Knowledge: Pantry food amount
4a	96%	98%	97%	Knowledge of postcard
4b_1	100%	98%	100%	Postcard informative
4b_2	100%	96%	100%	Postcard comfortable visiting
5	97%	98%	99%	Visited pantry ever
6	99%	100%	100%	Pantry visits this semester
7	100%	100%	100%	Student ID sign in
9a_1	93%	98%	95%	Pantry easy to get to
9a_2	93%	98%	95%	Pantry private location
9a_3	93%	97%	95%	Pantry hours are clear
9a_4	93%	98%	95%	Pantry hours work for me
9b_1	93%	97%	95%	Pantry well organized
9b_2	93%	98%	95%	Pantry nicely decorated
9b_3	93%	98%	95%	Pantry employees helpful
9b_4	92%	97%	94%	Pantry employees welcoming
9c_1	92%	96%	94%	Pantry full (not empty)
9c_2	92%	96%	94%	Pantry food fresh (not expired)
9c_3	92%	96%	94%	Pantry food options I like
9c_4	92%	95%	94%	Pantry food amount good
8	97%	96%	95%	Willingness: Return to pantry
11_1	89%	92%	92%	Perceptions: Normal to visit pantry
11_2	89%	92%	92%	Perceptions: Pantry only for neediest students
11_3	89%	92%	92%	Perceptions: Often experience food issues
12_1	88%	92%	91%	Perceptions: Hunger sometimes normal
12_2	88%	92%	91%	Perceptions: Never okay starving student
12_3	88%	92%	91%	Perceptions: Almost always enough food

13_1	88%	92%	91%	Willingness: Encourage friend to go
13_2	88%	92%	91%	Willingness: Go when low on groceries
13_3	88%	92%	90%	Willingness: Go when haven't eaten all day
16	87%	92%	91%	Meals individual or shared
17_1	87%	92%	91%	Worried food run out
17_2	86%	92%	91%	Food bought didn't last
17_3	87%	92%	91%	Can't afford balanced meals
18_1	99%	99%	99%	Reduce/skip meals
18_2	99%	98%	99%	Eat less than should
18_3	99%	99%	98%	Hungry but didn't eat
18_4	99%	99%	99%	Lose weight
19_1	100%	100%	100%	Didn't eat whole day
20	86%	91%	90%	Degree program
21	86%	87%	90%	Enrollment
22	82%	90%	90%	Currently employed
23	98%	99%	99%	Hours worked per week
24	87%	90%	90%	Looking for work/more work
25	86%	90%	89%	Hispanic or Latino origin
26*	80%	81%	84%	Ethnicities
27	79%	85%	87%	Age range
28	86%	90%	90%	Gender identity
29**	100%	100%	100%	Student groups
30	85%	88%	90%	File FAFSA/CADAA
31	83%	80%	83%	Pell Grant recipient
33	86%	88%	89%	Housing challenges
34*	83%	80%	88%	Other food resources
35	41%	50%	44%	Write-In: Pantry doing well
36	77%	48%	41%	Write-In: Pantry could improve

Note. *Excluded zero selections from the response count.
**Included zero selections in the response count.

Appendix L

Student Survey Meaningful Response Analysis

Pretest Student Survey Meaningful Response Analysis: Full Intervention

Question	Not Sure, Prefer Not to Answer, N/A #	Not Sure, Prefer Not to Answer, N/A %	Blank #	Blank %
0	N/A	N/A	N/A	N/A
1	N/A	N/A	N/A	N/A
2_1	47	28%	8	5%
2_2	9	5%	8	5%
2_3	91	55%	8	5%
2_4	98	59%	8	5%
3_1	N/A	N/A	2	1%
3_2	N/A	N/A	2	1%
3_3	N/A	N/A	2	1%
3_4	N/A	N/A	3	2%
3_5	N/A	N/A	2	1%
5	1	1%	2	1%
6	0	0%	0	0%
7	2	4%	0	0%
8	1	2%	0	0%
11_1	20	13%	16	9%
11_2	12	8%	16	9%
11_3	15	10%	16	9%
12_1	6	4%	18	10%
12_2	3	2%	18	10%
12_3	14	9%	19	11%
13_1	5	3%	18	10%
13_2	11	7%	18	10%
13_3	17	11%	18	10%
14*	1	1%	18	10%
15_1	N/A	N/A	1	2%
15_2	N/A	N/A	1	1%
15_3	N/A	N/A	2	1%
15_4	N/A	N/A	1	1%
15_5	N/A	N/A	3	2%
15_6	N/A	N/A	3	3%
16	N/A	N/A	20	12%
17_1	N/A	N/A	20	12%
17_2	N/A	N/A	20	12%
17_3	N/A	N/A	21	12%

18_1	14	12%	2	2%
18_2	7	6%	2	2%
18_3	7	6%	3	3%
18_4	24	21%	3	3%
19_1	8	10%	0	0%
20	1	1%	22	13%
21	3	2%	24	14%
22	8	5%	23	13%
23	1	1%	0	0%
24	11	7%	22	13%
25	14	9%	22	13%
26*	19	14%	39	23%
27	1	1%	30	17%
28	3	2%	22	13%
29**	32	18%	0	0%
30	5	3%	25	14%
31	21	17%	25	17%
33	8	5%	23	13%
34*	N/A	N/A	26	15%

Note. Q32 was omitted because it was included in the survey in error.
*Excluded zero selections from the response count.
**Included zero selections in the response count.

Pretest Student Survey Meaningful Response Analysis: Control

Question	Not Sure, Prefer Not to Answer, N/A #	Not Sure, Prefer Not to Answer, N/A %	Blank #	Blank %
0	N/A	N/A	N/A	N/A
1	N/A	N/A	N/A	N/A
2_1	53	28%	5	4%
2_2	8	4%	5	4%
2_3	115	62%	5	4%
2_4	123	66%	5	4%
3_1	N/A	N/A	4	1%
3_2	N/A	N/A	4	1%
3_3	N/A	N/A	4	1%
3_4	N/A	N/A	4	2%
3_5	N/A	N/A	4	1%
5	3	2%	4	1%
6	3	4%	1	0%
7	0	0%	0	0%
8	1	2%	0	0%
11_1	25	14%	11	8%
11_2	12	7%	11	8%
11_3	10	6%	12	8%
12_1	12	7%	12	9%
12_2	3	2%	12	9%
12_3	27	15%	12	10%
13_1	5	3%	12	9%
13_2	10	6%	13	9%
13_3	14	8%	12	9%
14*	0	0%	18	9%
15_1	N/A	N/A	0	1%
15_2	N/A	N/A	0	1%
15_3	N/A	N/A	0	1%
15_4	N/A	N/A	2	1%
15_5	N/A	N/A	1	2%
15_6	N/A	N/A	1	2%
16	N/A	N/A	12	10%
17_1	N/A	N/A	14	10%
17_2	N/A	N/A	14	10%
17_3	N/A	N/A	14	11%
18_1	12	9%	5	1%
18_2	6	4%	4	1%
18_3	15	11%	5	2%
18_4	23	17%	4	2%

19_1	10	10%	1	0%
20	2	1%	17	12%
21	0	0%	19	13%
22	4	2%	19	12%
23	0	0%	0	0%
24	8	5%	18	12%
25	10	6%	18	12%
26*	12	7%	16	20%
27	1	1%	31	16%
28	2	1%	19	12%
29**	35	18%	0	0%
30	6	3%	18	13%
31	20	14%	27	14%
33	11	6%	19	12%
34*	N/A	N/A	24	14%

Note. Q32 was omitted because it was included in the survey in error.
*Excluded zero selections from the response count.
**Included zero selections in the response count.

Post-Test Student Survey Meaningful Response Analysis: Partial Intervention

Question	Not Sure, Prefer Not to Answer, N/A #	Not Sure, Prefer Not to Answer, N/A %	Blank #	Blank %
0	N/A	N/A	N/A	N/A
1	N/A	N/A	N/A	N/A
2_1	81	28%	6	2%
2_2	15	5%	6	2%
2_3	160	56%	6	2%
2_4	179	62%	6	2%
3_1	N/A	N/A	7	3%
3_2	N/A	N/A	7	3%
3_3	N/A	N/A	7	3%
3_4	N/A	N/A	8	3%
3_5	N/A	N/A	8	3%
4a	39	16%	10	4%
4b_1	8	8%	0	0%
4b_2	6	6%	0	0%
5	1	0%	7	3%
6	2	1%	1	1%
7	4	4%	0	0%
9a_1	40	16%	18	7%
9a_2	46	19%	17	7%
9a_3	36	15%	17	7%
9a_4	52	21%	17	7%
9b_1	88	36%	17	7%
9b_2	93	38%	17	7%
9b_3	87	36%	17	7%
9b_4	82	34%	20	8%
9c_1	92	38%	21	8%
9c_2	88	37%	21	8%
9c_3	85	35%	20	8%
9c_4	91	38%	22	8%
8	5	5%	3	3%
11_1	35	13%	32	11%
11_2	21	8%	32	11%
11_3	25	10%	32	11%
12_1	13	5%	35	12%
12_2	11	4%	36	12%
12_3	36	14%	35	12%
13_1	5	2%	36	12%
13_2	16	6%	36	12%
13_3	13	5%	36	12%
16	N/A	N/A	37	13%
17_1	N/A	N/A	38	13%

17_2	N/A	N/A	40	14%
17_3	N/A	N/A	39	13%
18_1	21	11%	1	1%
18_2	16	9%	1	1%
18_3	20	11%	2	1%
18_4	38	21%	2	1%
19_1	12	8%	0	0%
20	1	0%	40	14%
21	3	1%	42	14%
22	0	0%	52	18%
23	0	0%	3	2%
24	18	7%	39	13%
25	22	9%	42	14%
26*	19	8%	60	20%
27	4	2%	62	21%
28	9	4%	41	14%
29**	54	18%	0	0%
30	9	4%	43	15%
31	35	17%	43	17%
33	13	5%	42	14%
34*	N/A	N/A	49	17%
35	N/A	N/A	153	59%
36	N/A	N/A	60	23%

Note. *Excluded zero selections from the response count.
**Included zero selections in the response count.

Post-Test Student Survey Meaningful Response Analysis: Full Intervention

Question	Not Sure, Prefer Not to Answer, N/A #	Not Sure, Prefer Not to Answer, N/A %	Blank #	Blank %
0	N/A	N/A	N/A	N/A
1	N/A	N/A	N/A	N/A
2_1	39	28%	2	1%
2_2	5	4%	2	1%
2_3	74	52%	2	1%
2_4	80	57%	2	1%
3_1	N/A	N/A	2	2%
3_2	N/A	N/A	3	2%
3_3	N/A	N/A	2	2%
3_4	N/A	N/A	2	2%
3_5	N/A	N/A	2	2%
4a	20	16%	2	2%
4b_1	8	16%	1	2%
4b_2	2	4%	2	4%
5	1	1%	3	2%
6	3	5%	0	0%
7	5	10%	0	0%
9a_1	22	17%	3	2%
9a_2	29	23%	3	2%
9a_3	23	18%	4	3%
9a_4	28	22%	3	2%
9b_1	57	45%	4	3%
9b_2	60	47%	3	2%
9b_3	60	47%	3	2%
9b_4	58	46%	4	3%
9c_1	58	46%	5	4%
9c_2	56	45%	5	4%
9c_3	57	46%	5	4%
9c_4	63	51%	7	5%
8	1	2%	2	4%
11_1	12	9%	11	8%
11_2	11	8%	11	8%
11_3	14	11%	12	8%
12_1	4	3%	11	8%
12_2	2	2%	11	8%
12_3	18	14%	11	8%
13_1	3	2%	11	8%
13_2	5	4%	11	8%
13_3	10	8%	11	8%
16	N/A	N/A	11	8%
17_1	N/A	N/A	11	8%

17_2	N/A	N/A	11	8%
17_3	N/A	N/A	11	8%
18_1	14	15%	1	1%
18_2	15	16%	2	2%
18_3	10	11%	1	1%
18_4	16	17%	1	1%
19_1	7	11%	0	0%
20	2	2%	13	9%
21	1	1%	18	13%
22	5	4%	14	10%
23	1	1%	1	1%
24	16	13%	15	10%
25	7	5%	14	10%
26*	10	9%	27	19%
27	2	2%	21	15%
28	2	2%	15	10%
29**	30	21%	0	0%
30	1	1%	17	12%
31	9	9%	25	20%
33	3	2%	17	12%
34*	N/A	N/A	28	20%
35	N/A	N/A	65	50%
36	N/A	N/A	68	52%

Note. *Excluded zero selections from the response count.
**Included zero selections in the response count.

Post-Test Student Survey Meaningful Response Analysis: Control

Question	Not Sure, Prefer Not to Answer, N/A #	Not Sure, Prefer Not to Answer, N/A %	Blank #	Blank %
0	N/A	N/A	N/A	N/A
1	N/A	N/A	N/A	N/A
2_1	42	27%	1	1%
2_2	6	4%	1	1%
2_3	89	56%	1	1%
2_4	104	66%	1	1%
3_1	N/A	N/A	2	1%
3_2	N/A	N/A	2	1%
3_3	N/A	N/A	2	1%
3_4	N/A	N/A	2	1%
3_5	N/A	N/A	3	2%
4a	29	20%	4	3%
4b_1	2	15%	0	0%
4b_2	2	15%	0	0%
5	3	2%	2	1%
6	1	1%	0	0%
7	1	2%	0	0%
9a_1	20	14%	8	5%
9a_2	28	20%	8	5%
9a_3	28	20%	8	5%
9a_4	39	28%	8	5%
9b_1	51	37%	8	5%
9b_2	52	38%	8	5%
9b_3	46	33%	8	5%
9b_4	45	33%	9	6%
9c_1	52	38%	9	6%
9c_2	45	33%	9	6%
9c_3	46	34%	9	6%
9c_4	55	40%	9	6%
8	1	2%	3	5%
11_1	15	10%	12	8%
11_2	13	9%	12	8%
11_3	15	10%	12	8%
12_1	10	7%	14	9%
12_2	5	3%	14	9%
12_3	14	10%	15	9%
13_1	3	2%	15	9%
13_2	6	4%	15	9%
13_3	11	8%	16	10%
16	N/A	N/A	15	9%
17_1	N/A	N/A	15	9%

17_2	N/A	N/A	15	9%
17_3	N/A	N/A	15	9%
18_1	11	11%	1	1%
18_2	9	9%	1	1%
18_3	12	12%	2	2%
18_4	19	18%	1	1%
19_1	5	7%	0	0%
20	0	0%	16	10%
21	2	1%	16	10%
22	9	6%	16	10%
23	0	0%	1	1%
24	11	8%	16	10%
25	13	9%	17	11%
26*	18	14%	26	16%
27	0	0%	21	13%
28	3	2%	16	10%
29**	23	14%	0	0%
30	2	1%	16	10%
31	16	13%	24	17%
33	3	2%	17	11%
34*	N/A	N/A	19	12%
35	N/A	N/A	82	56%
36	N/A	N/A	86	59%

Note. *Excluded zero selections from the response count.
**Included zero selections in the response count.

Appendix M

Future Improvements to Student Surveys

Student Survey Design

- Both pretest and post-test student surveys
    - Consider omitting Q2_1, Q2_3, and Q2_4. While the answer rates were high, a high proportion of the respondents selected “Not sure” (especially for Q2_3 and Q2_4). The data is thus low quality, and the responses are not crucial aspects of the research question and the data analyses. Omitting the questions may improve the respondent experience.
    - Add “not sure” answer option for Q3_1 to Q3_5 for consistency and to improve the respondent experience. Thankfully, the absence of this answer option did not cause respondent bailout nor decrease answer rates.
    - Change the “Select all that apply” design of Q29 to several “yes/no” questions in an attempt to make it less burdensome to respond meaningfully.
    - Add “prefer not to answer” option to Q34 to improve the respondent’s experience and reduce skipping.
    - Add a third initial screening question that asks the respondent if they’re 18 or older to ensure they’re eligible to participate in the study.
- Only the pretest student survey
    - Remove Q32 from the pretest surveys (it was included in error).
    - Change the question stem for Q14 to “Which of the following things do you use when making food?” so that the items are not tied to the concept of a kitchen. For example, students may cook in their dorm rooms.
    - Consider adding “Air fryer” to the list of answer options for Q14, as this option was written in by 10 out of the 16 respondents who selected “Other.”
- Only the post-test student survey
    - Change the display logic for Q9a_1 through Q9c_4 from “all respondents who know of there being a food pantry on campus” (Q2_2) to “all respondents who visited the food pantry at least once in the current semester” (Q6). Students will likely not have opinions on the pantry’s interior, hours, staff, and food if they haven’t visited it before.
    - Replace “not applicable” answer option for 9a_1 through 9c_4 with “not sure” as that makes more sense.
    - While answer rates for the two write-in questions (Q35 and Q36) were low, this is to be expected for this type of question. Most people who answered one write-in question answered both of them; only 8 of the 111 respondents who answered any write-in questions answered only one of the two. Keep both questions.

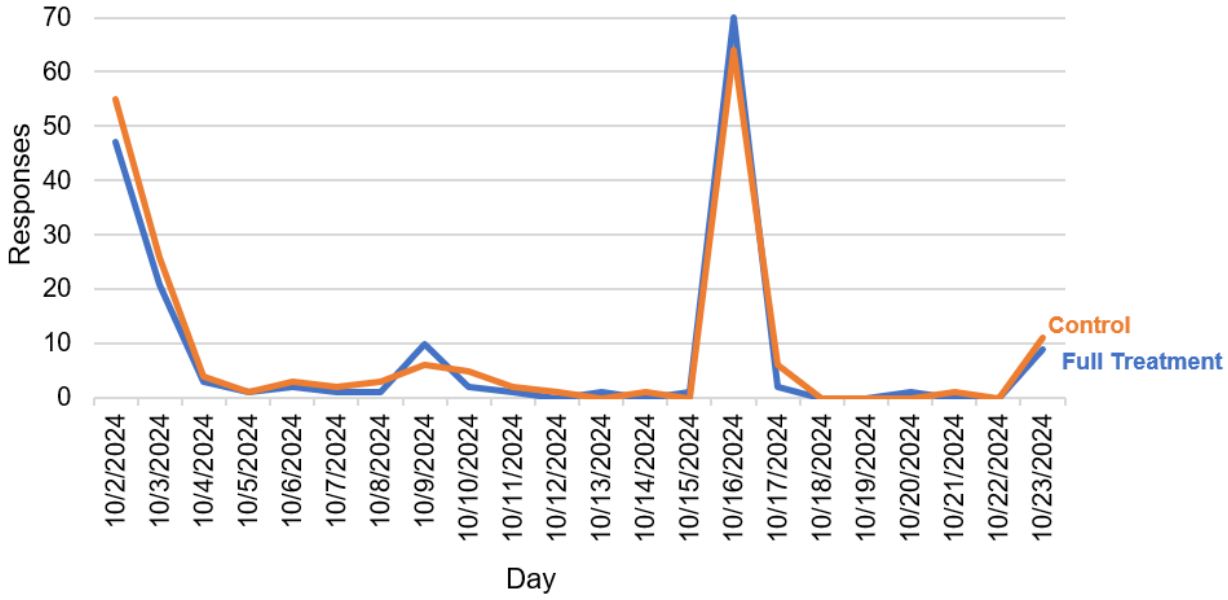
Student Survey Administration

- Instead of sending an email announcement ahead of time to notify students of the upcoming survey, send two email reminders after the survey has been sent out to increase the response rates.
- Close the survey on time so that additional responses submitted several days later do not have to be omitted.

Appendix N

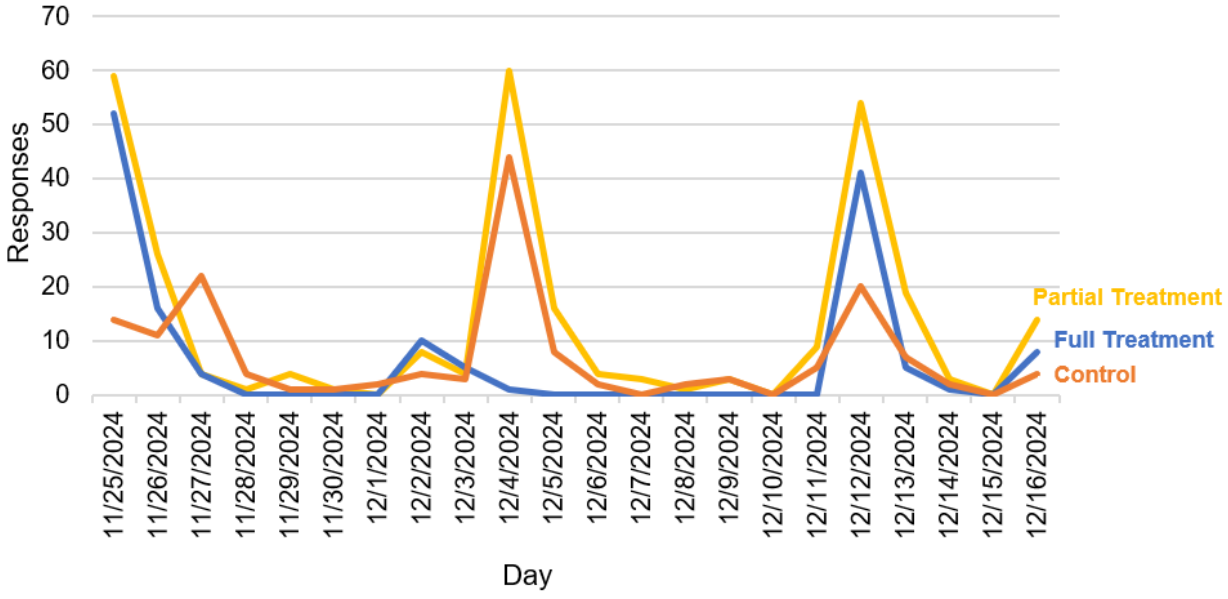
Student Survey Daily Response Tracking

Pretest Student Survey Responses by Day



Note. An email reminder to complete the survey was sent to students on October 16.

Post-Test Student Survey Responses by Day



Note. Email reminders to complete the survey were sent to students on December 4 and 12.

Appendix O

Student Survey Non-Normally Distribution of Likert-Like Items

Pretest Student Survey: Full Intervention Group

Question	Question Content	Mean	Median	Shapiro-Wilk Test p-value	Skewness	Kurtosis
3_1	Knowledge: Pantry located	3.27	4	<.001	−1.073	0.105
3_2	Knowledge: Pantry open	2.83	3	<.001	−0.330	−0.602
3_3	Knowledge: Pantry eligible	2.95	3	<.001	−0.295	−0.833
3_4	Knowledge: Pantry food options	2.67	3	<.001	−0.069	−0.631
3_5	Knowledge: Pantry food amount	2.65	3	<.001	0.140	−0.877
11_1	Perceptions: Normal to visit pantry	3.21	3	<.001	−0.634	0.410
11_2	Perceptions: Pantry only for neediest students	2.05	2	<.001	0.508	0.082
11_3	Perceptions: Often experience food issues	3.51	4	<.001	−1.122	1.414
12_1	Perceptions: Hunger sometimes normal	2.76	3		−0.360	−0.627
12_2	Perceptions: Never okay starving student	3.64	4	<.001	−2.311	5.575
12_3	Perceptions: Almost always enough food	2.04	2	<.001	0.773	1.025
13_1	Willingness: Encourage friend to go	3.80	4	<.001	−1.494	0.234
13_2	Willingness: Go when low on groceries	3.41	4	<.001	−1.061	0.558
13_3	Willingness: Go when haven't eaten all day	3.25	3	<.001	−0.791	−0.465

Pretest Student Survey: Control Group

Question	Question Content	Mean	Median	Shapiro-Wilk Test p-value	Skewness	Kurtosis
3_1	Knowledge: Pantry located	3.30	4	<.001	−1.141	0.065
3_2	Knowledge: Pantry open	2.89	3	<.001	−0.294	−1.051
3_3	Knowledge: Pantry eligible	3.05	3	<.001	−0.516	−0.986
3_4	Knowledge: Pantry food options	2.70	3	<.001	−0.127	−0.863
3_5	Knowledge: Pantry food amount	2.70	3	<.001	−0.032	−1.189
11_1	Perceptions: Normal to visit pantry	3.17	3	<.001	−0.662	0.307
11_2	Perceptions: Pantry only for neediest students	2.04	2	<.001	0.775	0.481
11_3	Perceptions: Often experience food issues	3.45	4	<.001	−0.909	0.776
12_1	Perceptions: Hunger sometimes normal	2.60	3	<.001	−0.347	−0.475
12_2	Perceptions: Never okay starving student	3.66	4	<.001	−2.353	5.632
12_3	Perceptions: Almost always enough food	1.91	2	<.001	0.491	1.253
13_1	Willingness: Encourage friend to go	3.75	4	<.001	−2.181	6.191
13_2	Willingness: Go when low on groceries	3.41	4	<.001	−0.996	0.596
13_3	Willingness: Go when haven't eaten all day	3.29	3	<.001	−0.861	−0.161

Post-Test Student Survey: Partial Intervention Group

Question	Question Content	Mean	Median	Shapiro-Wilk Test p-value	Skewness	Kurtosis
3_1	Knowledge: Pantry located	3.15	4	<.001	−0.931	−0.420
3_2	Knowledge: Pantry open	2.74	3	<.001	−0.345	−0.822
3_3	Knowledge: Pantry eligible	3.03	3	<.001	−0.674	−0.656
3_4	Knowledge: Pantry food options	2.73	3	<.001	−0.317	−0.803
3_5	Knowledge: Pantry food amount	2.69	3	<.001	−0.106	−1.072
9a_1	Pantry easy to get to	3.32	4	<.001	−1.406	1.557
9a_2	Pantry private location	3.21	3	<.001	−1.152	1.159
9a_3	Pantry hours are clear	3.24	3	<.001	−1.217	1.302
9a_4	Pantry hours work for me	2.84	3	<.001	−0.455	−0.650
9b_1	Pantry well organized	3.33	3	<.001	−1.469	2.236
9b_2	Pantry nicely decorated	3.03	3	<.001	−0.825	0.207
9b_3	Pantry employees helpful	3.37	4	<.001	−1.543	2.011
9b_4	Pantry employees welcoming	3.37	4	<.001	−1.461	1.841
9c_1	Pantry full (not empty)	3.05	3	<.001	−0.710	0.596
9c_2	Pantry food fresh (not expired)	3.11	3	<.001	−0.824	0.510
9c_3	Pantry food options I like	2.86	3	<.001	−0.439	−0.010
9c_4	Pantry food amount good	2.95	3	<.001	−0.675	0.222
11_1	Perceptions: Normal to visit pantry	3.19	3	<.001	−0.996	1.166
11_2	Perceptions: Pantry only for neediest students	2.11	2	<.001	0.495	−0.255
11_3	Perceptions: Often experience food issues	3.36	3	<.001	−1.128	1.885
12_1	Perceptions: Hunger sometimes normal	2.72	3	<.001	−0.410	−0.700
12_2	Perceptions: Never okay starving student	3.58	4	<.001	−2.031	3.948
12_3	Perceptions: Almost always enough food	2.13	2	<.001	0.576	0.013
13_1	Willingness: Encourage friend to go	3.68	4	<.001	−2.204	5.771
13_2	Willingness: Go when low on groceries	3.42	4	<.001	−1.156	0.820
13_3	Willingness: Go when haven't eaten all day	3.36	4	<.001	−1.039	0.373

Pretest Student Survey: Full Intervention Group

Question	Question Content	Mean	Median	Shapiro-Wilk Test p-value	Skewness	Kurtosis
3_1	Knowledge: Pantry located	3.21	4	<.001	−1.045	−0.145
3_2	Knowledge: Pantry open	2.86	3	<.001	−0.511	−0.501
3_3	Knowledge: Pantry eligible	3.06	3	<.001	−0.636	−0.649
3_4	Knowledge: Pantry food options	2.77	3	<.001	−0.235	−0.857
3_5	Knowledge: Pantry food amount	2.69	3	<.001	−0.036	−1.270
9a_1	Pantry easy to get to	3.52	4	<.001	−1.512	2.708
9a_2	Pantry private location	3.48	4	<.001	−1.657	2.836
9a_3	Pantry hours are clear	3.54	4	<.001	−1.542	4.091
9a_4	Pantry hours work for me	3.08	3	<.001	−0.601	−0.172
9b_1	Pantry well organized	3.56	4	<.001	−1.633	4.389
9b_2	Pantry nicely decorated	3.40	4	<.001	−1.122	1.100
9b_3	Pantry employees helpful	3.66	4	<.001	−2.191	6.742
9b_4	Pantry employees welcoming	3.66	4	<.001	−2.191	6.742
9c_1	Pantry full (not empty)	3.16	3	<.001	−0.568	−0.156
9c_2	Pantry food fresh (not expired)	3.16	3	<.001	−1.053	0.660
9c_3	Pantry food options I like	3.08	3	<.001	−0.434	−0.178
9c_4	Pantry food amount good	3.18	3	<.001	−0.627	0.413
11_1	Perceptions: Normal to visit pantry	3.26	3	<.001	−0.797	1.257
11_2	Perceptions: Pantry only for neediest students	2.26	2	<.001	0.275	−0.545
11_3	Perceptions: Often experience food issues	3.42	3	<.001	−0.882	1.064
12_1	Perceptions: Hunger sometimes normal	2.70	3	<.001	−0.551	0.111
12_2	Perceptions: Never okay starving student	3.61	4	<.001	−1.925	3.543
12_3	Perceptions: Almost always enough food	2.13	2	<.001	0.495	0.428
13_1	Willingness: Encourage friend to go	3.73	4	<.001	−1.033	−0.948
13_2	Willingness: Go when low on groceries	3.50	4	<.001	−1.312	1.999
13_3	Willingness: Go when haven't eaten all day	3.42	4	<.001	−1.108	0.752

Pretest Student Survey: Control Group

Question	Question Content	Mean	Median	Shapiro-Wilk Test p-value	Skewness	Kurtosis
3_1	Knowledge: Pantry located	3.37	4	<.001	−1.332	0.805
3_2	Knowledge: Pantry open	2.85	3	<.001	−0.241	−0.938
3_3	Knowledge: Pantry eligible	2.99	3	<.001	−0.422	−0.882
3_4	Knowledge: Pantry food options	2.78	3	<.001	−0.329	−0.592
3_5	Knowledge: Pantry food amount	2.76	3	<.001	−0.132	−1.118
9a_1	Pantry easy to get to	3.55	4	<.001	−1.764	3.283
9a_2	Pantry private location	3.41	4	<.001	−1.243	1.751
9a_3	Pantry hours are clear	3.50	4	<.001	−1.553	2.680
9a_4	Pantry hours work for me	3.07	3	<.001	−0.682	−0.053
9b_1	Pantry well organized	3.47	4	<.001	−1.111	1.910
9b_2	Pantry nicely decorated	3.22	3	<.001	−0.569	0.295
9b_3	Pantry employees helpful	3.58	4	<.001	−1.561	3.040
9b_4	Pantry employees welcoming	3.54	4	<.001	−1.725	3.917
9c_1	Pantry full (not empty)	3.09	3	<.001	−0.616	0.766
9c_2	Pantry food fresh (not expired)	3.27	3	<.001	−0.637	0.891
9c_3	Pantry food options I like	2.97	3	<.001	−0.341	0.857
9c_4	Pantry food amount good	3.07	3	<.001	−0.683	0.517
11_1	Perceptions: Normal to visit pantry	3.32	3	<.001	−0.445	−0.722
11_2	Perceptions: Pantry only for neediest students	1.99	2	<.001	0.463	−0.207
11_3	Perceptions: Often experience food issues	3.45	3	<.001	−0.162	−1.215
12_1	Perceptions: Hunger sometimes normal	2.85	3	<.001	−0.568	−0.010
12_2	Perceptions: Never okay starving student	3.54	4	<.001	−1.700	3.132
12_3	Perceptions: Almost always enough food	2.15	2	<.001	0.617	0.627
13_1	Willingness: Encourage friend to go	3.67	4	<.001	−1.753	3.544
13_2	Willingness: Go when low on groceries	3.38	4	<.001	−0.978	0.334
13_3	Willingness: Go when haven't eaten all day	3.29	4	<.001	−0.917	−0.163

Pretest Student Survey: Full Intervention Group

Question	Question Content	Mean	Median	Shapiro-Wilk Test p-value	Skewness	Kurtosis
3_1	Knowledge: Pantry located	3.21	4	<.001	−1.045	−0.145
3_2	Knowledge: Pantry open	2.86	3	<.001	−0.511	−0.501
3_3	Knowledge: Pantry eligible	3.06	3	<.001	−0.636	−0.649
3_4	Knowledge: Pantry food options	2.77	3	<.001	−0.235	−0.857
3_5	Knowledge: Pantry food amount	2.69	3	<.001	−0.036	−1.270
9a_1	Pantry easy to get to	3.52	4	<.001	−1.512	2.708
9a_2	Pantry private location	3.48	4	<.001	−1.657	2.836
9a_3	Pantry hours are clear	3.54	4	<.001	−1.542	4.091
9a_4	Pantry hours work for me	3.08	3	<.001	−0.601	−0.172
9b_1	Pantry well organized	3.56	4	<.001	−1.633	4.389
9b_2	Pantry nicely decorated	3.40	4	<.001	−1.122	1.100
9b_3	Pantry employees helpful	3.66	4	<.001	−2.191	6.742
9b_4	Pantry employees welcoming	3.66	4	<.001	−2.191	6.742
9c_1	Pantry full (not empty)	3.16	3	<.001	−0.568	−0.156
9c_2	Pantry food fresh (not expired)	3.16	3	<.001	−1.053	0.660
9c_3	Pantry food options I like	3.08	3	<.001	−0.434	−0.178
9c_4	Pantry food amount good	3.18	3	<.001	−0.627	0.413
11_1	Perceptions: Normal to visit pantry	3.26	3	<.001	−0.797	1.257
11_2	Perceptions: Pantry only for neediest students	2.26	2	<.001	0.275	−0.545
11_3	Perceptions: Often experience food issues	3.42	3	<.001	−0.882	1.064
12_1	Perceptions: Hunger sometimes normal	2.70	3	<.001	−0.551	0.111
12_2	Perceptions: Never okay starving student	3.61	4	<.001	−1.925	3.543
12_3	Perceptions: Almost always enough food	2.13	2	<.001	0.495	0.428
13_1	Willingness: Encourage friend to go	3.73	4	<.001	−1.033	−0.948
13_2	Willingness: Go when low on groceries	3.50	4	<.001	−1.312	1.999
13_3	Willingness: Go when haven't eaten all day	3.42	4	<.001	−1.108	0.752

Pretest Student Survey: Control Group

Question	Question Content	Mean	Median	Shapiro-Wilk Test p-value	Skewness	Kurtosis
3_1	Knowledge: Pantry located	3.37	4	<.001	−1.332	0.805
3_2	Knowledge: Pantry open	2.85	3	<.001	−0.241	−0.938
3_3	Knowledge: Pantry eligible	2.99	3	<.001	−0.422	−0.882
3_4	Knowledge: Pantry food options	2.78	3	<.001	−0.329	−0.592
3_5	Knowledge: Pantry food amount	2.76	3	<.001	−0.132	−1.118
9a_1	Pantry easy to get to	3.55	4	<.001	−1.764	3.283
9a_2	Pantry private location	3.41	4	<.001	−1.243	1.751
9a_3	Pantry hours are clear	3.50	4	<.001	−1.553	2.680
9a_4	Pantry hours work for me	3.07	3	<.001	−0.682	−0.053
9b_1	Pantry well organized	3.47	4	<.001	−1.111	1.910
9b_2	Pantry nicely decorated	3.22	3	<.001	−0.569	0.295
9b_3	Pantry employees helpful	3.58	4	<.001	−1.561	3.040
9b_4	Pantry employees welcoming	3.54	4	<.001	−1.725	3.917
9c_1	Pantry full (not empty)	3.09	3	<.001	−0.616	0.766
9c_2	Pantry food fresh (not expired)	3.27	3	<.001	−0.637	0.891
9c_3	Pantry food options I like	2.97	3	<.001	−0.341	0.857
9c_4	Pantry food amount good	3.07	3	<.001	−0.683	0.517
11_1	Perceptions: Normal to visit pantry	3.32	3	<.001	−0.445	−0.722
11_2	Perceptions: Pantry only for neediest students	1.99	2	<.001	0.463	−0.207
11_3	Perceptions: Often experience food issues	3.45	3	<.001	−0.162	−1.215
12_1	Perceptions: Hunger sometimes normal	2.85	3	<.001	−0.568	−0.010
12_2	Perceptions: Never okay starving student	3.54	4	<.001	−1.700	3.132
12_3	Perceptions: Almost always enough food	2.15	2	<.001	0.617	0.627
13_1	Willingness: Encourage friend to go	3.67	4	<.001	−1.753	3.544
13_2	Willingness: Go when low on groceries	3.38	4	<.001	−0.978	0.334
13_3	Willingness: Go when haven't eaten all day	3.29	4	<.001	−0.917	−0.163

Appendix P

Student Survey Reliability Analysis Tables and Notes

Pretest Student Survey Reliability Analysis: Attempt 1

Potential Construct	Questions	Survey Items	Cronbach's Alpha	Plain Language Acceptance Level for Internal Consistency
Knowledge of Pantry	Q3 (Q3_1, Q3_2, Q3_3, Q3_4, Q3_5)	5	.899	Good
Willingness to Use Pantry	Q13 (Q13_1, Q13_2, Q13_3)	3	.772	Acceptable
Stigma/Perceptions	Q11 & Q12 (Q11_1, Q11_2_Reverse, Q11_3, Q12_1_Reverse, Q12_2, Q12_3_Reverse)	6	.407	Unacceptable
Entire Survey		14	.778	Acceptable

Pretest Student Survey Reliability Analysis Table: Attempt 2 (Removing Q13_1)

Potential Construct	Questions	Survey Items	Cronbach's Alpha	Plain Language Acceptance Level for Internal Consistency
Knowledge of Pantry	Q3 (Q3_1, Q3_2, Q3_3, Q3_4, Q3_5)	5	.899	Good
Willingness to Use Pantry	Q13 (Q13_2, Q13_3)	2	.831	Good
Stigma/Perceptions	Q11 & Q12 (Q11_1, Q11_2_Reverse, Q11_3, Q12_1_Reverse, Q12_2, Q12_3_Reverse)	6	.407	Unacceptable
Entire Survey		13	.762	Acceptable

Pretest Student Survey Reliability Analysis Table: Attempt 3 (Removing Q11_1 and Q11_2)

Potential Construct	Questions	Survey Items	Cronbach's Alpha	Plain Language Acceptance Level for Internal Consistency
Knowledge of Pantry	Q3 (Q3_1, Q3_2, Q3_3, Q3_4, Q3_5)	5	.899	Good
Willingness to Use Pantry	Q13 (Q13_1, Q13_2, Q13_3)	3	.831	Good
Stigma/Perceptions	Q11 & Q12 (Q11_3, Q12_1_Reverse, Q12_2, Q12_3_Reverse)	4	.266	Unacceptable
Entire Survey		12	.767	Acceptable

Pretest Student Survey Reliability Analysis Table: Attempt 4 (Removing Q11_1 and Q11_2, "Stigma/Perceptions" split into two)

Potential Construct	Questions	Survey Items	Cronbach's Alpha	Plain Language Acceptance Level for Internal Consistency
Knowledge of Pantry	Q3 (Q3_1, Q3_2, Q3_3, Q3_4, Q3_5)	5	.899	Good
Willingness to Use Pantry	Q13 (Q13_1, Q13_2, Q13_3)	3	.831	Good
Prevalence of Food Insecurity	Q11 & Q12 (Q11_3, Q12_3_Reverse)	2	.419	Unacceptable
Normalcy and acceptability of food insecurity	Q12 (Q12_1_Reverse, Q12_2)	2	.134	Unacceptable
Entire Survey		12	.767	Acceptable

Pretest Student Survey Key Findings

- Removing Q13_1 from the "willingness to use pantry" increased the alpha from 0.772 to 0.831 and lowered the overall alpha from 0.778 to 0.762.
- Removing any of the questions within "knowledge of the pantry" would reduce its alpha. The same is true for "stigma/perceptions."
- The alpha of "stigma/perceptions" (Q11 and Q12) is unacceptable. This was true even when I removed the reverse coding, resulting in an alpha of 0.170 for the construct.
- Removing any one of the "stigma/perceptions" questions would increase the overall alpha.
- Pairs of questions within "stigma/perceptions" that I expected to be highly correlated were not and had low alphas.
    - Q11_3 and Q12_3_Reverse ("perceptions of the prevalence of food insecurity")
        - Cronbach's Alpha: 0.419
        - Correlation: 0.267
    - Q11_1 and Q11_2_Reverse ("perceptions of what the typical college student experience should be")
        - Cronbach's Alpha: .77
        - Correlation: .040
    - Q12_1_Reverse and Q12_2 ("perceptions of who the pantry is meant to serve")
        - Cronbach's Alpha: .134
        - Correlation: .075
- Removing Q11_1 and Q11_2 results in a much lower alpha for the "stigma/perceptions" construct (.266 compared to .407) and a slightly lower alpha for the survey overall (.767

compared to .778). The plain language acceptance level for internal consistency remains the same in both instances.

- Splitting “stigma/perceptions” into two distinct constructs results in
    - a higher alpha (.419) for “prevalence of food insecurity” than the original construct (.266)
    - a slightly lower alpha (.134) for “normalcy and acceptability of food insecurity” than the original construct (.266)

Post-Test Student Survey Reliability Analysis Table: Round 1

Potential Construct	Questions	Survey Items	Cronbach's Alpha	Plain Language Acceptance Level for Internal Consistency
Knowledge of Pantry	Q3 (Q3_1, Q3_2, Q3_3, Q3_4, Q3_5)	5	.915	Excellent
Willingness to Use Pantry	Q13 (Q13_1, Q13_2, Q13_3)	3	.818	Good
Stigma/Perceptions	Q11 & Q12 (Q11_1, Q11_2_Reverse, Q11_3, Q12_1_Reverse, Q12_2, Q12_3_Reverse)	6	.392	Unacceptable
Pantry Structural Aspects	Q9a, Q9b, & Q9c (Q9a_1, Q9a_2, Q9a_3, Q9a_4, Q9b_1, Q9b_2, Q9b_3, Q9b_4, Q9c_1, Q9c_2, Q9c_3, Q9c_4)	12	.933	Excellent
Entire Survey		26	.917	Excellent

Post-Test Student Survey Reliability Analysis Table: Round 2 (Q13_1 Removed)

Potential Construct	Questions	Survey Items	Cronbach's Alpha	Plain Language Acceptance Level for Internal Consistency
Knowledge of Pantry	Q3 (Q3_1, Q3_2, Q3_3, Q3_4, Q3_5)	5	.915	Excellent
Willingness to Use Pantry	Q13 (Q13_2, Q13_3)	2	.833	Good
Stigma/Perceptions	Q11 & Q12 (Q11_1, Q11_2_Reverse, Q11_3, Q12_1_Reverse, Q12_2, Q12_3_Reverse)	6	.392	Unacceptable
Pantry Structural Aspects	Q9a, Q9b, & Q9c (Q9a_1, Q9a_2, Q9a_3, Q9a_4, Q9b_1, Q9b_2, Q9b_3, Q9b_4, Q9c_1, Q9c_2, Q9c_3, Q9c_4)	12	.933	Excellent
Entire Survey		25	.916	Excellent

Post-Test Student Survey Reliability Analysis Table: Round 3 (Q11_1 and Q11_2 Removed)

Potential Construct	Questions	Survey Items	Cronbach's Alpha	Plain Language Acceptance Level for Internal Consistency
Knowledge of Pantry	Q3 (Q3_1, Q3_2, Q3_3, Q3_4, Q3_5)	5	.915	Excellent
Willingness to Use Pantry	Q13 (Q13_1, Q13_2, Q13_3)	3	.833	Good
Stigma/Perceptions	Q11 & Q12 (Q11_3, Q12_1_Reverse, Q12_2, Q12_3_Reverse)	4	.235	Unacceptable
Pantry Structural Aspects	Q9a, Q9b, & Q9c (Q9a_1, Q9a_2, Q9a_3, Q9a_4, Q9b_1, Q9b_2, Q9b_3, Q9b_4, Q9c_1, Q9c_2, Q9c_3, Q9c_4)	12	.933	Excellent
Entire Survey		24	.919	Excellent

Post-Test Student Survey Reliability Analysis Table: Round 4 (Q11_1 and Q11_2 Removed, "Stigma/Perceptions" split into two)

Potential Construct	Questions	Survey Items	Cronbach's Alpha	Plain Language Acceptance Level for Internal Consistency
Knowledge of Pantry	Q3 (Q3_1, Q3_2, Q3_3, Q3_4, Q3_5)	5	.915	Excellent
Willingness to Use Pantry	Q13 (Q13_1, Q13_2, Q13_3)	3	.833	Good
Prevalence of Food Insecurity	Q11 & Q12 (Q11_3, Q12_3_Reverse)	2	.389	Unacceptable
Normalcy and acceptability of food insecurity	Q12 (Q12_1_Reverse, Q12_2)	2	.097	Unacceptable
Pantry Structural Aspects: Staff, Location, Interior, and Hours	Q9a & Q9b (Q9a_1, Q9a_2, Q9a_3, Q9a_4, Q9b_1, Q9b_2, Q9b_3, Q9b_4)	8	.936	Excellent
Pantry Structural Aspects: Food	Q9c (Q9c_1, Q9c_4, Q9c_3, Q9c_2)	4	.853	Good
Entire Survey		24	.919	Excellent

Post-Test Student Survey Key Findings

- Removing Q13_1 from "willingness to use pantry" slightly increased the construct's alpha from .831 to .833 and slightly lowered the overall alpha from .917 to .916.
- Removing any of the questions within "knowledge of the pantry" would reduce its alpha. The same is true for "pantry structural aspects."
- The alpha of "stigma/perceptions" is unacceptable. This was true even when I removed the reverse coding, resulting in an alpha of .245 for the construct.
- Removing "Hunger sometimes normal" (Q12_1_Reverse) would slightly increase the alpha of the "stigma/perceptions" construct.
- Removing "Hunger sometimes normal" (Q12_1_Reverse), "Pantry only for neediest students" (Q11_2_Reverse) or "Almost always enough food" (Q12_3_Reverse) would slightly increase the overall alpha.
- Pairs of questions within "stigma/perceptions" that I expected to be highly correlated were not and had low alphas.
    - Q11_3 and Q12_3_Reverse ("perceptions of the prevalence of food insecurity")

        - Cronbach's Alpha: .389
        - Correlation: .246
    - Q11_1 and Q11_2_Reverse ("perceptions of what the typical college student experience should be")
        - Cronbach's Alpha: .026
        - Correlation: .013
    - Q12_1_Reverse and Q12_2 ("perceptions of who the pantry is meant to serve")
        - Cronbach's Alpha: .097
        - Correlation: .031
- Removing Q11_1 and Q11_2 results in a lower alpha for the "stigma/perceptions" construct (.235 compared to .392) and a slightly higher alpha for the survey overall (.919 compared to .917). The plain language acceptance level for internal consistency remains the same in both instances.
- Splitting "stigma/perceptions" into two distinct constructs results in
    - a slightly higher alpha (.389) for "prevalence of food insecurity" than the original construct (.235)
    - a slightly lower alpha (.097) for "normalcy and acceptability of food insecurity" than the original construct (.235)
- Splitting "pantry structural aspects" into two distinct constructs results in high alphas that far exceed the .500 minimum threshold of acceptability.

Appendix Q

Student Survey Correlation Matrices of Select Items

Correlation Matrix of Select Survey Items: Pretest Student Survey

	Q3_1	Q3_2	Q3_3	Q3_4	Q3_5	Q13_1	Q13_2	Q13_3	Q11_1	Q11_2_ Reverse	Q11_3	Q12_1_ Reverse	Q12_2	Q12_3_ Reverse
Q3_1	—													
Q3_2	.707	—												
Q3_3	.578	.625	—											
Q3_4	.514	.610	.667	—										
Q3_5	.573	.687	.715	.729	—									
Q13_1	.299	.263	.277	.236	.215	—								
Q13_2	.272	.362	.329	.359	.376	.513	—							
Q13_3	.191	.311	.285	.309	.321	.364	.711	—						
Q11_1	.094	.144	.142	.220	.200	.202	.279	.254	—					
Q11_2_ Reverse	.263	.188	.111	.160	.166	.092	.192	.139	.040	—				
Q11_3	.097	-.020	-.054	-.018	-.075	.259	.154	.136	.236	.117	—			
Q12_1_ Reverse	-.038	.043	-.042	.085	-.028	.009	-.020	.058	.094	.148	-.036	—		
Q12_2	-.021	.002	.049	.095	.072	.250	.177	.205	.163	-.042	.141	.075	—	
Q12_3_ Reverse	-.037	-.095	-.082	-.099	-.165	.036	-.027	-.059	.081	.149	.267	.142	-.060	—

Note. This correlation matrix used a 2-tailed test.

Post-Test Student Survey: Correlation Matrix of Select Survey Items (Part 1)

	Q3_1	Q3_2	Q3_3	Q3_4	Q3_5	Q13_1	Q13_2	Q13_3	Q11_1	Q11_2_ Reverse	Q11_3	Q12_1_ Reverse	Q12_2	Q12_3_ Reverse
Q3_1	—													
Q3_2	.725	—												
Q3_3	.651	.711	—											
Q3_4	.595	.675	.672	—										
Q3_5	.608	.729	.725	.768	—									
Q13_1	.214	.156	.237	.192	.157	—								
Q13_2	.246	.256	.294	.230	.249	.602	—							
Q13_3	.155	.178	.246	.176	.217	.497	.713	—						
Q11_1	.183	.170	.192	.159	.176	.301	.330	.304	—					
Q11_2_ Reverse	.124	.034	.056	-.020	.057	.033	.092	.070	.013	—				
Q11_3	.161	.070	.112	.096	.015	.240	.236	.208	.316	.036	—			
Q12_1_ Reverse	.005	-.056	.009	-.027	-.031	-.036	-.076	-.042	-.026	.116	-.070	—		
Q12_2	.061	.019	.149	.061	.087	.287	.173	.166	.211	.033	.217	.051	—	
Q12_3_ Reverse	-.012	-.082	-.071	-.098	-.097	.031	.041	.031	.032	.171	.246	.080	-.036	—
Q9a_1	.463	.438	.403	.442	.466	.275	.300	.257	.369	.056	.217	.030	.045	-.033
Q9a_2	.386	.298	.348	.287	.325	.269	.218	.214	.304	.048	.186	-.012	.133	-.052
Q9a_3	.425	.564	.504	.493	.568	.342	.356	.296	.325	-.016	.192	-.018	.090	.013
Q9a_4	.189	.298	.258	.366	.342	.223	.230	.201	.246	-.043	.102	-.056	-.003	-.174
Q9b_1	.453	.468	.463	.485	.510	.428	.409	.348	.442	.017	.259	.023	.211	-.011
Q9b_2	.312	.355	.298	.411	.382	.341	.361	.262	.386	-.076	.219	-.011	.121	-.068
Q9b_3	.477	.461	.441	.461	.500	.417	.413	.325	.479	.068	.264	-.039	.223	.047
Q9b_4	.416	.448	.424	.414	.496	.367	.390	.291	.422	.061	.192	.035	.228	.019
Q9c_1	.166	.201	.183	.281	.247	.311	.334	.232	.256	-.182	.250	-.085	.104	-.056
Q9c_2	.150	.159	.161	.249	.245	.270	.246	.148	.291	-.078	.249	-.031	.208	-.102
Q9c_3	.163	.187	.136	.343	.250	.259	.346	.259	.321	-.133	.183	.044	.126	-.187
Q9c_4	.168	.252	.190	.335	.320	.294	.369	.296	.242	-.139	.130	-.050	.134	-.194

Note. This correlation matrix used a 2-tailed test.

Post-Test Student Survey: Correlation Matrix of Select Survey Items (Part 2)

	Q9a_1	Q9a_2	Q9a_3	Q9a_4	Q9b_1	Q9b_2	Q9b_3	Q9b_4	Q9c_1	Q9c_2	Q9c_3	Q9c_4
Q9a_1	—											
Q9a_2	.546	—										
Q9a_3	.704	.539	—									
Q9a_4	.520	.336	.546	—								
Q9b_1	.686	.564	.693	.548	—							
Q9b_2	.577	.469	.601	.561	.771	—						
Q9b_3	.681	.562	.722	.545	.796	.699	—					
Q9b_4	.606	.471	.663	.535	.789	.715	.891	—				
Q9c_1	.293	.175	.363	.344	.423	.466	.368	.417	—			
Q9c_2	.382	.326	.368	.353	.510	.475	.460	.477	.490	—		
Q9c_3	.385	.295	.415	.516	.497	.532	.451	.461	.518	.599	—	
Q9c_4	.435	.293	.503	.522	.536	.554	.482	.504	.622	.584	.731	—

Note. This correlation matrix used a 2-tailed test.

Appendix R

Student Survey Factor Analysis Tables and Notes

Pretest Key Findings

(1) Factor Analysis of "Pretest Student Survey Reliability Analysis Table: Attempt 1"

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.376	31.255	31.255	4.376	31.255	31.255	3.758	26.842	26.842
2	1.880	13.427	44.682	1.880	13.427	44.682	2.370	16.926	43.767
3	1.347	9.624	54.306	1.347	9.624	54.306	1.446	10.327	54.094
4	1.088	7.768	62.074	1.088	7.768	62.074	1.117	7.980	62.074

Note. Extraction Method: Principal Component Analysis.

- Eigenvalue: The eigenvalue of the strongest component is 4.376, and the cumulative percentage of variance explained by these four factors is 62.07%.
- Number of Factors: The 14 items seem to measure 3–4 underlying factors.
- Communalities: Only Q11_1 had a low communality of .312, suggesting that this item could be removed from the analysis. The second-lowest communality score is Q12_2 at .419.
- Cross-loading Items: 9 of the 14 items cross-loaded, meaning that it has more than one substantial factor loading.
- Which items measure which factors?
  Looking at the rotated component matrix…
  - Knowledge of food pantry (Q3_1 through Q3_5)
  - Willingness to use pantry (Q13_1, Q13_2, Q13_3) + *Normal to visit pantry (Q11_1) + Never okay to starving student (Q12_2)*
  - *Food insecurity common (Q12_3_Reverse and Q11_3) + Pantry only for neediest (Q11_2_Reverse)*
  - *Hunger sometimes normal (Q12_1_Reverse)*
- What might these factors represent?
  - Knowledge of food pantry
  - Openness to using food pantry to avoid hunger (?)
  - Commonness of food insecurity & Pantry is only for needy students (?)
  - Normalcy of being hungry

(2) Factor Analysis of “Pretest Student Survey Reliability Analysis Table: Attempt 1” + omit Q11_1

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.289	32.989	32.989	4.289	32.989	32.989	3.760	28.922	28.922
2	1.774	13.648	46.637	1.774	13.648	46.637	2.166	16.662	45.584
3	1.347	10.364	57.001	1.347	10.364	57.001	1.440	11.079	56.663
4	1.083	8.332	65.332	1.083	8.332	65.332	1.127	8.669	65.332

Note. Extraction Method: Principal Component Analysis.

- Eigenvalue: The eigenvalue of the strongest component is 4.289, and the cumulative percentage of variance explained by these four factors is 65.33%.
- Number of Factors: The 13 items seem to measure 3–4 underlying factors.
- Communalities: With Q11_1 removed, all items had communality scores above .40. The lowest communality score is now Q12_2 at .416.
- Cross-loading Items: 7 of the 13 items cross-loaded, meaning that the variable has more than one substantial factor loading.
- Which items measure which factors?
  Looking at the rotated component matrix…
  - Knowledge of food pantry (Q3_1 through Q3_5)
  - Willingness to use pantry (Q13_1, Q13_2, Q13_3) + *Never okay to starving student (Q12_2)*
  - Food insecurity common (Q12_3_Reverse, Q11_3)
  - *Pantry only for neediest (Q11_2_Reverse) + Hunger sometimes normal (Q12_1_Reverse)*
- What might these factors represent?
  - Knowledge of food pantry
  - Openness to using food pantry to avoid hunger (?)
  - Commonness of food insecurity
  - Acceptable hunger and pantry use (?)

(3) Factor Analysis of “Pretest Student Survey Reliability Analysis Table: Attempt 1” + omit Q11_1 & Q12_2

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.269	35.577	35.577	4.269	35.577	35.577	3.610	30.081	30.081
2	1.691	14.091	49.668	1.691	14.091	49.668	2.133	17.779	47.859
3	1.287	10.728	60.396	1.287	10.728	60.396	1.395	11.623	59.482
4	1.065	8.873	69.269	1.065	8.873	69.269	1.174	9.787	69.269

Note. Extraction Method: Principal Component Analysis.

- Eigenvalue: The eigenvalue of the strongest component is 4.269, and the cumulative percentage of variance explained by these four factors is 69.27%.
- Number of Factors: The 12 items seem to measure 3–4 underlying factors.
- Communalities: With Q11_1 and Q12_2 removed, all items had communality scores above .400. The lowest communality score is now Q11_2_Reverse at .445.
- Cross-loading Items: 6 of the 12 items cross-loaded, meaning that the item has more than one substantial factor loading.
- Which items measure which factors?
  Looking at the rotated component matrix…
  - Knowledge of food pantry (Q3_1 through Q3_5)
  - Willingness to use pantry (Q13_1, Q13_2, Q13_3) + *Often experience food issues Q11_3*
  - *Food insecurity common (Q12_3_Reverse) + Pantry only for neediest (Q11_2_Reverse)*
  - *Hunger sometimes normal (Q12_1_Reverse)*
- What might these factors represent?
  This does not make any more sense to me than Attempt #2.

(4) Factor Analysis of "Pretest Student Survey Reliability Analysis Table: Attempt 1" + omit Q11_1 & Q11_2_Reverse

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.225	35.209	35.209	4.225	35.209	35.209	3.677	30.645	30.645
2	1.763	14.693	49.902	1.763	14.693	49.902	2.165	18.044	48.689
3	1.212	10.102	60.004	1.212	10.102	60.004	1.346	11.215	59.904
4	1.073	8.942	68.947	1.073	8.942	68.947	1.085	9.042	68.947

Note. Extraction Method: Principal Component Analysis.

- Eigenvalue: The eigenvalue of the strongest component is 4.225, and the cumulative percentage of variance explained by these four factors is 68.95%.
- Number of Factors: The 12 items seem to measure 3–4 underlying factors.
- Communalities: All items had communality scores above .400. The lowest communality score is now Q12_2 at .402.
- Cross-loading Items: 6 of the 12 items cross-loaded, meaning that the item has more than one substantial factor loading.
- Which variables measure which factors?
  Looking at the rotated component matrix…
  - Knowledge of food pantry (Q3_1 through Q3_5)
  - *Willingness to use pantry (Q13_1, Q13_2, Q13_3) + Never okay starving student Q12_2*
  - Food insecurity common (Q12_3_Reverse, Q11_3)
  - *Hunger sometimes normal (Q12_1_Reverse)*
- What might these factors represent?

Q12_2 is still out of place.

Post-Test Key Findings

(1) Factor Analysis of "Post-Test Student Survey Reliability Analysis Table: Attempt 1"

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.419	36.227	36.227	9.419	36.227	36.227	5.773	22.204	22.204
2	2.583	9.934	46.161	2.583	9.934	46.161	4.081	15.697	37.901
3	1.930	7.423	53.584	1.930	7.423	53.584	2.533	9.742	47.643
4	1.457	5.605	59.190	1.457	5.605	59.190	2.517	9.679	57.322
5	1.112	4.277	63.467	1.112	4.277	63.467	1.508	5.800	63.121
6	1.088	4.184	67.651	1.088	4.184	67.651	1.178	4.529	67.651

Note. Extraction Method: Principal Component Analysis.

- Eigenvalue: The eigenvalue of the strongest component is 9.419, and the cumulative percentage of variance explained by these six factors is 67.65%.
- Number of Factors: The 26 items seem to measure 4–6 underlying factors.
- Communalities: All items had communality scores above .400. Q11_1 had the lowest communality of .410, suggesting that this item could be removed from the analysis.
- Cross-loading Items: 19 of the 26 items cross-loaded, meaning that the item has more than one substantial factor loading.
- Which items measure which factors?
  Looking at the rotated component matrix…
  - *Pantry employees helpful (Q9b_3), Pantry well organized (Q9b_1), Pantry employees welcoming (Q9b_4), Pantry easy to get to (Q9a_1), Pantry nicely decorate (Q9a_2), Pantry hours are clear (Q9a_3), Pantry hours work for me (Q9a_4), Pantry private location (Q9a_2) + normal to visit pantry (Q11_1)*
  - Knowledge of pantry (Q3_1 through Q3_5)
  - Pantry food (Q9c_1, Q9c_4, Q9c_3, Q9c_2) + *pantry only for neediest students (Q11_2_Reverse)*
  - Willingness to use pantry (Q13_1, Q13_2, Q13_3)
  - Prevalence of food insecurity (Q12_3_Reverse, Q11_3)
  - *Hunger sometimes normal (Q12_1_Reverse) + Never okay starving student (Q12_2)*
- What might these factors represent?
  Q11_1 and Q11_2_Reverse are out of place.

(2) Factor Analysis of “Post-Test Student Survey Reliability Analysis Table: Attempt 1” + omit Q11_1

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.195	36.778	36.778	9.195	36.778	36.778	5.659	22.635	22.635
2	2.541	10.164	46.942	2.541	10.164	46.942	4.042	16.168	38.803
3	1.884	7.536	54.478	1.884	7.536	54.478	2.498	9.992	48.794
4	1.446	5.782	60.260	1.446	5.782	60.260	2.483	9.932	58.726
5	1.105	4.419	64.680	1.105	4.419	64.680	1.389	5.556	64.282
6	1.088	4.350	69.030	1.088	4.350	69.030	1.187	4.747	69.030

Note. Extraction Method: Principal Component Analysis.

- Eigenvalue: The eigenvalue of the strongest component is 9.195, and the cumulative percentage of variance explained by these six factors is 69.03%.
- Number of Factors: The 25 items seem to measure 3–4 underlying factors.
- Communalities: All items had communality scores above .400. The lowest communality score is Q11_2_Reverse at .425.
- Cross-loading Items: 18 of the 25 items cross-loaded, meaning that the variable has more than one substantial factor loading.
- Which variables measure which factors?
  Looking at the rotated component matrix…
  - *Pantry employees helpful (Q9b_3), Pantry well organized (Q9b_1), Pantry employees welcoming (Q9b_4), Pantry easy to get to (Q9a_1), Pantry nicely decorate (Q9a_2), Pantry hours are clear (Q9a_3), Pantry hours work for me (Q9a_4), Pantry private location (Q9a_2)*
  - Knowledge of pantry (Q3_1 through Q3_5)
  - Willingness to use pantry (Q13_1, Q13_2, Q13_3)
  - Pantry food (Q9c_1, Q9c_4, Q9c_3, Q9c_2) + *Pantry only for neediest students (Q11_2_Reverse)*
  - Prevalence of food insecurity (Q12_3_Reverse and Q11_3)
  - *Hunger sometimes normal (Q12_1_Reverse) + Never okay starving student (Q12_2)*
- What might these factors represent?
  - Pantry structural aspects: staff, location, interior, and hours
  - Knowledge of the pantry
  - Willingness to use the pantry
  - Pantry structural aspects: food + *Pantry only for neediest students (Q11_2_Reverse)*
  - Willingness to use pantry
  - Prevalence of food insecurity
  - Normalcy and acceptability of food insecurity

  Q11_2_Reverse is still out of place.

(3) Factor Analysis of “Post-Test Student Survey Reliability Analysis Table: Attempt 1” + omit Q11_1 & Q11_2_Reverse

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.195	38.311	38.311	9.195	38.311	38.311	4.925	20.522	20.522
2	2.514	10.474	48.784	2.514	10.474	48.784	4.026	16.776	37.298
3	1.792	7.465	56.250	1.792	7.465	56.250	3.194	13.310	50.609
4	1.393	5.804	62.054	1.393	5.804	62.054	2.395	9.981	60.590
5	1.094	4.557	66.610	1.094	4.557	66.610	1.375	5.730	66.319
6	1.067	4.445	71.055	1.067	4.445	71.055	1.137	4.736	71.055

Note. Extraction Method: Principal Component Analysis.

- Eigenvalue: The eigenvalue of the strongest component is 9.195, and the cumulative percentage of variance explained by these six factors is 71.06%.
- Number of Factors: The 24 items seem to measure 4–6 underlying factors.
- Communalities: All items had communality scores above .500. The lowest communality score is Q9a_2 at .502.
- Cross-loading Items: 18 of the 24 items cross-loaded, meaning that the item has more than one substantial factor loading.
- Which variables measure which factors?
  Looking at the rotated component matrix…
  - *Pantry employees helpful (Q9b_3), Pantry well organized (Q9b_1), Pantry employees welcoming (Q9b_4), Pantry easy to get to (Q9a_1), Pantry nicely decorate (Q9a_2), Pantry hours are clear (Q9a_3), Pantry hours work for me (Q9a_4), Pantry private location (Q9a_2)*
  - Knowledge of pantry (Q3_1 through Q3_5)
  - Willingness to use pantry (Q13_1, Q13_2, Q13_3)
  - Pantry food (Q9c_1, Q9c_4, Q9c_3, Q9c_2)
  - Prevalence of food insecurity (Q12_3_Reverse, Q11_3)
  - *Hunger sometimes normal (Q12_1_Reverse) + Never okay starving student (Q12_2)*
- What might these factors represent?
  - Pantry structural aspects: staff, location, interior, and hours
  - Knowledge of the pantry
  - Willingness to use the pantry
  - Pantry structural aspects: food
  - Prevalence of food insecurity
  - Normalcy and acceptability of food insecurity

  Everything fits the way I had intended when designing the survey, aside from the omission of two items.

Appendix S

Student Survey Missing Data Analysis for Items within Composite Scores

Missing Data Analysis for Pretest Student Survey Items within Constructs

Questions	Survey Items	Full Intervention Group		Control Group	
		No Responses Provided	Partial Responses Provided	No Responses Provided	Partial Responses Provided
Q3 (Q3_1, Q3_2, Q3_3, Q3_4, Q3_5)	5	26	1	25	0
Q13 (Q13_1, Q13_2, Q13_3)	3	18	0	12	1
Q11 & Q12 (Q11_3, Q12_3_Reverse)	2	16	3	11	2
Q12 (Q12_1_Reverse, Q12_2)	2	18	0	12	0

Missing Data Analysis for Post-Test Student Survey Items within Constructs

Construct	Questions	Survey Items	Partial Intervention Group		Full Intervention Group		Control Group	
			No Responses Provided	Partial Responses Provided	No Responses Provided	Partial Responses Provided	No Responses Provided	Partial Responses Provided
Knowledge of Pantry	Q3 (Q3_1, Q3_2, Q3_3, Q3_4, Q3_5)	5	39	2	15	1	15	1
Willingness to Use Pantry	Q13 (Q13_1, Q13_2, Q13_3)	3	37	0	11	0	15	1
Prevalence of Food Insecurity	Q11 & Q12 (Q11_3, Q12_3_Reverse)	2	33	3	11	1	12	3
Normalcy and Acceptability of Food Insecurity	Q12 (Q12_1_Reverse, Q12_2)	2	36	1	11	0	14	0
Pantry Structural Aspects: Staff, Location, Interior, and Hours	Q9a & Q9b (Q9a_1, Q9a_2, Q9a_3, Q9a_4, Q9b_1, Q9b_2, Q9b_3, Q9b_4)	8	49	4	16	2	16	2
Pantry Structural Aspects: Food	Q9c (Q9c_1, Q9c_4, Q9c_3, Q9c_2)	4	52	4	18	2	18	2

Appendix T

Correlations of Variables Comprising Composite Scores

Correlations of Pretest Variables Comprising "Knowledge of Pantry Composite Score"

		Q3_1 Knowledge: Pantry located	Q3_2 Knowledge: Pantry open	Q3_3 Knowledge: Pantry eligible	Q3_4 Knowledge: Pantry food options	Q3_5 Knowledge: Pantry food amount
Q3_1 Knowledge: Pantry located	Pearson Correlation	—				
	Sig. (2-tailed)					
	N					
Q3_2 Knowledge: Pantry open	Pearson Correlation	.707**	—			
	Sig. (2-tailed)	<.001				
	N	313				
Q3_3 Knowledge: Pantry eligible	Pearson Correlation	.578**	.625**	—		
	Sig. (2-tailed)	<.001	<.001			
	N	313	313			
Q3_4 Knowledge: Pantry food options	Pearson Correlation	.514**	.610**	.667**	—	
	Sig. (2-tailed)	<.001	<.001	<.001		
	N	312	312	312		
Q3_5 Knowledge: Pantry food amount	Pearson Correlation	.573**	.687**	.715**	.729**	—
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	
	N	313	313	313	312	

Note. **Correlation is significant at the .01 level (2-tailed).

Correlations of Pretest Variables Comprising "Willingness to Use Pantry Composite Score"

		Q13_1 Willingness: Encourage friend to go	Q13_2 Willingness: Go when low on groceries	Q13_3 Willingness: Go when haven't eaten all day
Q13_1 Willingness: Encourage friend to go	Pearson Correlation	—		
	Sig. (2-tailed)			
	N			
Q13_2 Willingness: Go when low on groceries	Pearson Correlation	.513**	—	
	Sig. (2-tailed)	<.001		
	N	306		
Q13_3 Willingness: Go when haven't eaten all day	Pearson Correlation	.364**	.711**	—
	Sig. (2-tailed)	<.001	<.001	
	N	295	293	

** Correlation is significant at the .01 level (2-tailed).

Correlations of Pretest Variables Comprising "Prevalence of Food Insecurity Composite Score"

		Q12_3_Reverse Perceptions: Almost always enough food	Q11_3 Perceptions: Often experience food issues
Q12_3_Reverse Perceptions: Almost always enough food	Pearson Correlation	—	
	Sig. (2-tailed)		
	N		
Q11_3 Perceptions: Often experience food issues	Pearson Correlation	.267**	—
	Sig. (2-tailed)	<.001	
	N	278	

** Correlation is significant at the .01 level (2-tailed).

Correlations of Pretest Variables Comprising "Normalcy and Acceptability of Food Insecurity Composite Score"

		Q12_1_Reverse Perceptions: Hunger sometimes normal	Q12_2 Perceptions: Never okay starving student
Q12_1_Reverse Perceptions: Hunger sometimes normal	Pearson Correlation	—	
	Sig. (2-tailed)		
	N		
Q12_2 Perceptions: Never okay starving student	Pearson Correlation	.075	—
	Sig. (2-tailed)	.188	
	N	311	

Correlations of Post-Test Variables Comprising "Knowledge of Pantry Composite Score"

		Q3_1 Knowledge: Pantry located	Q3_2 Knowledge: Pantry open	Q3_3 Knowledge: Pantry eligible	Q3_4 Knowledge: Pantry food options	Q3_5 Knowledge: Pantry food amount
Q3_1 Knowledge: Pantry located	Pearson Correlation	—				
	Sig. (2-tailed)					
	N					
Q3_2 Knowledge: Pantry open	Pearson Correlation	.725**	—			
	Sig. (2-tailed)	<.001				
	N	525				
Q3_3 Knowledge: Pantry eligible	Pearson Correlation	.651**	.711**	—		
	Sig. (2-tailed)	<.001	<.001			
	N	526	525			
Q3_4 Knowledge: Pantry food options	Pearson Correlation	.595**	.675**	.672**	—	
	Sig. (2-tailed)	<.001	<.001	<.001		
	N	525	524	525		
Q3_5 Knowledge: Pantry food amount	Pearson Correlation	.608**	.729**	.725**	.768**	—
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	
	N	524	523	524	523	

** Correlation is significant at the .01 level (2-tailed).

Correlations of Post-Test Variables Comprising "Willingness to Use Pantry Composite Score"

		Q13_1 Willingness: Encourage friend to go	Q13_2 Willingness: Go when low on groceries	Q13_3 Willingness: Go when haven't eaten all day
Q13_1 Willingness: Encourage friend to go	Pearson Correlation	—		
	Sig. (2-tailed)			
	N			
Q13_2 Willingness: Go when low on groceries	Pearson Correlation	.602**	—	
	Sig. (2-tailed)	<.001		
	N	503		
Q13_3 Willingness: Go when haven't eaten all day	Pearson Correlation	.497**	.713**	—
	Sig. (2-tailed)	<.001	<.001	
	N	493	489	

** Correlation is significant at the .01 level (2-tailed).

Correlations of Post-Test Variables Comprising "Prevalence of Food Insecurity Composite Score"

		Q12_3_Reverse Perceptions: Almost always enough food	Q11_3 Perceptions: Often experience food issues
Q12_3_Reverse Perceptions: Almost always enough food	Pearson Correlation	—	
	Sig. (2-tailed)		
	N		
Q11_3 Perceptions: Often experience food issues	Pearson Correlation	.246**	—
	Sig. (2-tailed)	<.001	
	N	438	

** Correlation is significant at the .01 level (2-tailed).

Correlations of Post-Test Variables Comprising "Normalcy and acceptability of Food Insecurity Composite Score"

		Q12_1_Reverse Perceptions: Hunger sometimes normal	Q12_2 Perceptions: Never okay starving student
Q12_1_Reverse Perceptions: Hunger sometimes normal	Pearson Correlation	—	
	Sig. (2-tailed)		
	N		
Q12_2 Perceptions: Never okay starving student	Pearson Correlation	.051	—
	Sig. (2-tailed)	.256	
	N	498	

Correlations of Post-Test Variables Comprising "Pantry Structural Aspects: Food"

		Q9c_1 Pantry full (not empty)	Q9c_2 Pantry food fresh (not expired)	Q9c_3 Pantry food options I like	Q9c_4 Pantry food amount good
Q9c_1 Pantry full (not empty)	Pearson Correlation	—			
	Sig. (2-tailed)				
	N				
Q9c_2 Pantry food fresh (not expired)	Pearson Correlation	.490**	—		
	Sig. (2-tailed)	<.001			
	N	297			
Q9c_3 Pantry food options I like	Pearson Correlation	.518**	.599**	—	
	Sig. (2-tailed)	<.001	<.001		
	N	292	302		
Q9c_4 Pantry food amount good	Pearson Correlation	.622**	.584**	.731**	—
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	280	286	286	

** Correlation is significant at the .01 level (2-tailed).

Correlations of Post-Test Variables Comprising "Pantry Structural Aspects: Employees, Location, Interior, Hours"

		Q9b_3 Pantry employees helpful	Q9b_4 Pantry employees welcoming	Q9a_1 Pantry easy to get to	Q9a_2 Pantry private location	Q9b_1 Pantry well organized	Q9a_3 Pantry hours are clear	Q9a_4 Pantry hours work well for me
Q9b_3 Pantry employees helpful	Pearson Correlation	—						
	Sig. (2-tailed)							
	N							
Q9b_4 Pantry employees welcoming	Pearson Correlation	.891**	—					
	Sig. (2-tailed)	<.001						
	N	315						
Q9a_1 Pantry easy to get to	Pearson Correlation	.681**	.606**	—				
	Sig. (2-tailed)	<.001	<.001					
	N	314	315					
Q9a_2 Pantry private location	Pearson Correlation	.562**	.471**	.546**	—			
	Sig. (2-tailed)	<.001	<.001	<.001				
	N	302	303	396				
Q9b_1 Pantry well organized	Pearson Correlation	.796**	.789**	.686**	.564**	—		
	Sig. (2-tailed)	<.001	<.001	<.001	<.001			
	N	303	304	309	299			
Q9a_3 Pantry hours are clear	Pearson Correlation	.722**	.663**	.704**	.539**	.693**	—	
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001		
	N	309	312	397	382	306		
Q9a_4 Pantry hours work well for me	Pearson Correlation	.545**	.535**	.520**	.336**	.548**	.546**	—
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	
	N	304	306	370	362	304	380	

** Correlation is significant at the .01 level (2-tailed).

Appendix U

Raw Data of Pantry Visitors by Week

Week	Fall 2022	Spring 2023	Fall 2023	Spring 2024	Fall 2024
1	409	333	473	344	392
2	385	285	429	463	430
3	440	309	508	497	549
4	477	317	528	497	547
5	481	315	551	267	527
6	468	307	588	531	487
7	327	341	493	476	504
8	415	286	510	449	480
9	402	259	508	492	515
10	360	156	470	434	474
11	397	319	376	465	498
12	398	359	440	471	405
13	211	347	250	482	391
14	382	334	505	480	225
15	424	562	390	390	386
16	187	536	281	134	279
Total	6163	5365	7300	6872	7089
Mean	385	335	456	430	443
Median	400	318	483	468	477

Appendix V

Descriptive Statistics of Student Survey Questions by Construct

Knowledge of the Food Pantry (Q2 and Q3)

Survey Group	Question/Variable	*n*	Pre-Test Mean	*n*	Post-Test Mean	Answer Value Range	Question Content
Partial Treatment Group	2_2			272	1.04 (0.20)	1–2	Available: Food pantry
	3_1			254	3.15 (1.04)	1–4	Knowledge: Pantry located
	3_2			254	2.74 (0.97)	1–4	Knowledge: Pantry open
	3_3			254	3.03 (0.99)	1–4	Knowledge: Pantry eligible
	3_4			253	2.72 (0.96)	1–4	Knowledge: Pantry food options
	3_5			253	2.69 (0.99)	1–4	Knowledge: Pantry food amount
	Knowledge Composite			252	2.87 (0.85)	1–4	N/A
Full Treatment Group	2_2	156	1.04 (0.21)	136	1.04 (0.21)	1–2	Available: Food pantry
	3_1	147	3.26 (0.94)	128	3.20 (1.02)	1–4	Knowledge: Pantry located
	3_2	147	2.82 (0.88)	127	2.86 (0.92)	1–4	Knowledge: Pantry open
	3_3	147	2.95 (0.86)	128	3.05 (0.96)	1–4	Knowledge: Pantry eligible
	3_4	146	2.67 (0.85)	128	2.76 (0.95)	1–4	Knowledge: Pantry food options
	3_5	147	2.65 (0.88)	128	2.68 (1.05)	1–4	Knowledge: Pantry food amount
	Knowledge Composite	146	2.87 (0.72)	127	2.92 (0.86)	1–4	N/A
	2_2	178	1.04 (0.21)	152	1.04 (0.20)	1–2	Available: Food pantry

Control Group	3_1	166	3.30 (0.97)	144	3.37 (0.90)	1–4	Knowledge: Pantry located
	3_2	166	2.89 (0.97)	144	2.86 (0.93)	1–4	Knowledge: Pantry open
	3_3	166	3.05 (0.97)	144	3.00 (0.92)	1–4	Knowledge: Pantry eligible
	3_4	166	2.70 (0.92)	144	2.78 (0.89)	1–4	Knowledge: Pantry food options
	3_5	166	2.7 (1.00)	143	2.76 (0.99)	1–4	Knowledge: Pantry food amount
	Knowledge Composite	166	2.93 (0.83)	143	2.95 (0.79)	1–4	N/A

Note. Standard deviations are in parentheses.

Postcard Intervention (Q4a and Q4b)

Survey Group	Question/Variable	*n*	Pre-Test Mean	*n*	Post-Test Mean	Answer Value Range	Question Content
Partial Treatment Group	4a			212	1.51 (0.50)	1–2	Knowledge of postcard
	4b_1			96	3.03 (0.86)	1–4	Postcard informative
	4b_2			98	3.23 (0.94)	1–4	Postcard comfortable visiting
Full Treatment Group	4a			108	1.53 (0.50)	1–2	Knowledge of postcard
	4b_1			42	2.88 (0.94)	1–4	Postcard informative
	4b_2			47	3.19 (0.85)	1–4	Postcard comfortable visiting
Control Group	4a			113	1.88 (0.320)	1–2	Knowledge of postcard
	4b_1			11	3.36 (0.92)	1–4	Postcard informative
	4b_2			11	3.36 (0.92)	1–4	Postcard comfortable visiting

Note. Standard deviations are in parentheses.

Self-Reported Usage of the Food Pantry (Q5 and Q6)

Survey Group	Question/Variable	*n*	Pre-Test Mean	*n*	Post-Test Mean	Answer Value Range	Question Content
Partial Treatment Group	5			253	1.46 (0.50)	1–2	Visited pantry ever
	6			133	2.24 (1.15)	1–6	Pantry visits this semester
Full Treatment Group	5	146	1.50 (0.50)	126	1.52 (0.50)	1–2	Visited pantry ever
	6	73	2.12 (1.03)	57	3.00 (1.68)	1–6	Pantry visits this semester
Control Group	5	163	1.48 (0.50)	141	1.46 (0.50)	1–2	Visited pantry ever
	6	80	2.13 (0.88)	75	2.51 (1.25)	1–6	Pantry visits this semester

Note. Standard deviations are in parentheses.

Perceptions of Pantry Design (Q9a, Q9b and Q9c): Part 1

Survey Group	Question/Variable	*n*	Pre-Test Mean	*n*	Post-Test Mean	Answer Value Range	Question Content
Partial Treatment Group	9a_1			203	3.27 (0.80)	1–4	Pantry easy to get to
	9a_2			198	3.19 (0.79)	1–4	Pantry private location
	9a_3			208	3.15 (0.81)	1–4	Pantry hours are clear
	9a_4			192	2.76 (0.91)	1–4	Pantry hours work for me
	9b_1			156	3.32 (0.77)	1–4	Pantry well organized
	9b_2			151	3.03 (0.87)	1–4	Pantry nicely decorated
	9b_3			157	3.36 (0.83)	1–4	Pantry employees helpful
	9b_4			159	3.36 (0.81)	1–4	Pantry employees welcoming
	9c_1			148	3.03 (0.76)	1–4	Pantry full (not empty)
	9c_2			152	3.07 (0.78)	1–4	Pantry food fresh (not expired)
	9c_3			156	2.84 (0.77)	1–4	Pantry food options I like
	9c_4			148	2.93 (0.79)	1–4	Pantry food amount good
	Food composite			140	2.97 (0.66)	1–4	N/A
	Staff, location, interior, hours composite			141	3.20 (0.71)	1–4	N/A

Note. Standard deviations are in parentheses.

Perceptions of Pantry Design (Q9a, Q9b and Q9c): Part 2

Survey Group	Question/Variable	*n*	Pre-Test Mean	*n*	Post-Test Mean	Answer Value Range	Question Content
Full Treatment Group	9a_1			105	3.29 (0.74)	1–4	Pantry easy to get to
	9a_2			98	3.29 (0.79)	1–4	Pantry private location
	9a_3			103	3.22 (0.73)	1–4	Pantry hours are clear
	9a_4			99	2.86 (0.92)	1–4	Pantry hours work for me
	9b_1			69	3.46 (0.72)	1–4	Pantry well organized
	9b_2			67	3.33 (0.73)	1–4	Pantry nicely decorated
	9b_3			67	3.55 (0.72)	1–4	Pantry employees helpful
	9b_4			68	3.54 (0.72)	1–4	Pantry employees welcoming
	9c_1			67	3.15 (0.68)	1–4	Pantry full (not empty)
	9c_2			69	3.19 (0.81)	1–4	Pantry food fresh (not expired)
	9c_3			68	3.07 (0.72)	1–4	Pantry food options I like
	9c_4			60	3.18 (0.68)	1–4	Pantry food amount good
	Food composite			59	3.14 (0.58)	1–4	N/A
	Staff, location, interior, hours composite			57	3.39 (0.68)	1–4	N/A

Note. Standard deviations are in parentheses.

Perceptions of Pantry Design (Q9a, Q9b and Q9c): Part 3

Survey Group	Question/Variable	*n*	Pre-Test Mean	*n*	Post-Test Mean	Answer Value Range	Question Content
Control Group	9a_1			118	3.41 (0.70)	1–4	Pantry easy to get to
	9a_2			110	3.34 (0.69)	1–4	Pantry private location
	9a_3			110	3.28 (0.77)	1–4	Pantry hours are clear
	9a_4			99	3.02 (0.85)	1–4	Pantry hours work for me
	9b_1			87	3.41 (0.62)	1–4	Pantry well organized
	9b_2			86	3.20 (0.65)	1–4	Pantry nicely decorated
	9b_3			92	3.50 (0.66)	1–4	Pantry employees helpful
	9b_4			92	3.48 (0.70)	1–4	Pantry employees welcoming
	9c_1			85	3.05 (0.74)	1–4	Pantry full (not empty)
	9c_2			92	3.17 (0.72)	1–4	Pantry food fresh (not expired)
	9c_3			91	2.95 (0.62)	1–4	Pantry food options I like
	9c_4			82	3.04 (0.76)	1–4	Pantry food amount good
	Food composite			78	3.07 (0.60)	1–4	N/A
	Staff, location, interior, hours composite			77	3.41 (0.54)	1–4	N/A

Note. Standard deviations are in parentheses.

Perceptions of the Prevalence of Food Insecurity (Q11_3 and Q12_3_Reverse)

Survey Group	Question/Variable	*n*	Pre-Test Mean	*n*	Post-Test Mean	Answer Value Range	Question Content
Partial Treatment Group	11_3			236	3.35 (0.68)	1–4	Perceptions: Often experience food issues
	12_3			222	2.13 (0.82)	1–4	Perceptions: Almost always enough food
	Prevalence composite			211	3.12 (0.59)	1–4	N/A
Full Treatment Group	11_3	142	3.46 (0.60)	117	3.43 (0.61)	1–4	Perceptions: Often experience food issues
	12_3	140	2.02 (0.73)	114	2.09 (0.71)	1–4	Perceptions: Almost always enough food
	Prevalence composite	131	3.21 (0.53)	104	3.17 (0.55)	1–4	N/A
Control Group	11_3	169	3.46 (0.60)	132	3.45 (0.53)	1–4	Perceptions: Often experience food issues
	12_3	152	1.93 (0.65)	130	2.14 (0.72)	1–4	Perceptions: Almost always enough food
	Prevalence composite	147	3.29 (0.51)	123	3.17 (0.49)	1–4	N/A

Note. Standard deviations are in parentheses.

Perceptions of the Normalcy and Acceptability of Food Insecurity (Q12_1_Reverse and Q12_2)

Survey Group	Question/Variable	*n*	Pre-Test Mean	*n*	Post-Test Mean	Answer Value Range	Question Content
Partial Treatment Group	12_1			245	2.76 (0.90)	1–4	Perceptions: Hunger sometimes normal
	12_2			246	3.54 (0.74)	1–4	Perceptions: Never okay starving student
	Normalcy and acceptability composite			238	2.90 (0.58)	1–4	N/A
Full Treatment Group	12_1	149	2.77 (0.91)	128	2.72 (0.76)	1–4	Perceptions: Hunger sometimes normal
	12_2	152	3.67 (0.64)	130	3.56 (0.72)	1–4	Perceptions: Never okay starving student
	Normalcy and acceptability composite	146	2.95 (0.54)	127	2.92 (0.55)	1–4	N/A
Control Group	12_1	167	2.60 (0.88)	135	2.77 (0.86)	1–4	Perceptions: Hunger sometimes normal
	12_2	176	3.62 (0.70)	140	3.56 (0.67)	1–4	Perceptions: Never okay starving student
	Normalcy and acceptability composite	165	3.01 (0.61)	133	2.89 (0.59)	1–4	N/A

Note. Standard deviations are in parentheses.

Willingness to Use the Pantry (Q8 and Q13)

Survey Group	Question/Variable	*n*	Pre-Test Mean	*n*	Post-Test Mean	Answer Value Range	Question Content
Partial Treatment Group	8			103	1.02 (0.14)	1–2	Willingness: Return to pantry
	13_1			252	3.67 (0.59)	1–4	Willingness: Encourage friend to go
	13_2			241	3.42 (0.74)	1–4	Willingness: Go when low on groceries
	13_3			244	3.34 (0.80)	1–4	Willingness: Go when haven't eaten all day
	Willingness composite			236	3.48 (0.63)	1–4	N/A
Full Treatment Group	8	54	1.02 (0.14)	47	1.04 (0.20)	1–2	Willingness: Return to pantry
	13_1	150	3.77 (0.42)	129	3.71 (0.46)	1–4	Willingness: Encourage friend to go
	13_2	144	3.35 (0.76)	127	3.46 (0.76)	1–4	Willingness: Go when low on groceries
	13_3	138	3.25 (0.88)	122	3.40 (0.76)	1–4	Willingness: Go when haven't eaten all day
	Willingness composite	133	3.49 (0.56)	121	3.55 (0.52)	1–4	N/A
Control Group	8	59	1.02 (0.13)	60	1.02 (0.13)	1–2	Willingness: Return to pantry
	13_1	174	3.73 (0.50)	141	3.65 (0.56)	1–4	Willingness: Encourage friend to go
	13_2	168	3.34 (0.74)	138	3.37 (0.74)	1–4	Willingness: Go when low on groceries
	13_3	165	3.22 (0.85)	132	3.27 (0.86)	1–4	Willingness: Go when haven't eaten all day

	Willingness composite	154	3.48 (0.57)	129	3.35 (0.61)	1–4	N/A

Note. Standard deviations are in parentheses.

Other Survey Questions: Often Use Appliances (Q14)

Survey Group	Question/Variable	*n*	Pre-Test Mean	*n*	Post-Test Mean	Answer Value Range	Question Content
Full Treatment Group	14_1	155	0.37 (0.49)			0–1	Often use: Electric kettle (water boiler)
	14_2	155	0.71 (0.46)			0–1	Often use: Freezer
	14_3	155	0.86 (0.34)			0–1	Often use: Microwave
	14_4	155	0.74 (0.44)			0–1	Often use: Oven or toaster oven
	14_5	155	0.92 (0.28)			0–1	Often use: Refrigerator
	14_6	155	0.77 (0.42)			0–1	Often use: Stovetop of electric skillet
Control Group	14_1	179	0.40 (0.49)			0–1	Often use: Electric kettle (water boiler)
	14_2	179	0.72 (0.45)			0–1	Often use: Freezer
	14_3	179	0.87 (0.34)			0–1	Often use: Microwave
	14_4	179	0.66 (0.48)			0–1	Often use: Oven or toaster oven
	14_5	179	0.91 (0.29)			0–1	Often use: Refrigerator
	14_6	179	0.74 (0.44)			0–1	Often use: Stovetop of electric skillet

Note. Standard deviations are in parentheses.

Other Survey Questions: Other Food Resources Used (Q34)

Survey Group	Question/Variable	*n*	Pre-Test Mean	*n*	Post-Test Mean	Answer Value Range	Question Content
Partial Treatment Group	34_1			244	0.26 (0.44)	0–1	Other food resources: CalFresh (SNAP) program
	34_2			244	0.04 (0.19)	0–1	Other food resources: WIC program
	34_3			244	0.11 (0.32)	0–1	Other food resources: Off-campus food pantry
	34_4			244	0.02 (0.13)	0–1	Other food resources: Other
Full Treatment Group	34_1	147	0.22 (0.42)	115	0.24 (0.43)	0–1	Other food resources: CalFresh (SNAP) program
	34_2	147	0.06 (0.24)	115	0.03 (0.18)	0–1	Other food resources: WIC program
	34_3	147	0.07 (0.25)	115	0.1 (0.30)	0–1	Other food resources: Off-campus food pantry
	34_4	147	0.03 (0.18)	115	0.01 (0.09)	0–1	Other food resources: Other
Control Group	34_1	167	0.26 (0.44)	140	0.24 (0.43)	0–1	Other food resources: CalFresh (SNAP) program
	34_2	167	0.05 (0.21)	140	0.02 (0.15)	0–1	Other food resources: WIC program
	34_3	167	0.07 (0.25)	140	0.07 (0.26)	0–1	Other food resources: Off-campus food pantry
	34_4	167	0.03 (0.17)	140	0.03 (0.17)	0–1	Other food resources: Other

Note. Standard deviations are in parentheses.

Appendix W

Coded Excerpts from the Post-Test Student Survey

Student responses to the two write-in questions are unmodified and may include spelling and/or grammar errors.

Q35. What are two ways that the pantry is doing a good job?

Food

- Options/variety/availability (32 mentions)
  - In general (16 respondents)
    - Plentiful options that encourage creativity.
    - Helpful staff and selection
    - Fresh produce every week, Some new items every week are available
    - It … maintains various kinds of foods.
    - I know very little, but from what I have heard from friends the pantry has a good variety of foods.
    - providing good food options
    - Good selection of food and produce
    - An option between chunk tuna or flake tuna, that was nice to be able to make a choice.
    - I really enjoyed the pantry having bread and vegetables because it was a huge barrier when having to pay for some at the grocery store, so it would be nice to have this more consistently.
    - Great service and food options.
    - Keeping consistent options available. Always have multiple goods in stock.
    - I see different vegetables, boxed, and canned food that I wouldn't ordinarily get when I go grocery shopping. So I guess in a way it helps me have more nutritionally diverse groceries.
    - I think the food pantry offers a variety of food options, especially considering the room isn't that big.
    - Food availability
    - accommodating the food we like
    - Decent Pantry selection with a variety macro and micro nutrients.
  - Produce (12 respondents)
    - Fresh produce every week, Some new items every week are available
    - Almost everything, especially providing produces.
    - they have lots of vegetables
    - Good selection of food and produce
    - I really enjoyed the pantry having bread and vegetables because it was a huge barrier when having to pay for some at the grocery store, so it would be nice to have this more consistently.
    - they have fresh food

        - - supplying fresh veggies
        - Providing Fresh Produce
        - Providing fruits and vegetables
        - Allows students to take as much produce as we need.
        - having fresh fruit and vegetables available
        - Having produce because I love fresh produce.
    - Staples (3 respondents)
        - have staples like beans and rice
        - Stocking up every week on staple items
        - Consistent supply of rice and dried beans
    - Bread (1 respondent)
        - I really enjoyed the pantry having bread and vegetables because it was a huge barrier when having to pay for some at the grocery store, so it would be nice to have this more consistently.
- Amount (13 mentions)
    - Food in stock (9 respondents)
        - Having tons of food.
        - Always having something there to pick up when I visited during Summer.
        - They have a lot of food
        - large amount of food
        - 2. I'm sure it's always stocked
        - Organizing food, restocking food quickly
        - Stocking up every week on staple items
        - Consistent supply of rice and dried beans
        - Consistent stock
    - Food to take home (4 respondents)
        - They provide students with a good amount while making sure to have enough to provide for others.
        - large amount of food
        - One way the food pantry is doing a good job is by providing enough food for students.
        - Allows students to take as much produce as we need.
- Food quality (12 mentions)
    - Nutritious/healthy (8 respondents)
        - The food pantry effectively distributes nutritious meals to those in need, ensuring no one goes hungry.
        - It gives proper healthy foods that don't have crazy ingredients.
        - Having balanced foods
        - Always providing fresh nutritional foods
        - I see different vegetables, boxed, and canned food that I wouldn't ordinarily get when I go grocery shopping. So I guess in a way it helps me have more nutritionally diverse groceries.
        - Providing healthy and sustainable options

        - Providing students healthy alternatives, Helping students receive basic food necessities/nutrition
        - Decent Pantry selection with a variety macro and micro nutrients.
    - Fresh/not expired (4 respondents)
        - most of the time the food isn't expired
        - they have fresh food
        - The food/sanitary supplies are always clean and fresh
        - Always providing fresh nutritional foods

Staff

- Nice/Friendly/Kind (15 respondents)
    - the workers are very nice
    - Staff is helpful and friendly
    - friendly people
    - Friendly service.
    - friendly and helpful staff
    - They are helpful and friendly
    - Friendly employees
    - - nice employees
    - Having … kind staff.
    - the Staff is friendly and helpful.
    - The staff is always kind and thoughtful
    - Another way is by the staff being helpful and kind towards students
    - being nice
    - helpful/friendly staff
    - by remaining kind, private and nonintrusive so that there is less stigma and shame when using the resources
- Helpful (12 respondents)
    - Helpful staff and selection
    - Staff is helpful and friendly
    - helpful and informative workers.
    - friendly and helpful staff
    - -the staff is helpful when providing assistance
    - They … are very helpful
    - They are helpful and friendly
    - employees are helpful
    - the Staff is friendly and helpful.
    - Another way is by the staff being helpful and kind towards students
    - - workers give helpful answers to questions
    - helpful/friendly staff
- Welcoming (8 respondents)
    - In advertising the food pantry and making people feel not ashamed of going by being welcoming through the cards and staff.
    - welcoming every student

    - They are welcoming to students.
    - Being extremely welcoming…
    - It is always openly inviting students every time I come across the food pantry.
    - Promoting the program and trying to welcome students who need to use it.
    - Welcoming
    - Making students feel welcome when they visit.
- <u>General (2 respondents)</u>
    - they have people who can help you gather food
    - Great service and food options.
- <u>Other (3 respondents)</u>
    - The staff is always kind and thoughtful
    - by remaining kind, private and nonintrusive so that there is less stigma and shame when using the resources
    - helpful and informative workers

Performing its primary function (24 respondents)

- Feeding people in need.
- I have seen many come to the food pantry and take what they need which shows how helpful it is to many students.
- The food pantry effectively distributes nutritious meals to those in need, ensuring no one goes hungry.
- It helps the students who are in need of food
- It is allowing students to have free meals and making easily assesible.
- , providing food
- Helping the students
- I'm not sure other than it helps students
- feeding people that need it
- Giving out food on campus.
- They are providing food for the people who don’t have enough food to eat.
- By providing free food for hungry students.
- 1. They offer food to students that need it
- By giving resources to those who may not have the food and providing for the community as much as possible.
- The services they offer
- supplies food for student.
- Providing food and being accepting.
- Always keeping students fed
- One way the food pantry is doing a good job is by providing enough food for students.
- My staying stocked up and buy offering something to drink and eat as you go to class
- by being an option for students that need any help given with food sources.
- They offer food for anyone that needs it
- Providing students healthy alternatives, Helping students receive basic food necessities/nutrition
- Providing food

Outreach/Communication (18 respondents, 23 mentions)

- General (9 respondents)
    - awareness of the pantry's availability and services
    - I think the food pantry is doing a good job of making students like myself aware of its existence.
    - Being extremely welcoming and open with information
    - spreading awareness of this resource to students.
    - Promoting the program and trying to welcome students who need to use it.
    - advertising the resources for students
    - outreach
    - -the food pantry does a great job at promoting
    - Very helpful and informative
- Emails (4 respondents)
    - The constant communication and reaching out, as someone who has yet to go themself I am amazed at how many times they have contacted me thru email or postcards
    - Food pantry puts out many messages and posters for people to know about them.
    - I do receive a lot of emails about visiting which is nice but I don't know where it's located.
    - They always communicate their times either through email or through the card they hand out.
- Postcards (4 respondents)
    - The food pantry has done a great job at letting people know that it is an option. I've received things in the mail for it and regularly see advertisements for it on campus.
    - The constant communication and reaching out, as someone who has yet to go themself I am amazed at how many times they have contacted me thru email or postcards
    - Postcard was extremely helpful.
    - In advertising the food pantry and making people feel not ashamed of going by being welcoming through the cards and staff.
- Other (6 respondents)
    - The food pantry has done a great job at letting people know that it is an option. I've received things in the mail for it and regularly see advertisements for it on campus.
    - They always communicate their times either through email or through the card they hand out.
    - Food pantry puts out many messages and posters for people to know about them.
    - Social media updates

    - I like when they do that thing when they set up in the library quad. Whenever I sew them do that I remember that I as a [CAMPUS NAME] student have access to the food pantry.
    - hours are easy to find online.

Pantry descriptors (16 respondents, 16 mentions)

- Available to all (6 respondents)
    - they have a variety of food for everyone
    - Making the resource available to many
    - Providing to anyone who needs resources despite situation
    - They make sure the resource is available to many students.
    - Being readily available
    - by being an option for students that need any help given with food sources.
- General (6 respondents)
    - Overall, everything is very nicely done.
    - Almost everything…
    - Very helpful and informative
    - Reliability
    - Quality
    - its ok
- Reputation (4 respondents)
    - I honestly can't give an answer I never been to the food pantry but I have heard a lot of good things about.
    - Having a good heart
    - I know very little, but from what I have heard from friends the pantry has a good variety of foods.
    - 2. I'm sure it's always stocked

Location (11 respondents, 11 mentions)

- Accessibility (8 respondents)
    - making [free meals] easily assesible.
    - Easily accessible for those in need
    - that its easy to get to
    - Easily Accessible
    - easy to go in
    - it's easy to access!
    - easy to access food.
    - that its easy to get to
- General (1 respondent)
    - a good location
- Findable (1 respondent)
    - It's relatively easy to find
- Privacy (1 respondent)

    - by remaining kind, private and nonintrusive so that there is less stigma and shame when using the resources

Interior (10 respondents)

- Organized (9 respondents)
    - good organizing so that it really easy for students to get
    - organizing
    - organized pantry
    - Organization
    - keeping it organized
    - Organization
    - Organizing well
    - It is well organized
    - Organizing food, restocking food quickly
- Other (1 respondent)
    - Clean and tidy

Process (7 respondents)

- The food pantry effectively distributes nutritious meals to those in need, ensuring no one goes hungry.
- having limits on certain items allows for more students to access them.
- Follows safety protocols well.
- easy to go in
- - very organized system; get in and out; never too crowded inside the pantry, they make people wait in a line
- efficient process to sign up
- good organizing so that it really easy for students to get

Performing more than its primary function (6 respondents, 7 mentions)

- Other amenities (4 respondents)
    - supplies basic tampons condums ect.
    - Offering cookbook resources and other amenities outside of food (condoms, hygiene products, women's menstrual)
    - They’re providing diapers and stuff for the people to use like diapers, shampoo, and stuff.
    - The food/sanitary supplies are always clean and fresh
- Reading materials (2 respondents)
    - Book library checkout is included which includes additional reading material such as nutritional planning and textbooks used in culinary fields for home based culinary theory expertise.
    - Offering cookbook resources and other amenities outside of food (condoms, hygiene products, women's menstrual)
- General (1 respondents)

    - It fosters a supportive community by offering resources and assistance beyond just food, addressing broader needs.

Hours (5 respondents)
- organized hours
- I think the food pantry has good hours
- The one day a week they are open later, I have an internship and 2 part time jobs, staying open until 6 is very helpful.
- Being open
- hours are easy to find online.

Destigmatizing (4 respondents)
- In advertising the food pantry and making people feel not ashamed of going by being welcoming through the cards and staff.
- reducing the stigma around food insecurity
- I think the food pantry does a good job of lessening the stigma of food pantries for college student
- by remaining kind, private and nonintrusive so that there is less stigma and shame when using the resources

Lockers (4 respondents)
- Offering pick up pantry
- offering pick up at the booths
- Get the order ready to be pick up
- Love that there is a locker to be able to pick up resources.

Other (3 respondents)
- Good advocates for lesser known products ("Not Milk" milk alternarive)
- The pantry needs to have an expired food on the shelves. They need to spend money on the food fresh not just vegetables not just food for the rabbits but meat eggs milk, not expired stuff. Would you eat that expired stuff yourself so throw it away and get new stuff I don't care how you guys get the money but do it.
- Providing food and being accepting.

Q36. What are two ways that the pantry can be improved?

Food
- <u>Options/Variety/Availability (64 mentions)</u>
    - <u>In general (17 respondents)</u>
        - More variety of foods
        - more food options and expanding open hours
        - Wider range of food options besides canned food
        - More of a variety of food and produce.
        - More variations and that's it

        - open hours, more options
        - have more options perhaps of foods also
        - offer more options and wider availability
        - A little more variety throughout the semester (though I understand that can be limited). Fridge/freezer items would be nice to have available.
        - Verioaty
        - More options
        - Provide more food choices.
        - Adding more variety
        - Can be approved with more options but overall good service
        - Food options and open hours
        - variety, vegetables
        - More variety
    - Produce (13 respondents)
        - 2. Expand food variety to include more fresh produce and culturally diverse options to better serve the community.
        - there are limited options for fresh fruits and veggies and no other refrigerated items available such as dairy items and meat
        - need spices and more fruits option
        - - Having fruit would be nice, even if the variety was limited by the season or dried
        - variety, vegetables
        - More of a variety of food and produce.
        - There also is much in the way of fruits and veggies by the time I get there on Wednesdays.
        - More perishable food
        - more vegetables that are fresh
        - more fruits
        - Variety of vegetables, or filler vegetables to extend meals. Would like to see also more variety of fruit. Also keep in mind this was during Summer so I do not know if this was an issue during the Fall 2024 semester
        - i wish it … had a wider variety of vegetables and fruits.
        - I wish there were better options in produce and dairy.
    - Protein (8 respondents)
        - - more protein sources
        - Macro and Micro nutrients are great, but more protein solutions are necessary.
        - 2. Also, adding Powdered milk and eggs or egg substitution would be nice.
        - need protein option
        - Maybe adding some chicken or eggs, ground beef …
        - there are limited options for fresh fruits and veggies and no other refrigerated items available such as dairy items and meat
        - maintain staples like milk, canned goods, eggs, etc.

        - By getting money from the school and buying fresh food meat eggs, milk cans that are not expired.
    - Dairy (7 respondents)
        - there are limited options for fresh fruits and veggies and no other refrigerated items available such as dairy items and meat
        - maintain staples like milk, canned goods, eggs,etc.
        - 2. Also, adding Powdered milk and eggs or egg substitution would be nice.
        - By getting money from the school and buying fresh food meat eggs, milk cans that are not expired.
        - No, you guys get some money from the potty and get some good food in there some meat, some milk, some soda, some water some snacks.
        - I wish there were better options in produce and dairy.
        - maintain staples like milk, canned goods, eggs, etc.
    - Ready meals (5 respondents)
        - Extended hours, fresh lunch options.
        - more food i feel like they don't have food u can heat up or eat right away it's good to make meals
        - Provide lunch meat and noodles snacks and drinks.
        - More easy-to-eat items for students who live in dorms and do not have access to kitchens.
        - i wish it had more single serve meal options
    - Snacks and drinks (3 respondents)
        - No, you guys get some money from the potty and get some good food in there some meat, some milk, some soda, some water some snacks.
        - Provide lunch meat and noodles snacks and drinks.
        - by offering something to eat and drink like coffee, hot chocolate or something cold to take with you to class so you can munch out while you're there in the classroom
    - Accommodate special diets (2 respondents)
        - -maybe include more vegan options for students
        - The food pantry(if not already done so) can provide more information to students who may not know of its contents and provide gluten free/halal foods to students.
    - Multicultural foods (2 respondents)
        - multi culture food
        - Another way can be by having ethnic food items as an option for students
        - 2. Expand food variety to include more fresh produce and culturally diverse options to better serve the community.
    - Meals to cook at home (2 respondents)
        - More options to create meals, it's currently just odds and ends and I can't do much.
        - - meal kits

    - Canned goods (2 respondents)
        - Maybe increasing canned vegetable options.
        - maintain staples like milk, canned goods, eggs, etc.
    - Other (3 respondents)
        - need spices and more fruits option
        - Including different brands
        - Carbs in the form of grains and pastas, as well as vegetables are adequate enough for everything else, beans ARE present, but perhaps, more variety *Soybeans*
- Food quality (13 mentions)
    - Fresher/not expired (9 respondents)
        - I've never been inside the pantry, but judging by the pictures and the occasional food giveaway in the quad, most of the food is boxed or canned. Some fresh food/ingredients would be a nice addition, although I understand these are less shelf-stable.
        - Keep the shelves, fresh and stocked with nothing outdated you wouldn't eat outdated food would you it isn't good for you. I wouldn't if I get something outdated I'll throw it away. I'm not gonna eat it cause it's not fair for you guys to have a food pantry from the Food bank and then give expired food. No, you guys get some money from the potty and get some good food in there some meat, some milk, some soda, some water some snacks.
        - Less expired foods
        - Having food with better expiration dates. It can allows us to store food longer and not having to worry it will expire before the next visit.
        - stocking more of fresh produce, checking the expire date of the products
        - more vegetables that are fresh
        - By getting money from the school and buying fresh food meat eggs, milk cans that are not expired. I don't care if you get it from the food pantry still not expired. Why should people have to eat expired food would you eat expired food yourself no, you wouldn't so throw it away if I go there and I see expired food I'm gonna throw it away. I don't care what you guys say. What you guys do so it's only fair if you guys are going to get food go buy the Food, and use the money, utilize the money take the money from the faculty whatever you have to do to get that money
        - Checking expiration dates, more fruits
        - By offering more products that are not expired
    - Nutritious/healthy (3 respondents)
        - have more foods that are high in protein and maybe less unhealthy foods
        - I would want more nutritious snacks and fruit juices.
        - Offering more healthy meals
    - General (1 respondent)
        - higher quality selection
- Amount (6 mentions)

- Food in stock (6 respondents)
  - Try to restock through the day. Many times I go later in the day and I don't find enough food because there aren't enough volunteers to do so. In order to get the food, I need to go as soon as the pantry opens.
  - Midweek shipments create a feeling of first come first serve for food items, meanwhile availability is better earlier in the
  - 1. More food! By the end of the week, when I am able to stop by, there is not much left. Possibly, team up with other more local distribution centers or factories to get mismarked or rejected products that are still good.
  - offer more options and wider availability
  - - sometimes there are no food by 1 which makes it harder for students with morning classes to get food
  - There also is much in the way of fruits and veggies by the time I get there on Wednesdays.

Outreach/Communication

- General (12 respondents)
  - More investment into student outreach; some of my friends that struggled with groceries were unaware of it as a student resource.
  - more information about it should be shared.
  - Making it more know because I feel a lot of students don't know about this opportunity.
  - More advertisement and welcoming.
  - Find a way to get more information out there for all students.
  - Allow more students to be knowledgeable about it.
  - Send more reminders of availability and location.
  - Making it be more known to students and perhaps also allowing immediate family to participate.
  - 1. Increase outreach efforts to ensure more people in need are aware of the pantry's services.
  - 1. I've been a student for 2 years and I only ever heard about the pantry within recent months.
  - Letting more students know about the food pantry, what is offers and the hours.
- How (16 mentions)
  - Social media (5 respondents)
    - Could start social media pages or be more active on any
    - Using your instagram more would help promote the food pantry more.
    - Be a bit more active with social media
    - More advertising though social media or a list of what is provided for the week.
    - I would say maybe making instagram posts about their pantry more and serving sample around campus often.
  - In-person events (4 respondents)
    - One way is by having more library quad pop ups.

        - events to get more people to participate
        - I think that a lot more people would feel more comfortable using it if there were events including it into campus. For example, maybe some farmers market style events in front of the library? More people would use it if they felt that it was normal and didn't feel shame in doing so.
        - I would say maybe making instagram posts about their pantry more and serving sample around campus often.
    - Emails (4 respondents)
        - 1. Share about it some more! Especially via email
        - Reach out to students in email with location and hours.
        - 2. More digital communication (mass email).
        - I think there should be more information on the food pantry. I have been a [CAMPUS NAME] student since 2018 and do not know where it is (I know I could look it up). Also, I loved the invitation to visit the pantry in the mail, I think more regular contact (either through mail, text, or email) would be beneficial.
    - Other (3 respondents)
        - I didn't know how to find the pantry at first, but once I did it's easy to spot. Just would be nice to have it on maps if it's not already.
        - Having more signage or more obvious signage as to where the food pantry is could be beneficial. Having a monthly newsletter or frequent reminders throughout the semester of the food pantry would help bring awareness to the resource.
        - I think there should be more information on the food pantry. I have been a [CAMPUS NAME] student since 2018 and do not know where it is (I know I could look it up). Also, I loved the invitation to visit the pantry in the mail, I think more regular contact (either through mail, text, or email) would be beneficial.
- Content (9 mentions)
    - Available foods (4 respondents)
        - Stating what foods are available
        - Advertising what is there for the week would be helpful (Ie, posting a weekly calendar of what would be there for that week.)
        - More advertising though social media or a list of what is provided for the week.
        - Letting more students know about the food pantry, what is offers and the hours.
    - Process (2 respondents)
        - When I first went to the food pantry I was a little anxious/nervous since I didn't know the process. So maybe having a visible sign outside to let students know what it's the way the food pantry works, could help. I know there's employees there that we can ask, but having to talk to someone added a little bit to my nerves.
        - Possibly a video outlining how to get to the food pantry on their website

    - Hours (2 respondents)
        - Letting more students know about the food pantry, what is offers and the hours.
        - clearer hours
    - Eligibility (1 respondents)
        - Also, I do not know how "needy" a student needs to be to visit the pantry and I don't want to take away opportunities from students who are struggling more than I am. Usually, I do have enough food to eat, it is often just very low in nutrients, or I rely on credit cards to get groceries by the end of each month.

Hours (20 respondents, 20 mentions)

- Longer (9 respondents)
    - By extending their hours and finding other ways students can access it
    - can be open for longer hours
    - more open hours
    - Hours can be increased. Friday hours would be very helpful!!
    - Longer hours (specifically in the evening)
    - *Extended hours*, fresh lunch options.
    - more food options and expanding open hours
    - Have more open hours and availability
    - Extend hours.
- General (5 respondents)
    - *open hours*, more options
    - Food options and open hours
    - better hours
    - Also, I could never get there during their hours because of classes
    - the hours are a bit limited, i have classes all day back to back and its sometimes hard to access during open hours
- Different hours (4 respondents)
    - maybe vary hours for students with tricky schedules
    - I also hope for better times for students that have night classes.
    - increase accessibility by providing additional hours
    - closing late
- Other (2 respondents)
    - More perishable food and more time slots
    - clearer hours

Interior too small (6 respondents)

- I would love it if the food pantry had a bigger room because sometimes it gets really pack inside and the lines become long to where it goes all the way out to the door.
- I believe the pantry is too small in size. If you could improve the size of the pantry that would be a lot more helpful, as multiple students can access the pantry instead of sending each person at a time.

- Size
- Larger space
- The size of the room could be bigger. I don't mean make the room bigger to increase the amount of food inside. But it can be a bit awkward/cramped waiting to go in the pantry and when I choose food from the pantry.
- Relocate the pantry to a roomier place

Process (5 respondents)

- Improve wait times
- Possibly a video outlining how to get to the food pantry on their website
- If someone takes more than allowed, how they are approached should be reconsidered.
- When I first went to the food pantry I was a little anxious/nervous since I didn't know the process. So maybe having a visible sign outside to let students know what it's the way the food pantry works, could help. I know there's employees there that we can ask, but having to talk to someone added a little bit to my nerves.
- - Offer a scale so I know how much produce I'm picking up. I can bring my own produce bags to pack them in.

Lockers (5 respondents)

- more lockers
- Increase the number of pantry lockers, or increase the days we can use them. Sometimes I find myself wanting to use the pantry lockers but all the times are taken up.
- more options for locker pick ups
- Offers more food options online
- Up to date google form to include miscellaneous items available for pick up.

No improvements (3 respondents)

- I can think of any improvements; This is a well maintained student food pantry that effectively meets the needs of its users.
- Most recent improvements covered prior concerns
- I am grateful for what I am provided and do not have complaints

Transporting the food (2 respondents)

- Having quick car access is valuable to using the pantry, carrying food to class or across campus is difficult.
- the location is far away from the parking structures and the food bags can get very heavy and awkward to carry to your car

Expand access/eligibility (2 respondents)

- Making it be more known to students and perhaps also allowing immediate family to participate.
- By extending their hours and finding other ways students can access it

Staff more welcoming (2 respondents)

- More advertisement and welcoming.
- Nicer staff (one particular employee made me feel uncomfortable after she found out I was gay).

Providing more than its primary function (2 respondents)

- Being able to use more sanitary items, maybe resources for Planned Parenthood for periods
- Providing more housing stuff.

Location (2 respondents)

- Location
- the location is far away from the parking structures and the food bags can get very heavy and awkward to carry to your car

Destigmatize (1 respondent)

- I think that a lot more people would feel more comfortable using it if there were events including it into campus. For example, maybe some farmers market style events in front of the library? More people would use it if they felt that it was normal and didn't feel shame in doing so.

Other (3 respondents, 3 mentions)

- I also think that they should carry can openers for people who dont have acess to them and also more pull tab cans
- 2. Advocate for it on campus
- Be more knowing of yourself

Appendix X

Analysis of the Intervention's Intentional Messaging